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The influence of clinical placement and experiential learning on student nurse development: an exploratory case study

Francis Donnelly RN, BNurs, MNurs, Grad Cert Ed (Higher Ed)

Grad Dip Intensive Care, MACN

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Abstract

The role of clinical placement and experiential learning in the education and preparation of nurses is complex and difficult to research. The outcomes of nursing education, particularly in relation to the care of patients in acute care settings, are equally challenging. This study was conducted to address the question, 'How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and nursing practice? The study describes the application of case study methodology to the experiences of sixteen graduate nurses within a large South Australian metropolitan hospital. Each participant (case) described through interview, their university and clinical placement experiences. A survey conducted at the same time as the interview focused on the participant's skills and knowledge of interventions for pressure area care, falls and pneumonia. This emphasis was to examine if the nature of the clinical placement experience was influential in developing the capabilities of graduate nurses. A range of analysis techniques including thematic analysis, parametric and non-parametric analysis and a unique approach using qualitative comparative analysis (QCA) enabled the formation of a case report. As the participants had attended various universities, a cross-case comparison was performed using a pattern matching technique. The findings of the study suggest there are a range of conditions, which in combination may contribute to a higher level of skill, knowledge and confidence. Of these conditions, the duration of placement has an important influence on the student's ability to form effective relationships with clinical education staff and to have an opportunity to provide nursing care through a range of nursing interventions. Of itself however the duration of placement may not be the most important influence in the development of graduate skills, knowledge and capacity to provide nursing care. Rather a combination of certain conditions including, effective feedback, a consistent mentoring

relationship with a clinical educator and exposure to a range of nursing care interventions may be more significant in the preparation of a graduate nurse. On the basis of the study findings, an argument is made for Complexity Theory to inform new ways of conceptualising the role of experiential learning and clinical placement in the education of future nurses.

Statement of Originality

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1 Chapter 1 - Introduction

Concern for man and his fate must always form the chief interest of all technical endeavors. Never forget this in the midst of your diagrams and equations.

Albert Einstein 1879 - 1955

Research into aspects of health education and particularly nurse education should arguably place the patient as the final authority of quality and success. Nursing research restricted to issues of 'pure' pedagogy or curriculum design, without consideration of the patient and their care, risks becoming detached from the reality of modern health. The most recent and significant review of education in nursing in Australia, Our Duty of Care, published in 2002, identified the diversity of issues facing nursing education and workforce planning issues. One of the most significant statements to come from a literature review commissioned to inform the review, was that '…the logical link between better patient care outcomes and …higher levels of education has not been adequately investigated' (McKinley et al. 2002, p222). With many diverse nursing curricula throughout Australia and the world, it is important to investigate which attributes of curricula have a positive correlation to graduates skills and knowledge and subsequently improved patient care. This study was conducted to address the question, 'How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and nursing practice?

The Australian health care system, especially in the domain of nursing education is experiencing significant challenges. The introduction and subsequent disbandment of

a federal agency, Health Workforce Australia, the rise of simulation technologies, uncertain graduate nurse employment opportunities and increasing numbers of clinical venues offering access to clinical placement experiences on a cost recovery basis, are topical issues.

Health Workforce Australia (HWA) was a federal government entity of which the '...key function of HWA is to support greater training capacity in the healthcare system by providing funding to support growth of clinical placements for professional entry health courses' (Health Workforce Australia, Adelaide, viewed 30 June 2012 <http://www.hwa.gov.au/work-programs/clinical-training-reform/clinical-training-placements>). This was seen to be a timely intervention as a recent HWA report warned that the Australian nursing workforce will soon face a deficiency of nurses with a predicted shortfall of almost 1/3 or 110,000 of the required nursing workforce by 2025. The HWA report, Health Workforce 2025 – Doctors, Nurses and Midwives – Volume 2, also identifies that one of the most significant challenges to addressing this need is '...obtaining clinical placements for students, to the extent it is impacting on students completing their education on schedule' (p225). While one of the stated aims of HWA was to increase placement capacity the report does not provide extensive or specific details as to how this issue will be addressed.

One of the broad strategies suggested by HWA to the increasing pressures on clinical education has been a further adoption of simulation in health care education. While simulation is likely to become a more established and essential component of the education of nursing students, Hall (2009) warns that advances in technology, such as simulation should not be considered a panacea to shortfalls in the experiential learning

provided by clinical placement. The Council of Deans of Nursing and Midwifery representing Australian and New Zealand schools of nursing has issued an advisory statement with a summary of the advantages and disadvantages of simulation technologies in nursing (Brown et al. 2012). Among a number of recommendations the advisory statement provides for an ongoing discussion of simulation, a technology the impact of which is subject to much research. How universities, placement agencies and industry accommodate simulation training in relation to supplementation or replacement of clinical placement is a work in progress. To accompany the discussion of emerging technologies however it is essential that some focus is maintained on the existing patterns and compositions of clinical placement. This study has sought out a more detailed understanding of how experiential learning during clinical placement was perceived by a number of nursing graduates.

The typical pathway for new graduate nurses from Australian universities is to seek out employment within a graduate nurse program (GNP), sometimes referred to as a transition to professional practice program (TPPP). The GNP is an opportunity for new graduates to transition to the professional expectations of a registered nurse with some level of in situ support. It is common for new graduates to seek out employment as clinicians directly responsible for patient care, a role The Australian Institute of Health and Welfare (AIHW 2011) report as being almost 91% of the total nursing workforce. Of this workforce the majority of nurses, 62.2% work as clinicians within an acute hospital setting. Health care institutions, such as hospitals often employ graduate support staff, provide mentors, quarantine new nurses from night duty and may also consider the acuity of patients when allocating junior staff. The GNP has a role similar to the traditional internship provided for new medical staff.

In the early 1990's the traditional responsibility for nurse education in Australia moved from the hospital sector to the university sector, effectively transitioning from an apprenticeship style of vocational training to a tertiary setting (Nursing Education in Australian Universities 1994). This shift had significant implications not only for the way in which learning was delivered but also for the relationships that had to be created between university and industry to continue access to opportunities for experiential learning. These initial arrangements were often locally based, fostered out of geography and convenience and usually provided without cost to the university. Essentially clinical venues would accept students; provide experiential learning and supervision by clinical staff without overt claims for payment. Universities in South Australia typically provided their own casual or sessional teaching staff who would visit students on placement and provide either facilitation, supervision or in some instances bedside teaching (Nursing Education in Australian Universities 1994). More recently within Australia, the state of Victoria has established a well-defined set of expectations, concerning the education and training of students, of what education provider and placement host should be accountable for (Victorian Government Department of Human Services 2007). One of the implications of this definition has been an examination of placement costs.

The implications of changes to cost and access to placements may have far reaching and significant effects in the way in which experiential learning contributes to the education of students. In some aspects this has already occurred as described in the The Nursing Review (accessed 7 September 2012), which has published a range of

emails from nursing students across a number of Australian states, concerned and angry about their experience of clinical placement <http://www.nursingreview.com.au/pages/section/article.php?s=News&idArticle=22023>. The impact of central allocation systems, the provision of placement venues which may not be seen as nursing oriented and the financial implications of attending experiential opportunities that don't meet students perceived learning needs, are clearly significant. Appreciating more clearly the impact of the placement experience is a goal of this study.

1.1 Study summary

This study centred on the experiences of sixteen participants (cases) who had recently graduated from a baccalaureate of nursing program from a number of different universities. The time frame and location for data collection was from January to June 2009, within a large public teaching hospital in South Australia, Australia. All graduates were interviewed within the first three months of commencing employment at the hospital that was the site of the study. It was clear from early within the study design phase that the range of variables to be considered demanded not only a flexible research method, case study, but also a theoretical framework that embraced flexibility and inclusiveness. The framework provided by Complexity theory encourages one to appreciate that within intricate systems, the product may be understood to be greater than the sum of the individual parts. The need to colour and build a description or a case that would explore the how and why aspects of educational research were especially suited to case study method.

Using Complexity theory and case study enabled a breadth and diversity to the theoretical and analytical approaches used. There was however a rationale for using a

consistent set of indicators to examine the nursing care provided by the study participants. The care interventions or indicators selected to frame this study were those identified in nursing literature as being related to nurse sensitive patient outcomes (NSPOs). It is important to state from the outset that the emphasis within this study is on the participant's description and use of the interventions themselves and not the patient outcomes associated with their use. Rather by seeking the views of recently graduated nurses in the provision of essential elements of care such as pressure ulcers, it was anticipated a better understanding of how clinical experience influences learning, could be formed.

1.2 Rationale for the study - literature review

The literature review for this study explores a range of issues that are ongoing concerns for nursing education. Among these an argument for clearly defining the fundamental nature of epistemology and ontology is made to ensure the study proceeds with a clear understanding of the role of philosophical perspectives in nursing education. Examination of current pedagogical directions and theories of education also provide a base on which to establish the study.

It is clear from the literature review that the search for efficient and effective models of clinical education continues to require further research (Grealish & Smale 2011; Hickey 2010). A simple example of this is found in the uncertainty surrounding the amount of experiential learning a student nurse should attend across a typical baccalaureate degree. To address the uncertainty regarding clinical placement a range of studies with large sample sizes (Dunn & Hansford 1997; Edgecombe & Bowden 2009; Gidman et al. 2011) have been conducted; none however lay claim to definitive recommendations for the design of nursing curricula and clinical placement.

In the literature search conducted for this study there were no other studies using comparative analysis techniques to study how experiential learning and clinical placement may influence the development of student nurses.

1.3   Study design - Methodology & Method

This chapter describes the nature of case study research and addresses the issue of whether case study should be situated as method or methodology. In defining the case, the description within highlights the significant number of study variables, provides a description of the nursing indicators and describes the development of data collection tools.   The inclusion criteria define the new graduate as someone within three months of commencing their employment as a registered nurse. The timing of the data collection was to isolate and consider the knowledge and skills of the graduates on the basis of their university education and their clinical placement experience and not their graduate hospital training.

1.4   Analysis

In the presentation of case study research the *analysis* chapter serves as the first level of analysis where data is presented in significant detail. This is for two central reasons. Firstly Yin (2009, p127) advises quite clearly that the integrity of case study research depends on the '...presentation of evidence and careful consideration of alternative interpretations'. Secondly while this study presents a number of analysis methods which can be read as standalone items the theoretical generalisation from considering them together is much more important. Using a thematic analysis, applying a range of statistical tests and a unique analysis method, qualitative comparative analysis (QCA), each comes together to provide a chain of evidence which contributes to the construct validity and transparency of the case. While the

analysis chapter brings together this data, it is not intended to be read as a results chapter; rather the case report is the place where synthesis of the data comes together.

1.5 Case report

The overall case for this study has been directed to the question of how clinical placement affects learning and how that learning may influence patient care. The case report is presented using the hallmark features recommended by Yin (2009, p167) for both presentation of style, that being an engaging narrative and for the goal of generalizing to a theoretical proposition, not to '... enumerate frequencies (statistical generalisation)'. The case report has by definition a wider audience than those within academia or policy development and has been crafted to be read by a general audience.

1.6 Cross case report

This chapter brings together the individual cases and examines if any similarities exist between the participants, a further comparative focus. This comparative approach is again a way to consider the complexity of clinical placement and the learning outcomes that may be associated with a range of conditions within different styles and patterns of curricula. While a number of differences were noted between the graduates it should be noted that the intention of this study was not to demarcate, rather to illustrate.

1.7 Conclusion

The results of this case study, the case report, identifies that no one aspect of the clinical placement experience has the most significant impact on the development of the nursing student. Far more important is the combination of a range of conditions which taken together impact the graduate nurse. It is this combination of conditions which provides for an emphasis on the role of theoretical generalisation and argues

for an expansion of the use of comparative methods to study complex phenomena. On the basis of this generalisation a theoretical model is offered which may be useful to consider in the future design of nursing curricula. For nursing education to develop further it is suggested that the research of multidimensional issues benefits from multidimensional approaches.

1.7.1   Glossary

Acute care nursing placement: placement experience that occurs within a metropolitan or rural health care facility that is generally recognised as a hospital or acute care tertiary setting.

Andragogy: a theory of education that identifies the needs of adult learners as being different to those of children (pedagogy). Most often associated with the work of the educationalist Malcolm Knowles.

Block placement: the allocation of students to a clinical placement venue over an extended period of time, e.g. 4-6 weeks. The students may not have contact with the university academic staff or attend university based lessons. Students are likely to have contact with clinical teaching staff.

Case: the subject of interest which in case study methods can include people, systems, communities, events. Essentially something that lends itself to a high level of scrutiny.

Case study methodology: an approach to the study of contemporary events and phenomena that often have many variables of interest which the researcher does not look to manipulate. Case studies often consider a variety of data sources.

Causality: in relation to qualitative research such as case study, causality suggests a set of patterns or inferences which may exist between various phenomena. Within this

study, causality is not used to identify rigid or permanent relationships between the various elements of the case.

Clinical placement: the experiential learning component of a program of study leading to registration as a nurse. The site of the experiential learning is anywhere a student has an opportunity to provide care for another person.

Clinical facilitator: a person responsible for providing clinical teaching in the clinical setting and who typically works in a part time or casual capacity for the university. They are often employees of the wider health care system.

Clinical tutor: a person responsible for providing clinical teaching in the clinical setting who works primarily for the university.

Complexity theory: an offshoot of Chaos Theory which provides that new and different outcomes can be larger than the constituents parts that normally combine to make a whole.

Dedicated Education Unit (DEU): a clinical setting, such as a ward or aged care venue, which is dedicated to hosting students from one particular university.

Epistemology: a branch of philosophy concerned with the study of knowledge.

Experiential learning: the exposure of students to new and varied environments and situations where learning builds on prior experiences.

Graduate nurse: a nurse in the first year of practice following the completion of their undergraduate degree.

Integrated placement: a pattern of clinical placement in which the student attends university and clinical placement in the same week, e.g. Monday and Tuesday university lectures and tutorials while Wednesday, Thursday and Friday are clinical placement.

NSPO: Nurse Sensitive Patient Outcome. A range of nursing outcomes that have been associated with the delivery of certain care interventions.

Nursing intervention: the nursing interventions described within the study refer to care provided for the prevention or management of falls, pressure area and pneumonia.

Ontology: a branch of philosophy concerned with the study of being and the nature of existence.

Pedagogy: often used to describe the teaching of children, pedagogy implies a structured and supported environment where the learner acquires new knowledge.

PNA: a personal nurse assistant, also known as an AIN (Assistant in Nursing) or in some settings a HCA (Health Care Assistant). Students often take on these roles during their course of study as employees of residential care settings and hospitals. The PNA role may not have a formal training component.

Preceptor: an employee of the placement host organisation to whom a student may be allocated to work with for the purposes of clinical teaching. The preceptor may or may not work closely with the clinical facilitator or the clinical tutor.

Participant: the primary focus of the study is the graduates who are by definition both participants in the research and the case description. The terms participant and case are used interchangeably throughout the study.

QCA: qualitative comparative analysis (QCA) is a form of analysis that provides for consideration of quantitative and qualitative data especially in the framework of a case study.

Tertiary education: a higher education provider such as a university.

2 Chapter 2 - Literature review

2.1 Introduction

Burns and Groves (1993,p141) describe the purpose of a literature review as '…the generation of a written report that summarises what is known and not known about a phenomenon'. As suggested a theme of this literature review was to provide a literary critique of the relationship between different conditions which may influence clinical placement and an examination of the nature of experiential learning. This examination brings focus to the question that colours discussion nationally and internationally about the preparation of beginning level practitioners. The literature review presented herein examined a wide range of topics to inform the study question; philosophy, pedagogy and theories of education, the nature of clinical placement and experiential learning, the acquisition of skills and knowledge and a range of nursing interventions. An examination of international perspectives on nursing education and the preparation of nursing graduates are contained in reports from the United States (Hickey 2010), the United Kingdom (Lauder et al. 2008), Taiwan (Tang, Chou & Chiang 2005) and Canada (Hartigan-Rogers et al. 2007; Wolff, Pesut & Regan 2010). The existing literature while important, suggests that further examination of different teaching models, clinical placement patterns and experience, and the educational outcomes for nursing students, remains an essential goal of nursing research.

2.1.1 Search Strategy

The search strategy for this study began with the construction of a logic grid (Appendix 1). A logic grid is a useful way to bring together the breadth of terms such as nursing, education, clinical placement, nurse sensitive outcomes, experiential, pedagogy, case study method. Search terms were considered across a range of nursing

and educational databases including PubMed, CINAHL, Scopus, ERIC and Science Direct. Setting up direct alert notifications from databases such as Science Direct and PubMed using the logic grid headings was very helpful across the duration of the study especially to stay abreast of new insights to nursing education and clinical placement models. The review of articles was restricted to those in English or those that had been translated to English. A range of grey literature was also kept throughout the study including website excerpts, newspaper articles and professional journals related to nursing education and clinical placement. The abstracts from a large volume of literature were scanned for relevance to the search terms with relevant documents being kept in hard or electronic form. Such papers become part of the larger case study database. The bibliographic software Endnote (versions X1-X3) was used to manage citations and to format the references for the thesis.

Not surprisingly within the scope of the literature examined no study identified a pedagogy or curriculum that claimed to be *the* definitive model of how to educate a student nurse. In defining the wider goal of curriculum, Long et al (2004, p48) writes, that '…education broadens ones knowledge base, enriches understanding, and sharpens expertise'. As suggested above the goal to explore the relationships between nursing interventions and the educational preparation of a nursing graduate completes the literary framework for the study. One issue that continues to concern nursing education has been how to translate a broad knowledge base and level of understanding into a graduate who is able to provide safe and considered levels of nursing care early within their career. This very fundamental discussion requires an appreciation of the concepts of ontology and epistemology.

2.1.2   Ontological and epistemological positions within the profession of nursing

The world is everything that is the case.

Ludwig Wittgenstein 1889–1951

Epistemology and ontology are philosophical discussions respectively directed to the study of knowledge and the study of being. Each philosophy provides a base for further examination of how knowledge and being have been interpreted within nursing education. The recognition that education and learning comprised different components was identified as long ago as the time of Aristotle. His description of how the three components of knowledge, theoria, poiesis and praxis interact, stimulated a philosophical debate that continues today. The relationship of theory and practice, long identified as a conceptual challenge to nurse educators, was described by Aristotle (384 - 322 BC) who wrote;

'With a view to action experience seems in no respect inferior to art, and men of experience succeed even better than those who have theory without experience'.

Epistemology is described by Audi (2003) as deriving from the Greek word episteme which translates approximately to, knowledge. Audi (2003) identifies that components of epistemology are often grounded or situated in three belief mechanisms. Causal, justificational and epistemic interpretations of knowledge ask variously why, what and how one may interpret a particular understanding. Addressing how, what and why questions supports the position of Lincoln and Guba (2000) who argue that case study methodology is an appropriate way to address questions such as epistemology and critical realism. Critical realism is concerned with

such questions as; 'What outcomes will a student achieve if education is provided in a particular manner'? One of the major interests of this study was to ask what influence nursing education and the experience of clinical placement might have on the skills and knowledge of graduate nurses.

Writing about the design of nursing curricula, Csokasy (1998) describes the focus of epistemology as a philosophical question directed to understanding the nature of truth. Pointedly however there are only a small number of related discussions about the nature of such philosophical truths within nursing education. One such description by Vinson (2000, p39) suggests the epistemological position of nursing is moving along an '…evolutionary path' towards a destination of competence. Vinson (2000) includes the science and art of nursing as forms of epistemology which link to competencies that are required of contemporary nurses. Competencies such as prediction based on observations and the critical examination and analysis of data are obviously desirable traits for an evolving professional. The evolutionary tag given to this discussion is necessary to ensure nurses maintain some connection to the increasingly complex environment in which they work. A sentinel event during the formation of this pathway has been the transfer of nursing education from a hospital based system to the tertiary sector. This transition changed the focus of nursing education from '…an apprentice-type preparation to professional education preparation' (Vinson 2000, p43). This significant shift was repeated in many countries around the world and represented a unique opportunity to clearly identify the ontological and epistemological directions that would allow nursing to adapt to changing health care environments.

Gerring (2004, p351) neatly describes an ontology as '…a vision of the world as it really is, a more or less coherent set of assumptions about how the world works'. Flaming (2004, p225) extends the assumptions of ontology for nursing practice, one being a traditional description of metaphysics which refers to the '...study of individual human beings'. Flaming (2004, p226) takes some license with the traditional concept of ontology as applied to an individual, suggesting an extension of '…existing conceptualizations of individual ontology to the defining features or fundamental realities of nursing practice'. Consideration of a broader nursing ontology is taken still further by Flaming (2004) who suggests that a number of nursing theories are in fact ontologies. This assertion challenges the traditional nature of the theory practice relationship encompassed within many nursing theories and suggests a new and alternative way to consider the development of nursing philosophy. Taking an ontological position rather than an epistemological one, places emphasis on the development of the individual as they learn *how* to nurse, a focus that may shift the lens in the examination of nursing education.

A similar change in focus can be made in respect of clinical placement and its role as underpinning much nursing education. Little discussion is held regarding the ontology of clinical placement which for the purpose of this study will be considered a form of experiential learning. Dall'Alba and Barnacle (2007) discuss the role of ontology within higher education, lamenting the focus of modern institutions towards acquisition of skills and knowledge for a particular discipline at the expense of greater intellectual development. They argue that contemporary higher education requires a reassertion of '… the ontological implications of learning, which in the past have tended to be subordinated to epistemological concerns' (Dall'Alba & Barnacle 2007,

p 681). Considering the ontological impact of nurse education and the experience of university on the *being* that becomes the graduate nurse, is a complex reflection for any nurse educator. Juggling vocational (epistemology) and developmental learning (ontology) goals as a result of university education may represent one of the most significant theoretical challenges for nursing curricula today.

The interaction of nursing students with their environment and the pedagogy involved in creating a dynamic learning milieu often involves the placement of student within 'real' clinical practice situations. While knowledge generation and development may require a combination of theory, values and practice it is suggested theory in nursing education literature is subject to deep and sophisticated thinking while the possible relationships that link practice development to other components of knowledge may be less explored.

2.1.3   Theoretical frameworks for learning

John Dewey, an American philosopher and educationalist advocated the value of the experiential or social component of learning stating '… I believe finally that education must be conceived as a continuing reconstruction of experience: that the process and the goal of education are one and the same thing' (Dewey 1897, p13). Considering the length of time from Dewey's writings to the present day it is pointed that there remains hesitation in nursing education about the link between experience and education. An example of this is noted by Robb, Fleming and Dietert (2002) who describes that despite 40 years of researching and developing an instrument for measurement of clinical competence in nursing, not one has gained universal recognition. The citation of twelve nurse education studies (Robb et al 2002); all with diverse and imaginative research methodologies omits any mention of the

philosophical framework of the underlying question: What is the relationship between clinical placement and a philosophy of praxis? Labels such as *experiential learning* are given to curricula that provide for substantial clinical practice; however this type of label may be superficial if not accompanied by some degree of philosophical position. It is clearly insufficient and unreasonable to assume students will automatically 'absorb' the clinical environment and by default learn. Consideration needs to be given to the learning or knowing, that is occurring in respect of nursing practice.

It would be difficult to claim a discussion about education and epistemology without acknowledging the seminal works of Jean Piaget, Lev Vygotsky and Lawrence Kohlberg. Each theorist has had a profound influence on the advancement of thinking regarding epistemology, adult and child development and learning. Each theorist fits neatly under an umbrella of constructionism, which this study identifies with at certain times, especially when describing key concepts that inform the nature of clinical placement and experiential learning. In the broadest sense 'constructivists' believe that learners actively engage, or at least require active engagement, with their previous experiences to develop cognitively. Crotty (1998, p43) writes that in constructionism '…meanings are constructed by human beings as they engage with the world they are interpreting'. Each theorist brings a particular flavour to the discussion and each has been considered for their overall contribution to the theoretical base of the study.

The engagement of the learner, the impact of the local culture, the necessity of particular words to inform consciousness and by implication learning, are all visible

facets of the placement experience of nursing students. Even if one did not engage with the most common philosophical texts, the degree to which each theorist informs educational studies is difficult to avoid. For example in The Principles of Genetic Epistemology, (Piaget 1970) argues not for an analysis of cellular DNA or RNA but a specific examination of the origin of knowledge. Consideration of '…psychogenesis' or the way in which knowledge is formed, provides an opportunity for complex though necessary reflections on the essence of knowledge (Piaget 1970, p19). Piaget's insights are useful for educational researchers encouraging them to question the very nature of knowing and knowledge development. Piaget's work around assimilation, accommodation and equilibration, based on his observations of children and particularly his own children, have informed much of the constructivist model. The implication that many of the principles assigned to pedagogy may influence andragogy or adult learning, are explored below.

Vygotsky who argued for recognition of the social environment and its effect on cognition and development, is regarded as contributing much to the discussion of educational theory (Daniels 1996). What is most striking when reading Vygotsky, are his insights to the influence of speech and thinking on learning. Vygotsky (1986, p1) suggests that '…as long as we do not understand the interrelation of thought and word, we cannot answer, or even correctly pose' questions related to how a person might develop in the social setting they occupy. Clearly nursing is a person oriented profession where speech is the primary form of communication between nurse, patient and colleague. In this complex milieu the nursing student acquires new language and works towards a greater sense of self and identity while also gaining skills and knowledge. Nursing students learning to integrate communication, psychology and

patient care should benefit from clinical teaching staff with an awareness of the social dimension of placement and the centrality of speech.

It is suggested that Kohlberg's (1973) description of moral and cognitive development has some parallels to the development of growth expected of students that experience clinical placement. Confronted with or forced to accommodate moral issues as a result of the placement experience can be very challenging for those new to health or nursing. The exposure of young students to the stressors of an emergency department, the care of the dying patient, and the termination of an unwanted pregnancy are all very real experiences possible during an episode of clinical placement. Flaming (2004) describes such situations, in which a sense of uncertainty pervades, as cognitive conflict, a stimulus to moral development and learning.

One of the most interesting, though less well known treatise regarding development and learning is that offered by van Geert (1994). By his own admission (van Geert 1994) describes that his model of Dynamic Development is only supported by a modest level of evidence, with much more research required. What is conceptually attractive about his writing though is the identification of the step or jump forward potential for learning and the manner or indeed the stimulus that might precipitate that learning. van Geert (1994, p96) suggests there are four aspects to cognitive growth; growth has a quantifiable nature; growth is autocatalytic or self-perpetuating; growth requires resources and cognitive growth has a structural property. Each item is again food for thought for those considering the fundamental framework on which nursing curricula and the integration of clinical learning occurs.

In considering a balanced discussion it is acknowledged that constructionism has a number of critics for a wide variety of reasons. One of the concerns relates to the distinction Crotty (1998) draws between constructivism and constructionism, terms easily confused and often used interchangeably. Crotty (1998, p42) writes quite elegantly of the nature of constructionism;

> It is the view that all knowledge and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context.

On the back of this description Crotty (1998) distinguishes constructivism from constructionism suggesting that constructivism is akin to an acceptance without critique, of the uniqueness of one's experience of something. A constructivist's interpretation of a nursing student involved in a clinical incident would be to acknowledge the inherent truth of the experience. That is accepting the reality of that experience as true and therefore being less open to critique. A constructionist and especially a social constructionist perspective would be to reflect on the students experience firmly within the culture or social context in which it occurred (Crotty 1998, p58). Meyer (2009) also has concerns for constructivism and argues passionately for educators to refrain from displacing the philosophy of epistemology with a pedagogy of constructivism. While Meyer (2009) acknowledges the innovative contribution of constructivism to educators and their classroom teaching, he notes the influence of constructivism was only anticipated to act as an *agent provocateur*, a stimulus to re-energise thinking around teaching. More recently Lee (2011) has extended Crotty's concerns to imply that multiple paradigms of research orientation and methods make it difficult to associate a distinctive framework to qualitative

research, citing constructivism as an example. Lee (2011) instead argues for a clearer distinction between radical and social constructivism citing differing perceptions of reality and meaning. Crotty (1998) suggests it is important for researchers to reflect deeply on the nature of both terms and to consider their meaning for research. While constructionism encourages an attitude of critique, is directed to an enquiry of social structures and works to nurture a critical spirit, the debate for and against suggest this theory may not be the most suited to underpin increasingly complex nursing curricula.

Contemporary nursing curricula have been informed by the seminal work of Carper (1978) who outlined patterns of knowing which included the science of nursing, the art (aesthetics) of nursing, the ethics of nursing and personal knowledge. The subject of much debate in nursing literature each pattern has been subject to further dissection and critique. Silva, Sorrell & Sorrell (1995) go so far to suggest that Carper's work generated a tremor that shook the foundation of the relationship between the art and science of nursing. Silva, Sorrell & Sorrell (1995) also note the importance of nursing practice to frame questions of ontology and epistemology as each may converge in the provision of an episode of care. Vinson (2000) adds to the understanding of the domain of personal knowledge suggesting it has a particular characteristic, time. Personal knowledge or self-knowledge comes from opportunities to reflect on the interaction of self and others to develop understanding of nursing practice. The concept of time is fundamental to the discussion of a graduate nurse's ability to provide a particular level of nursing care as a result of their university experience. Limited opportunities for placement and guided reflection throughout an undergraduate nursing program may reduce the capacity for nurses to develop personal knowledge. What is not as clear within the literature however is what effect

the lack of opportunities for personal knowledge and development has on the ability of graduates to provide bedside care. Developing this component of knowledge is often addressed in nursing curricula through the use of personal reflective journals and exercises in self-awareness. The success of such exercises may be dependent on White's (1995) observation that patterns of knowing are context driven. Context, described by White (1995), has a socio-political dimension where nursing practice is delivered in consideration of the nurse-patient relationship and the social and political environment in which care is delivered. The relevance of such discussion is to highlight that curricula design with reference to patient care, should be developed with reference to patterns of knowing and the epistemology of nursing knowledge. It is suggested that clearly identifying ontological and epistemological positions within nursing curricula could assist in determining pedagogical approaches adopted by particular universities. Duncan, Cloutier and Bailey (2007) argue that the acceptance of aesthetic knowing without some reference to the evidence that supports praxis is an outmoded concept and one at odds with the requirement for contemporary scholarship to be more able to describe its primary function.

As described above it is interesting that the links between the educational goals and the philosophical nature of clinical placement are not well described within nursing literature. Indeed while clinical placement is often cited as a valuable aspect of nursing curricula, relatively few authors have identified its place within the learning situation. Postle (1993, p33) suggests that '…learning from experience generates knowledge' where ' …attending to the whole of experience appears to lead to the generation of realistic, useful and relevant knowledge'. If the potential of clinical placement is to equip a student nurse with useful and realistic information, its effect

on student learning needs to be carefully examined. For Heron (1989) who offers a concept of manifold learning, a model within which four distinct and irreducible levels constitute learning, experiential learning is so important, it is the basis of all other learning. The four modes of learning, practical, conceptual, imaginal and experiential have some parallels to Bloom's Taxonomy in their hierarchical structure where the essential foundation for higher learning relies on the affective or emotional dimension if the experience is to facilitate learning. The emphasis for Heron's model is that experiential learning is '…manifest through the process of being there, face-to-face, with the person' (Heron 1989, p13). This is distinguished from practical learning which is constrained to the acquisition of a skill. An examination of curricula that incorporate elements of experiential learning such as clinical placement may benefit from considering the learning outcomes of clinical placement. Consideration of such issues will be useful to assist with knowledge formation and may assist to justify the significant funding and infrastructure that often surrounds clinical placement.

Examining a breadth of theoretical positions during the literature review provided the researcher an opportunity to consider the insights afforded by Complexity theory. Discussed more fully below, Complexity theory enables one to reflect on how the clinical placement experience, itself a maelstrom of variable items, may be something that equips the learner with skills and knowledge that are ultimately greater than a unique learning episode suggests. While an introduction to Complexity theory was gained from literature the argument will be made that the inductive and deductive analysis described in Chapters 4, 5 and 6, supports the need for a far more specific and reflective assessment of how Complexity theory may be useful to advance the role of experiential learning and practice development in students.

2.1.4 Complexity theory

In seeking out a theoretical base on which to review concepts and findings, the researcher examined a number of different theories. Of those theories, Complexity theory suggested promise to consider the complicated interplay of clinical placement experience and learning. Weaver (1948, p539) first coined the expression '…organized complexity' to describe that despite the complexity of certain systems there was often a predictable range of outcomes. His position was that natural and societal phenomenon from topics as diverse as the flowering of certain flora to the interaction of a large trade union, required a broad range of conditions to come together to achieve a common outcome. To support this position Weaver (1948) noted that in his time, advances into cancer research continued to accelerate when compared with the previous 25 years, arguing that for understanding to progress, an appreciation of the nature of complexity was required. Weaver (1948) also predicted that the emergence of the electronic computing device at the end of World War II would have a dramatic effect on the advancement of science. It was a meteorologist Lorenz (1963), who took the consideration of complex phenomenon still further, in his case meteorology and long range forecasting, suggesting that long range weather pattern prediction was a nonlinear and chaotic science. The resulting Chaos theory, which spawned the term Butterfly Effect, was a precursor to the modern day discussion of complexity. The contemporary discussion of Complexity theory has a number of contributors to its ongoing development and has been used as a theoretical position in mathematics, science, social science and information technology. Mason (2008b, p36) states that Complexity Theory;

Concerns itself with environments, organizations, or systems that are complex in the sense that very large numbers of constituent elements or agents are connected to and interacting with each other in many different ways.

Kuhn (2008, p178) adds that '…while certain phenomena appear to be chaotic or random, they are actually part of a larger coherent process'. Clark (2004) who provides a sophisticated and insightful description of how Complexity theory can inform nursing education adds to the understanding of how parts and wholes are dynamically related. The sophistication of knowledge acquisition as a result of clinical placement benefits from the consideration of a theoretical platform that identifies clearly with the nature of complex sub systems. When one considers the many variables that can impact on even a discrete episode of clinical teaching a substantial list of elements and agents is easy to reproduce. Elements such as the student and their previous clinical experience, the clinical venue, the patient receiving the care and the skills and knowledge of the clinical teacher are but a few of the constituent elements. Patient acuity, disease process, current or intended medical and nursing interventions and even the patient's ability to communicate are variables that could change with little notice and alter the dynamic of the learning environment. The alignment of these variables resonates further still with Kuhn (2008, p182) who writes that Complexity theory deals with issues that are '…multi-dimensional, non-linear, interconnected, far from equilibrium and unpredictable'. Paley (2010) identifies that complex systems have order but not as a result of predetermined pathways, policy, purpose or objectives. Complexity theory encourages an explanatory and reflective process to consider how the whole or totality of a particular phenomenon may represent more than the sum of the parts. Mason (2008a) suggests such explanations

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or considerations allow for the emergence of unexpected conditions and traits. Most certainly the extent of variables in the clinical setting makes precise replication of learning situations difficult if not impossible, ensuring that each clinical learning opportunity is unique.

Davis and Summara (2006,p5) describe a number of qualities that identify complex systems; self –organized, bottom-up emergent, short range relationships, nested structure, ambiguously bounded, organisationally closed, structure determined and far from equilibrium. A number of these qualities lend themselves to the domain of nursing education. Having some capacity to self-organize and to accommodate the emergence of certain patterns enables complex systems to be more as a whole than the constituent parts would suggest. Indeed Davis and Summara (2006) assert this is the most important quality of complex systems and that rather than dissuade researchers, trying to identify what aspects of complex systems emerge, is a desirable and worthy goal. The advantage to nurse researchers comes in the conceptualisation of how qualities of complex systems can be understood through research; the language of Complexity theory offers great opportunity to pause and reflect on how nurses learn to nurse.

Unique though they are to the individual, clinical learning opportunities often proceed with some degree of pattern where skilled clinical educators will intuitively seize the opportunity to identify important aspects of the experience. Mason (2008b) posits that such insights could be of considerable interest in the dynamic and evolving world of educational institutions. Examining the nature of systems such as clinical placement,

looking for effects as opposed to a singular and specific causal factor is sage advice from Doll (2008) and Haggis (2008).

Davis and Sumara (2006) extend the description of how consideration of Complexity theory can inform the understanding of experience and learning with three particular points. The first point made is that experience of itself does not cause learning; rather experience '…is better understood in terms of triggers than causes' (Davis & Summara 2006,p13). Secondly learning while influenced by external experiences is a product of the learners own internal stimulus, a stimulus that has been fashioned by other complex structures. Finally (Davis & Summara 2006, p13) contend that determinism or looking for a fixed or linear, cause and effect within education '…make little sense when learning is understood in terms of recursive and elaborative processes'. An approach to the study of learning, experience and education in nursing may not succeed when the focus of the study is a singular or narrow perspective. In this way the potential for case study to embrace a variety of data and develop a case report reflects some of the core themes of Complexity theory. As nursing education is a dynamic and evolving domain, a theoretical position, such as Complexity theory may be suitable to accommodate challenges that are yet to emerge.

2.1.5   Delivery of nursing education in Australian universities

Prior to 1984 the education of nurses in Australia reflected an apprenticeship style where nurses trained on the job (Grehan, 2013). Russell (1990) noted that this apprenticeship style, based on the Nightingale tradition, was a successful system that lasted for 100 years in Australia. Despite this success Russell (1990) describes that a plethora of reports, originating chiefly within New South Wales, argued a range of

positions, some contradictory, concerning the suitability of nursing education to move from hospital based to tertiary based education. The 1978 Nurse Education and Training Report (Karmel Report) identified that momentum was gaining to argue for a shift of nursing education towards at least the level of diploma or advanced diploma within Colleges of Advanced Education. Interestingly the Karmel Report noted that one of the barriers to a shift in nursing education in Australia was the significant prestige that hospitals gained from offering and conducting nurse education. Despite such concerns perhaps the most significant change to nursing education in Australia followed a federal government decision in 1984 to complete the transfer of responsibility for nursing education to the tertiary sector (McCoppin and Gardner 1994). In 1994 a government report, Nursing Education in Australian Universities noted that there was a '…sharp debate about the clinical skills that graduates have and can be expected to have on graduation' (Nursing Education in Australian Universities, p xviii). One of the broad findings of this report noted that '…clinical placements need to be of longer duration with greater emphasis on the quality of teaching'. The transition from one style of nurse education to another was significant, so much so that it continues to generate debate among sectors of the Australian community. This shift was taken to equip new registered nurses with a baccalaureate education, specifically an undergraduate bachelor degree which would prepare graduates who were more able to cope with an increasingly dynamic and demanding health sector. Not long after the transition however Duffy (1989, p42) noted that this time of change provided a '…unique opportunity to critically evaluate the content and structure of nursing curricula'. One of the implications of this change was the exposure of student nurses to the different learning and teaching frameworks of the university sector. As universities place great value on research and encouraging students to identify as adult

learners there was a distinct contrast to the more structured and hierarchal approach implied by an apprenticeship style.

The requirement for the university sector to take on and deliver programs that were initially vocational in design has however required circumspection. Dall'Alba and Barnacle (2007) describe that modern universities themselves are caught between seemingly conflicting approaches to the mission they have. A tension rises between the emphasis on students acquiring knowledge rather than learning and then being able to apply knowledge to problem solving and integration into practice. The counter argument to this position is described by Ironside (2000) who writes that the examination of nursing programs, created as a result of the transfer to university, have been essentially academic pursuits, removed from more practical concerns, such as patient care. Ironside (2000, p72) also notes that '…the extent to which theoretic work from higher education is generaliseable to nursing situations is, in most cases, assumed rather than demonstrated'. This point has also been identified in the situation of Australian nursing by Creedy and Hand (1994b) and more recently by Clare, Edwards & van Loon (2002, p1) noting a '...paucity of empirical evidence on curricula issues', with a resultant lack of excellent models for curricula design. Statements such as this suggest the pedagogy of nursing education and its outcomes have and continue to resist description.

2.1.6   Pedagogy, learning and nursing

A discussion of the relationship between pedagogy and nurse education requires a clear definition of the terms involved. Ozuah (2005, p83) describes pedagogy as '…the art and science of teaching children', an endeavour in which a number of assumptions are made about the learning characteristics of children. The term

pedagogy is often used more broadly to describe those learners or learning systems across all age ranges. Indeed the term pedagogy is often used interchangeably with teaching processes of any fashion. It is possible therefore for adults to be taught in pedagogical fashion, a distinction that will be examined below. The educationalist Malcolm Knowles (1990) who is recognised for questioning the broad use of the term pedagogy, nominated the distinction of adult learning as andragogy. This was a worthy consideration as it highlighted the different learning needs, characteristics and expectations of adults and children. It is reasonable that those involved in nursing education should also consider the nature of pedagogy and learning and reflect on these characteristics.

There are four assumptions of pedagogy as to the characteristics of children learning. Ozuah (2005, p83) describes these as the '…dependent personality of the learner', the need for '…learning to be subject centered', motivation to learn comes from '…extrinsic forces' and the '…prior experience of the learner' which for children is considered irrelevant. Such assumptions have been previously considered by authors such as Dewey (1897, p6) who suggests that '…Education therefore, must begin with a psychological insight into the child's capacities, interests and habits'.

In contrast to the modern day emphasis on broad based pedagogical theories of education, Knowles (1990) has suggested the adult learner is a neglected species. His theory of andragogy has an historical flavour in which he identifies great teachers of early times, such as Socrates, Plato and Aristotle, as those who taught adults, not children. Their experience was that learning is '…a process of active inquiry, not passive reception of transmitted content' (Knowles 1990, p27). There are six

assumptions of adults as learners, identified by Knowles (1990). The *need for adults to know why* they are learning something or more simply that learning needs to have a contextual basis. The *learner's self-concept* is very important as adults are often driven by a need for self-direction and governance. The role of the *learner's previous experiences* may be rich sources of knowledge however they may also be a source of bias and cognitive sequences that prevent new learning. Identifying that adults often have to *move through stages in experience or life* to reach a point of readiness to learn is also an assumption. Ensuring that *adult learners make a connection* between learning material and the context in which it is used, is essential. For those students who fail to make a connection, the lament of students, 'Why are we learning this?', will be familiar to many educators. Finally an assumption within andragogy is made that motivation comes from either an external (grade driven) source or an internal (personal) source, which may be an even more potent motivator.

The value of Knowles work in describing these characteristics has application to the training and assessment of nursing undergraduates. The transition of students who leave a pedagogical oriented system of primary and secondary education to enter university-based education more aligned with the principles of andragogy models is an important concern. If not considered, there is a risk of dissonance between the environments of secondary and tertiary education. Festinger's Theory of Cognitive Dissonance (1957) describes those discrete events of thinking or cognition, such as might be required in a clinical learning scenario, may invoke either a state of dissonance or consonance. Dissonance is described by Festinger (1957, p12) as a situation where '…Two elements are dissonant if, for one reason or another, they do not fit together'. Consonance, alternatively, identifies situations where a sense of

agreement exists between two cognitive states (Festinger, 1957). What is most appealing about Festinger's work is the identification of how the environment has a direct effect on the cognitive behaviour of an individual. In environments where a degree of control can be exercised by the individual there is an opportunity to see a reduction of dissonance. However in environments such as the dynamic and confronting clinical setting, student nurses often have very little control of their environment and thus are likely to suffer from higher levels of dissonance. The nursing student is often confronted by a clinical environment which at first may not make the integration of elements, such as learning objectives from university, a comfortable or straightforward process. The dissonance or inconsistency faced by students new to the different university model of study can create a learning dilemma as students struggle to integrate new learning techniques. The irony exists that even if the individual university program or course uses a familiar pedagogical approach such as didactic presentation of material, the institution has the identity of an andragogical site of 'higher learning'. The further contribution of Meyer and Xu (2005) to the discussion of cognitive dissonance in nursing education is important and necessary. It may be that the focus on the primary source of dissonance should include not only the transition of student to graduate nurse but of secondary student to university student or perhaps child to adult. It may be that a source of the dissonance within the students or graduate nurse's workplace is amplified by the dissonance that exists between different paradigms of learning. Festinger (1957) rounds out his theory of cognitive dissonance with a description of how one who is exposed to a dissonant situation may understandably, actively avoid subsequent experiences. The challenge for educators in nursing is to understand what clinical experiences may act as sources of dissonance

and work to remove them from the student's path or alternatively provide skills or support to work through the experience.

The discussion of which learning philosophy should influence nursing education and experiential learning has polarised at least two nurse academics. Darbyshire (1993) writes at length a compelling argument that andragogy has been taken up by many nursing educationalist without critique of its philosophical underpinnings. Darbyshire (1993) argues that the basic underlying assumptions of andragogy are wrong and that Knowles work contains fatal flaws, in which children, as learners may also possess some adult learning characteristics. The argument is made that describing andragogy as being the 'opposite' of pedagogy creates an adversarial position, which hinders philosophical development in either learning domain, adult or child. Ironically the tone of writing of Darbyshire (1993) where '…andragogues' are accused of having scarcely coherent notions of learning with '…divisive and fragmentary' visions for teaching, is not one to offer further debate. There are however some insights offered by Darbyshire (1993) that are useful, such as the need for educationalists in nursing to consider the origin of their own teaching philosophy and how vital skills in nursing, such as problem solving, may not automatically flow from adoption of adult learning principles. The other important issue identified by Darbyshire is that children may not suffer what he calls 'culture shock', described as cognitive dissonance by Meyer and Xu (2005), in the transition from high school to university. Rather he suggests pupils may be quite ready to embrace the self-directed project or course work of higher education.

In direct rebuttal to the writing of Darbyshire, Milligan (1995, p26) suggests that andragogy is '…a practical educational theory that …has meaning for many nurse educationalists'. Milligan (1997) writings while less florid than Darbyshire (1993) construct a reasonable argument for educationalists to consider the application of andragogy to nurse education. The relationship of nurse and patient has a level of consistency and a number of comparable dynamics to elements of andragogy. For example consideration of the prior experiences of students mirrors the need for all nurses to consider the prior experiences of patients. As will be described in Chapter 5 the interaction of the adult learner and the clinical placement experience is influenced significantly by the relationships established between the supervising tutor and student.

It is described by Clare et al. (2003) that a majority of nursing undergraduate education providers when questioned about undergraduate programs were able to articulate their pedagogical philosophy. Despite this claim however, Williams, Wellard and Bethune (2001) suggest that no one particular method of teaching is able to prepare inexperienced students to meet the complex and changing nature of the clinical setting. This is also identified within the United States by Long and Bernier (2004) who note that the American Association of Colleges of Nursing in 2000, advocated a review of nursing education, based on the need to improve patient care. The evidence base therefore to support the development of a particular nursing curriculum, is arguably missing. The risk of omitting a pedagogical position is identified by Csokasy (1998) as a threat to clear and strategic development of curricula in institutions responsible for nursing education.

A further aspect of this debate is provided by Ironside (2004) who notes that nurse educators have had a conventional, almost convenient, pedagogical approach to teaching. This approach has been to simply and persistently add content to accommodate advances in new knowledge. The result of this accumulation has been curricula crammed with information with little emphasis on the student's ability to store, retrieve and apply the information in a meaningful way. The 'additive curriculum' has been described by Pardue et al. (2005) as a consequence of traditional approaches to education where measurement and outcome dominate over innovation. The suggestion is made quite clearly by these authors that '…nurse educators continue to attempt to teach in the ways they were taught' (Pardue et al. 2005, p55). The educational convention of this approach suggests that if sufficient content is provided and taught, an assumption is made that thinking follows. Despite Pardue et al. (2005) lament of a lack of innovation in paradigm shifting or dynamic pedagogies, some nursing literature does describe different pedagogical models.

Sakalys (2002) describes the application of literary pedagogy as a way to stimulate students understanding and appreciation of lived experiences. This approach requires the use of literary works including poetry to stimulate interpretive reasoning skills. An assertion however that clinical reasoning should parallel interpretive reasoning is tenuous and there seems little justification that literary pedagogy would enhance tolerance of uncertain situations or equip nurses with an ability to cope in complex situations.

Relational pedagogy is described by Bergum (2003) as a teaching strategy that explores the relationships that exist between teacher and student, nurse or patient or

self and world. In examining the work of Sally Gadow, Bergum (2003) suggests that knowing the world requires fine tuning of all senses which accumulate into a more rounded and shared vision on the part of the teacher and the student. The fine tuning to the world around is accomplished by teachers who listen, connect and inspire students to achieve higher levels of learning.

Bankert and Kozel (2005) describe their transformational pedagogy as the establishment of an environment that actively empowers the learner. Traditional learning boundaries are reduced with the goal of encouraging the adult learner to become autonomous and responsible for their own learning. This has similar parallels in the andragogical approach identified by Knowles with recognition of the students past experiences and interactions. Within this pedagogical model, caring for and valuing the student contributions led to a learning environment where (Bankert & Kozel 2005) suggest, a cumulative learning occurred as students shared their individual experiences in a safe and receptive environment.

The approach identified as problem based learning (PBL) is described by Creedy and Hand (1994, p696-697) as encouraging '…reasoning abilities through a systematic problem-solving approach to managing real-life difficulties'. Hodges (2011) suggests that the role of PBL and complexity science are complimentary approaches to the challenge of preparing nurses for the future. Both authors also note that introduction of a PBL approach may challenge the pedagogical skills of nurse educators. This is an important observation as the approach to teaching of most educators as suggested above may simply be an extension of the way in which they themselves were taught. This outcome is perhaps more likely within nursing education as educators often

come to teaching from clinical settings and not through formal educational pathways where there may be greater exposure to examples of different pedagogy. It is noted that Moch, Cronje and Branson (2010) describe a pedagogy centred on evidence based practice which has provided a way for students to demonstrate critical thinking and real world problem solving. The diversity of pedagogy and the application of different ways of thinking are important for nursing education to maintain initiatives around experiential learning as access to clinical placement opportunities becomes increasingly competitive.

The pedagogical approaches described immediately above are but a few of the many that are used within university and in nursing education. They each have strengths and weaknesses and ultimately there is no evidence to suggest they are suitable as a standalone pedagogical approach to teaching in nursing. The role of the clinical placement or experiential aspect of each approach is assumed in their description however there is no extensive discussion on how placement articulates with each model. What is encouraging about them is however that they have been subject to discussion and consideration within the field of nursing education and training. Creedy and Hand (1994) identify that while some educators may feel threatened by conceptual change, growth and changes to practice will be enhanced by those willing to attempt new teaching strategies and actively reflect on their teaching practice. The case study within represents a significant reflective exercise around the concepts of teaching and experiential learning.

2.1.7   Clinical Placement Models and Placement Experiences

Nursing education in Australia often blends classroom and skill laboratory teaching, simulation and clinical placement experience. Within the Australian university sector

various arrangements exist whereby students can participate in clinical placement while enrolled at university. That said in Australia in the year 2012, access in many jurisdictions to clinical placement is increasingly difficult due to increased demand, cost recovery models of supervision imposed by health care institutions and increased competition between providers of nursing education. Clinical placement is generally considered to be the placement of a student within a clinical venue such as a hospital, aged care facility or other non-university location to support an aspect of experiential learning (Mannix et al. 2006). The goals of clinical placement for student nurses are summarized by Mannix et al. (2006,p4) as;

> Opportunities for authenticating their knowledge, integrating theoretical and applied knowledge, developing and refining skills, familiarizing themselves with the nursing workplace and developing the problem solving and time management skills essential for registered nurses.

The significance of this statement is to emphasize the complex epistemological goals attributed to the clinical placement experience. Authenticating and integrating knowledge and developing problem solving skills are in themselves pedagogical hurdles that require careful support and planning. Generally regarded by nurse educators as a vital element of nursing training the clinical setting provides not only context for a number of learning outcomes but often provides the student nurse with their first opportunity to interact with patients. Stockhausen (2005, p8) describes that student nurses '…enter the clinical environment endowed as a learner but engaged in the practice of the profession'. While the description of engagement in practice is perhaps an ideal, Stockhausen (2005) is more circumspect in identifying that little is known of how or what students learn while attending clinical. It is this gap that is in some part addressed by this study.

The emotive dimensions of nursing students' experiences of clinical placement have and continue to be a rich source of research and inquiry. Some time ago Lindop (1991) identified that the clinical placement aspect of nurse training is significantly stressful and a contributing factor to student nurses leaving education programs. More recent, though similarly disappointing, findings (Melincavage 2011; Parry 2011) led Hamshire, Willgoss and Wibberley (2012) to describe the clinical placement experience as a '…tipping point' for leaving nursing studies, suggesting there is a need for still further study. Other placement concerns such as 'developing confidence' (Stockhausen 2005) 'critical thinking'(Lunney 2003a, 2003b); 'perceptions of clinical decision making' (Garrett 2005) and the need for 'belongingness' and compliance (Levett-Jones & Lathlean 2009b; Levett-Jones et al. 2007) colour many aspects of the placement experience. Leducq et al. (2012) observation of the significance of the very first placement experience is a timely addition to the wider understanding of the impact of placement. It is not surprising that the capacity for students to learn anything in the turbulence of clinical placement remains difficult to measure with any meaning. Understandably the difficulty of making a reasonable connection between the scholarship of learning and teaching and the clinical setting, to the student nurse is slippery at best. Not having a clear conceptual view of what or how clinical practice experience translates to skills, knowledge and patient care, emphasizes the complexity of the issue at hand.

Stokes (1998) identified a number of models of clinical teaching that are suggested to enhance student learning. Preceptorships, clinical teaching associates, clinical teaching partnerships and Paired models are among the different ways in which

universities establish teaching support and liaison between the clinical setting and the student. The strengths of each are summarized in Table 1 based on the writings of (Stokes 1998). Ironically the weakness that is common to all models is the overt dependence on the success and integrity of the relationship that is formed between the students and the educator. Interestingly similar models of placement still exist today and are the subject of ongoing research.

Table 1 - Teaching models in the clinical setting

Clinical placement model	Description	Strengths	Literature cited
Preceptorship	A member of the clinical staff who is likely to have a degree of clinical expertise allocated to work with students in the clinical setting	One to one teaching Encourages socialization Bridge theory and practice gap	Lewis (1986)
Clinical Teaching Associate	A staff nurse that works collaboratively with a particular faculty(or school or university)	Staff suggest increased confidence Students associated with more responsibility and effectiveness	Baird (1994) Phillips & Kaempfer (1987)
Paired model	Variation of the preceptor model Pair a staff member with student nurse for a day	Sense of interaction Students report feeling less anxious	Gross, Aysee & Tracey (1992)
Clinical Teaching Partnership	Collaborative model shared by service and academia Shared assessment and grading of students	May enhance transfer of theory to practice setting Improve use of research	Shah & Pennypacker (1992)
Adjunct Faculty	Part time academic appointment for clinical staff	Increased opportunities for clinical staff in the academic setting to participate in research and teaching	

Lockwood (2003) conducted a systematic review of the effectiveness of clinical placement models finding only two studies suitable for inclusion in the review. Both studies relied on observational models with focus directed at '…student outcomes rather than patient oriented outcomes' (Lockwood 2003, p6). Further studies identify the dedicated education unit or DEU, clinical nursing development units and the clinical education unit as models of clinical placement that rely on industry and tertiary collaboration, clinically focused teaching and implementation of adult learning principles (Lockwood 2003). Tanner (2006,p100) appeals '…it's about time' after 40 years of stagnation that new models of clinical teaching are examined for their capacity to meet the challenges of reduced placement opportunities and for an emphasis to be placed on measuring learning outcomes. Perhaps most controversially Tanner (2006,p100) suggests to vary '…the student time on task, depending on the nature of the learning activity (and) the level of the student'. The logistics, funding implications and equity of varied placement timings would be significant issues however such appeals emphasize the need for an alternative discussion of what is the nature of experiential learning in clinical placement.

Roxburgh, Conlon and Banks (2012) description of a Hub and Spoke model of placement is a novel approach to the challenges of experiential learning. In this model, students move from a more traditional rotational process of exposure to a range of settings, to one in which the experience revolves around a central Hub. The Spokes represent the transition of students out to settings that have some link to the central Hub. The example provided for 1st year students is that of a gynaecology ward taking the role of the Hub while environments such as theatre, outpatients, radiology and infection control, experiences related to the patient's journey, become the Spokes.

The centrality of the patient experience with gynaecological issues becomes by default the student experience. The model claims to have improved the students sense of belongingness (Levett-Jones et al. 2007), as students essentially belong to an experience rather than to a 'venue'. While the logistical challenges in providing this type of placement model, acknowledged by the authors (Roxburgh, Conlon & Banks 2012) may be significant, this is a conceptually appealing take on experiential learning.

2.1.8   Experiential learning

It has been previously discussed that the clinical placement within a nursing curriculum is a form of experiential learning and that little dialog exists within nursing literature as to the ontological or epistemological nature of such learning. A non-discipline specific description of experiential learning is offered by Boud, Cohen and Walker (1993, p6) as an '…active engagement with the environment, of which the learner is an important part'. Boud, Cohen and Walker (1993, p7) identify that experiential learning is;

> multifaceted, multi-layered and so inextricably connected with other experiences, that it is impossible to locate temporally or spatially. It almost defies analysis as the act of analysis inevitably alters the experience and the learning which flows from it.

Conducting a study into something which by definition is multifaceted and defies analysis supports the use of a flexible methodology such as case study. Other authors such as Miller and Boud (1996) also suggest that while much is known of teaching, far less is known of the contextual nature of learning and learning in environments external to the classroom. To illustrate this Benner et al. (2009) have gone on to differentiate experiential learning from situated learning, where experiential learning is regarded as the outcome of learning to care for patients whereas situated learning

describes the learning that occurs when caring with a specific focus on a particular patient or person. While the distinction may be subtle the implications for educators are important when considering the facets of learning that a clinical placement opportunity may present. It is essential that if nursing is to maintain the importance of clinical placement as an element of curricula, a deeper understanding of underlying principles is required. Boud, Cohen and Walker (1993) nominated the following propositions as being central to learning from experience:

- experience is the foundation of and stimulus for learning

- learners actively construct their experience

- learning is a holistic process

- learning is socially and culturally constructed

- learning is influenced by the socio – emotional context in which it occurs

Each of the propositions has application to the specific nature of nurse education where terms such as 'holistic', 'culturally' and 'context' are often used in discussion of nursing pedagogy.

In a similar fashion to Heron (1989), Boud, Cohen and Walker (1993) position experience as the foundation and stimulus for learning, emphasising two key elements. Firstly '...learning always relates in one way or another to what has gone before' and secondly '...while experience may be the foundation of learning it does not necessarily lead to it: there needs to be active engagement with it' (Boud, Cohen & Walker 1993, p9). An educator of any discipline will find themselves nodding to the worth of these claims however on reflection may also find themselves acknowledging that these goals are not always easily implemented. The construction of experience by learners is a dynamic process that requires a connection between

their previous experience and the learning opportunity. The suggestion by Boud, Cohen and Walker (1993, p11) is that poor motivation in constructing learning experiences is a result of a '...mismatch between students' construction of the event and our own as teachers'.

The concept of holism is one that may be particularly challenged by the nature of clinical experience and of nursing practice. Boud, Cohen and Walker (1993) suggest that splitting learning into discrete components of cognitive, affective and psychomotor effectively devalues the holistic nature of learning. There is perhaps no other profession that requires such a sophisticated application of holistic principles as that of nursing. The 'simple' act of a wound dressing requires hands on skills, critical thinking and an acute awareness of the patient's feelings at the time. The science and art of nursing is often quoted to represent the blend of characteristics required by nurses in their day to day work. While the influence of culture and society is a key influence in the construction of a learning experience it may be the most difficult concept to measure as an educator. The difficulty comes from our own attempt to recognise the internal culture we bring to learning situations. With effort and much introspection it may be argued that an educator could learn these internal philosophies and identify how they affect their delivery of learning. However the nature of clinical experience is that students are often exposed not to one educator but too many, all with their own language, culture and previously constructed learning (Hartigan-Rogers et al. 2007). These attributes may be quite different to the driving philosophy of the student nurse where their sole focus may be the completion of the psychomotor aspect of a nursing intervention.

Finally the importance of the socio-emotional context of experiential learning is elemental to the learning opportunity. The influence of others to create a positive or negative experience is powerful and may leave permanent impressions or feelings for both nursing students and preceptors (Hickey 2010). The opportunity to build or breakdown self-esteem and confidence may leave the novice learner with either valuable memories or barriers that will preclude further experiences. The value of Boud, Cohen and Walker's (1993) contribution is to position the value of experience as a central element of learning theory. What however is not clear from consulting literature is how transparent nursing curricula are in integrating such propositions into their various clinical placement models. Clare et al. (2003, p14) report that the aim of clinical experience '…is to enable students to develop clinical skills, integrate theory with practice, apply problem solving skills, develop interpersonal skills and become socialised into the formal and informal norms' of nursing practice. Each one of these aims represents a significant educational challenge. To anticipate that each aim could or would be addressed within a clinical placement with any degree of thoroughness is ambitious. Hence the degree of fit or indeed the relationship between the university, the curriculum and the clinical placement experience relies on identifying which aims are essential, which are desirable and how each may be more successfully extracted from the placement. Levett-Jones and Bourgeois (2007, p3) describe with precision that while university provides an opportunity for students to learn about nursing, clinical placements are where students '…learn to nurse'. This insight to the nature of experiential learning supports further the advantage of case study methodology in considering a wide range of conditions.

In respect of learning Usher (1993) argues with some success that the terms 'experiential learning' and 'learning from experience' require distinction from one another. The researcher suggests that the broader description of experiential learning subsumes learning from experience and indeed advocates that compiling experience becomes a form of knowledge. While this may appear at first an obvious conclusion, the contribution of Usher (1993) is to ensure that educators do not assume learning will come from experience, there needs to be some mechanism by which educators can draw down aspects of experience and facilitate student learning. It is possible such facilitation will be enhanced by an appreciation of the philosophical underpinnings of the placement. Dewey (1897 , p9) in his seminal work My Pedagogic Creed, wrote that the teachers role is to be there '…as a member of the community to select the influences which shall affect the child and to assist him in properly responding'. Such observations are sobering for those in nursing education who see their role as an intimate part of the total experience of a clinical placement. The recognition of experience in its contribution to learning was for Dewey, the most important and central element of education.

2.1.9   Competence and Clinical Skill Acquisition

The debate, description and definition of competence and competency provide for a recurring theme within nursing education literature. The pursuit of a definition of competence in clinical settings has been a topic for a number of years with some institutions arriving at a working description (Girot 1993; Watson et al 2006). The 2006 ANMC Competency Standards (rebranded under the Nursing and Midwifery Board of Australia) defined competence in nursing as '...The combination of skills, knowledge, attitudes, values and abilities that underpin effective and/or superior performance in a profession/occupational area' (ANMC 2006, p8). To achieve this

level of preparation, Australia saw the movement of registered nurse training from a hospital based, apprenticeship style of nursing to the university sector, producing baccalaureate prepared nurses. Concerns about the readiness or preparation of the graduate nurse in their ability to contribute as a member of the care team remain. What is often missing however from this debate is a precise distinction of what essential skills and knowledge may be lacking or at least not recognised in the new graduate. This impetus is likely to gain traction as various government and accreditation bodies under a banner of public safety and quality assurance, refocus attention to the graduate. This focus has not been without prior criticism for example Barnett (1994, p80) who writes that '...skills cannot be a sufficient way of describing .... a professional-client relationship'. Perhaps the issue that plagues this debate is one concerned with words themselves, perhaps competence is simply too large and complex a term to apply to education and any intended outcome.

Watson (2002) colourfully but pointedly argues that a drive for development of competence in nursing education in the United Kingdom is at odds with the wider ideals of higher education. The emphasis he places, on the need for a better description of the nature of competence as distinct from incompetence, is especially relevant to the clinical setting. The elusiveness of a definition of competence is also reflected in the United Kingdom with a 2009 policy description from Kings College London (2009) identifying that much work is still required prior to a universally accepted definition of competence. Watson (2002, p 479) writes that if competence is to be an aspect of nursing education then we '…have to make serious efforts to find it, define it, and measure it.

The essential skills required by nurses in a modern technologically challenging health care sector are expanding at a rapid rate. New technology and equipment, advances in pharmacology and an increasingly expectant health consumer are some of the issues that colour the landscape into which new graduates venture. Utley-Smith (2004) describes a study which surveyed nurse managers and administrators from hospital and aged care settings asking them what competencies they expected of newly graduated nurses. While competencies such as *Interpersonal Communication*, *Health Promotion* and *Computer Technology* were seen to be important across all sites, Utley-Smith (2004) suggests that nursing curricula must ensure the attainment of other essential competencies such as the provision of Direct Care. Utley-Smith (2004) also makes a plea for the teaching of competencies to occur in the clinical setting most appropriate to the competency, noting that supervision is a competency that requires an opportunity to supervise. The university sector responsible for the provision of nursing training must consider such issues and work to ensure the graduate is able to function at a certain level in the workplace. The university sector is also required to source sufficient clinical placement experience to allow this to occur. To this end the preparation of new graduates requires curriculum designers to address change in content and delivery to educate a practitioner able to cope with the dynamism of modern health care. Perhaps ironically then it is suggested by Clare et al 2002, p3) that literature '…confirms the expectation that new graduates can be fully prepared for clinical practice in three years is unrealistic'. Such statements raise more questions than answers. Is it reasonable to expect industry to assume the role of a post-graduation education provider? Is it reasonable that the national definition for the competency of nurses doesn't accommodate the complexity of preparing graduates as fully professional practitioners within three years? What tension exists between the

'impossibility' of preparing graduates against a national benchmark that establishes an expectation of competency?

Descriptions of competency have been addressed by a number of nurse educators and academics. The Ascent to Competence Framework of Levett-Jones and Lathlean (2009a) adapts Maslow's Hierarchy of Needs to consider a pyramidal concept of the developmental layers required for an ascent to competence. The multidimensional aspects of the model suggest that student nurses require particular conditions to aspire to a higher state of achievement, be that personal or professional. The key insight of the model is the acknowledgement that the complex expectations and requirements of clinical placement require time to occur. There may be little chance that a student will gain a sense of belonging or have the insights to reflect on their personal development after a two day, five day or possibly three week placement. As a '...set of interrelated constructs that together create a scaffold' to encourage student development, the framework contains a significant number of complex components required for elevation through the hierarchy (Levett-Jones & Lathlean 2009a, p2877). In considering the volume of literature that is critical of the current components of the clinical placement experience it is important to ask how students, who may have little opportunity for safety, security and a sense of belonging, do develop towards competence.

The contribution of Benner to nursing education and nursing competence has been significant. Benner's 1984 book *From Novice to Expert*, offers an in depth treatise of the relation between practical and theoretical knowledge and the role of experience in learning. Benner's application of the Dreyfus Model of Skill Acquisition to nursing,

describes that five stages of proficiency '…novice, advanced beginner, competent, proficient and expert' colour the transition of students through practice (Benner 1984, p13). Dreyfus and Dreyfus (1980, p5) who developed their initial five stage model based on their observations of how people acquire foreign languages, chess players and pilots, describe that while skill acquisition may progressively follow a set of assumptions and abstract rules '…only experience with concrete cases can account for higher levels of performance'. Benner (1984) elaborates further on this and describes three dimensions of skilled performance. One involves a paradigm shift from using abstract principles to concrete experience, essentially where a nursing student might adapt their response to a situation based on a previous clinical experience rather than a textbook example. Secondly as learners perceive situations more wholly as a series of interconnected situations rather than discrete events, they are more able to respond to demanding situations. Finally the student moves from a role as observer to one of performer, transforming from being '…outside the situation but is now engaged *in* the situation' (Benner, 1984, p13). This step wise and most importantly, time dependent, model is '...situational rather than being a trait or talent model because the focus is on actual performance and outcomes in particular situations' (Benner 2004, p189). The acknowledgement of the complexity of placement goals are significant when one appreciates that the student, the university and the placement provider may all have differing expectations and goals. Clearly identifying the progress of a student from novice to advanced beginner and beyond is however less precise in terms of measure and certainly any assumption that each graduate arrives with a similar set of skills and knowledge is open to challenge. The contributions of Benner (2004) and White (2008, p27) to an appreciation of '...constructed knowledge in action-*practice wisdom*', have been most important in their capacity to stimulate the critical thinking of educators.

More recently Benner et al. (2009) have called for a radical transformation in nursing education to accommodate the increasingly complex and specialist nature of modern nursing work. Based on a range of cases studies this transformation has been prompted by the suggestion that '…a significant gap exists between today's nursing practice and the education for that practice' (Benner et al. 2009). Identifying that the quality not quantity of nurses is the solution to the complexity of nursing work, the role of education and the opportunity for alternative perspectives of educational outcomes is even more important.

2.1.10 Nursing curricula and readiness for practice

Following the 2002 National Review of Nursing Education in Australia, a number of recommendations were made within a subsequent 2006 report (National Nursing and Nursing Education Taskforce, 2006). Recommendation 24 of that report 'Funding for Clinical Practicum' identified that additional funding should be dedicated to the costs associated with clinical practicum. This recommendation acknowledges that a tension exists between the industry sector who expect a graduate to arrive work ready and the university sector that resists a narrow 'outcomes' focus on the education of graduates. The report suggests that '…new graduates should be viewed as competent beginners only, not experts' and notes that graduates '…**have** acquired the cognitive, academic and research skills to continue to learn and develop in their chosen profession' (emphasis added) (National Nursing and Nursing Education Taskforce, 2006, p27). The report also notes that cost shifting of funding between the Australian Commonwealth and state funding bodies is a complex matter that has an influence on the performance outcomes of graduates. In Australian hospitals, new graduates are

often employed directly from university into a transition to professional practice or graduate nurse program to consolidate their skills and knowledge often with an experienced nurse acting as a preceptor. The reality however is that recent graduates are not always placed to benefit from the supervision and guidance of experienced nurses. Graduates are often, for example during night shifts in acute care settings, required to take responsibility for the nursing care provided to a partial if not entire ward. The responsibilities of recent graduate nurses may also include care of patients with significant acuity, coordination of enrolled nursing staff and administration of numerous medications and infusions. Each of these tasks is a reasonable expectation of what might be required of an experienced registered nurse. Further still Fisher and Parolin (2000) suggest that along with medication administration, novice nurses also have problems in time management, safety and comfort care for patients. The implications are that while the graduate nurse program may suggest a guided and assisted orientation to a ward, workplace realities could require the graduate nurse to work with little or no guidance shortly after graduation. This reality places even greater burden on the capacity of the curriculum to equip the graduate with as much knowledge and skills as possible. Internationally the high attrition rate from pre-registration and graduate nurse programs is a reflection of the pressures faced by student and graduate nurses (Leducq et al. 2012).

The clinical performance of graduate and senior nurses, the subject of a literature review by Robb et al. (2002) note that the majority of research has been of a purely qualitative nature with the graduate nurses' attitudes, feelings, thoughts and reflections the focus of many studies. More recently tools directed to the measurement and observation of clinical competence have been developed by (Levett-Jones,

Gersbach, et al. 2011) in the form of the SOAP (Structured Observation and Assessment Practice) tool, a criterion based reference tool described by Ulfvarson and Oxelmark (2011) and a qualitative questionnaire by Lejonqvist, Eriksson and Meretoja (2011).

An important study by Hickey (2010) describes similar concerns of graduates from within the United States nursing education system. Using an exploratory case study approach, Hickey examined the perceptions of recent baccalaureate graduates and found that the nature of clinical instruction suffered a range of difficulties that included ineffective clinical instruction and noted examples of the reality shock first described by Kramer (1974) when transitioning from student to nurse. These findings reinforce similar studies identifying reality shock Cooper, Taft and Thelen (2005) as a consequence of transitioning through levels of nursing education.

One instrument for the measurement of competence has been described by Meretoja, Isoaho and Leino-Kilpi (2004) as the Nurse Competence Scale (NCS). This instrument is reported to test the level of a nurse's competence in differing work place settings. The instrument while addressing a number of items such as helping role, teaching-coaching and diagnostic functions was a self-assessment scale that did not identify specific interventions to patient care.

Wolff, Pesut and Regan (2010) identify that the increasing divide between clinical practitioners and educators is a reflection of the changing landscape of contemporary health care and nursing. This is an insightful study for a number of reasons. The focus on the differences between the 'professional nurse', the 'technical' nurse and each

groups understanding of the term 'work readiness', is significant. Some of the many variables that effect work readiness are listed by Wolff, Pesut and Regan (2010, p187) as '...workplace shortages, fiscal restraint, complex healthcare organisations, increasing patient acuity' among others. The range of variables hints at a complexity that demands sophisticated and alternative theoretical paradigms and equally important, appropriate research methods. The study findings suggest that contemporary nursing education has some core concerns about the nature of '...moral distress' and the uncertainty of graduates nurses being '...ready for what?' is a sobering position for both academe and industry (Wolff, Pesut & Regan 2010, p190).

2.1.11 Indicators of nursing care

From the outset this study required a set of descriptions or conditions that would illustrate the care provided by graduate nurses in an acute care setting. The indicators chosen had to be flexible enough to accommodate the diversity of the ward environments while still representing a level of skills and knowledge that would be desirable for new graduate nurses. The indicators were also important to the design of the case study to ensure a clear boundary to the quantitative and qualitative description. The indicators, a number of nursing interventions, were chosen were from literature that was associated with Nurse Sensitive Patient Outcomes (NSPO). These outcomes have been identified by Maas, Johnson and Moorhead (1996, p296) as '…a variable patient or family caregiver state, condition, or perception responsive to nursing intervention'. Nurse sensitive patient outcomes have also been described as NSOI (Nurse Sensitive Outcome Indicators: International Council of Nurses Fact Sheet), NOC (Nursing Sensitive Outcomes Classifications: (Maas, Johnson & Moorhead 1996)) and OPSN (Outcome Potentially Sensitive to Nursing: (Carryer & Budge 2010). It is important to emphasise that the indicators used within this study

are the *interventions* provided by the participants and have not been used to suggest any causal relationship between an individual participant and a specific patient outcome. Doran et al. (2006, p62) suggest that while '…patient outcomes measurement is an important source of evidence about the effectiveness of nursing care' further research on the variables that make up nursing interventions and outcomes are required. This is illustrated by Doran et al. (2006) extensive study of nursing interventions across a number of Canadian sites and participants (n=574) where it was identified that some nursing interventions lent themselves to good outcomes and some to poor outcomes. Despite the depth of statistical analysis and the size of the study population, it was found that there was only at '…least partial support for the hypothesized relationship' (Doran et al. 2006, p68). This is not noted as a criticism of the work by Doran et al. (2006) rather a further indication of a domain of nursing that remains difficult to describe and measure in nursing research. Common, though important established nurse interventions within the acute care setting are identified by Cho et al. (2003) as preventative care in the development of pneumonia, deep vein thrombosis, pressure sore, fall prevention and urinary tract infection. Of these interventions, care for pneumonia, falls and pressure area provide a consistent set of practices to bound the study. Other studies and reviews (Ingersoll, McIntosh & Williams 2000; Prowse & Heath 2005; Shuldham et al. 2009) and as far back as 1999 (Lee et al. 1999) have all identified that nursing research oriented to patient care is both essential but underrepresented in literature. Certainly within the scope of the literature search for this study there were no case studies examining the nature of an undergraduate's nursing education and the care they provided for pressure area and falls prevention.

Assessment of other measures of nurse capabilities such as emotional intelligence (Rochester, Kilstoff & Scott 2005), bioscientific knowledge (Prowse & Heath 2005) and diagnostic skills (Morolong & Chabeli 2005) have alternatively supported and criticised the capabilities of nurses and graduates. O'Connor et al. (2001) conducted an extensive survey of senior and junior nurses finding that hypothetical measures of graduate competence should be avoided; recommending instead that objective scoring against a list of predetermined competencies may be more reliable. The measurement of attributes such as critical thinking and emotional intelligence have been previously used to suggest a level of clinical performance and then by implication a level of care. The approach taken in this study was to consider the reverse, that interventions and care provided were the result of a reasoned response to the patient's needs. Exploring the reasoned response as a product of university education and the manner and the influence that experiential learning has in the formation of reasoned responses, was a goal of this study.

What is apparent from a review of the literature is that certain aspects of clinical interventions for common occurrences in hospital settings do have an impact on patient care. The Australian Institute of Health and Welfare (AIHW 2011) report *Australian hospital statistics* 2010-2011 (p358) identify that pneumonia acquired during a hospital admission is serious enough to be identified as a Condition Onset Flag Data. Statistical data regarding a fall and subsequent harm occurring within an acute care setting are to be identified as a Reported Performance Indicator (p376) while pressure ulcers occurring in Australian hospitals are to be identified as a Progress Measure for acute care settings; as part of the Australian National Healthcare

Agreement for 2012. Clearly these are important clinical conditions that provide a benchmark to reflect on the quality of care being provided.

One of the most difficult issues associated with measures to record a discrete episode of nursing care is the appreciation that nursing and medical interventions are often provided within an interdisciplinary team. An attempt to isolate the development of a pressure injury such as an ulcer to the action or inaction of one nurse on one shift at a particular point of time is not appropriate. As an even less acute clinical event, identifying the link between when a patient develops pneumonia and the one shift where a nurse did not encourage prophylactic coughing and breathing exercises is tenuous at best. Similarly the difficulty of comparing between one patient and another with their unique pathology and co-morbid state make direct comparisons of patient to patient interventions problematic. This was yet another of the reasons for choosing a case study methodology, realising that all the variables even within a tightly defined case can quickly become unwieldy and difficult to accommodate.

Irvine, Sidani and Hall (1998) published their Nursing Role Effectiveness Model (NREM) as a conceptual model based on a desire to link structure, role, process and outcomes in nursing. The model has three distinct components describing the nurse's role. The Independent, Dependent and Interdependent roles of the nurse are each seen to contribute to the overall patient experience. The Independent role requires nurses to assess, diagnose, intervene, evaluate and be solely responsible for the care provided. The Interdependent role requires interdisciplinary communication and coordination amongst the wider health care team. The Dependent role identifies those actions a nurse would take as a result of a medical directive. The description of the Independent

category however highlights a subtle but important problem with the conceptual model. Irvine, Sidani and Hall (1998) fail to link the nurse's independent role within the model to Adverse Events. Whether as a deliberate or inadvertent omission, by not identifying that Adverse Events are a possible outcome associated with a nurse's Independent role, the model fails to situate nursing as a fully autonomous collective. This recognition provides further justification to this study in its approach to identify interventions provided by participants rather than patient outcomes. As a member of a team providing care the graduate nurse contributes to the collective effort. Omissions such as this require educators and researchers in nursing to carefully consider the literature regarding the nature of responsibility, patient outcomes and nursing intervention.

Other authors (Clarke & Connolly 2004; Denehy 1998) have also considered the place for nursing to continue and develop further discussion of outcomes. Denehy (1998) highlights that neither the nature nor duration of placement are long enough for students to see the outcomes of any nursing intervention they may provide. This has an obvious effect on the learning opportunities for students and their ability to link a patient outcome with their education. Describing the opportunities for students, Clarke and Connollys' (2004) commentary of Linda Aiken's work is a significant contribution to the discussion around the causal relationship between nurse education and patient outcomes. Blegen, Vaughn and Goode (2001) found that patient outcomes such as falls rates were better on wards where more experienced nurses were present. The study directly compared baccalaureate graduates with non-baccalaureate nurses suggesting that educational background may not have as significant an effect on patient outcomes as might be expected. Rather the determining factor influencing

patient care was the level of experience of the nurses. Blegen, Vaughn and Goode (2001, p39) acknowledge the findings are not conclusive and as similar researchers before emphasise that '...further study is needed to determine whether that impact is, in fact there'.

There have been a number of studies that have investigated the thinking skills and patterns of graduate nurses (Beeson & Kring 1999; Murphy 2004). Very few studies however have taken this discussion further to appreciate how educational preparation and thinking skills translate to improved nursing care at the bedside. The work of Aiken et al. (2003) is one of the most noted studies to consider this issue. In considering the relationship between the level of nursing care, the educational preparation of the nurse and the outcomes for the patient population, Aiken et al. (2003) found a link between the incidences of a certain ratio of baccalaureate prepared nurses and the mortality of surgical patients. The finding revealed that hospitals staffed with a greater proportion of nurses with a higher qualification had a statistically significant reduction in patient mortality. While this study has been a valuable opportunity for reflection among nursing academics and managers it has raised other significant and unanswered questions. There does not exist in the literature search undertaken for this study any quantitative data that links specific patient outcomes with the educational preparation of particular nursing graduates. Clare, Edwards and van Loon (2002, p78) further emphasise this need noting, that '…the link between patients care outcomes and better learning and performance of nurses within higher education has not been adequately investigated'.

2.1.12 Falls

One of the most researched aspects of patient mishap in home, community and hospital settings is that of falls. Cameron et al. (2010, p2-3) describe falls as '...common events that may cause loss of independence, injuries and sometimes death', the causes of which '...are not fully understood'. Spoelstra, Given and Given (2011) add that while some of the reasons for falls are understood the interventions for such are less formed. The degree of complexity for identifying all aspects of falls is outside the scope of this study however there are a number of relevant studies concerning educational preparation and nursing assessment. Myers and Nikoletti (2003) studied the clinical assessment of falls risk by enrolled nurses and graduate registered nurses both within in their first year of practice. The results were significant with enrolled nurses (EN) having much greater accuracy of clinical judgement concerning falls risks, 44.4% to that of the graduate with only 8.6%. Myers and Nikoletti (2003) also pointedly comment as to the educational preparation of each group highlighting a significant difference between the 18 month EN training course and the three year university preparation of registered nurses. While the authors do not go onto suggest a reason for the difference it may reflect the different emphases placed on the role of clinical placement in the preparation of the different groups.

2.1.13 Pneumonia

Pneumonia is an '...inflammation and infection in the terminal bronchioles and alveoli causing consolidation' and lung injury of which the Center for Disease Control (CDC) report that pneumonia accounted for 3.4 % of deaths associated with hospital admissions in the US in 2006

<http://www.cdc.gov/nchs/fastats/pneumonia.htm>. Australian data identifies pneumonia as the cause of 1.2 % of all registered deaths noting that indigenous people are over represented

<http://www.abs.gov.au/ausstats/abs@.nsf/Products/4FCC60392960B1AECA257884 00127B9D?opendocument>.

These statistics do not include the morbidity, extended clinical stay or the suffering on a patient's psychosocial and clinical wellbeing caused by pneumonia. The financial burden of pneumonia and other issues such as urinary tract infections and pressure ulcers have been noted by Pappas (2008) who used a regression analysis of clinical records to indicate that the cost of an adverse event such as pneumonia contributed somewhere between $900 to $1039 (US dollars 2008 data) to each patient admission. Pneumonia differs somewhat from falls and pressure area as an indicator in that the clinical progression of a patient with pneumonia in an acute care setting may be less obvious than other conditions. The consequences for the patient however may be much more significant.

2.1.14 Pressure Area Injury

Clarke et al. (2005, p579) define a pressure area injury, such as an ulcer, as a '...lesion caused by unrelieved pressure resulting to damage to underlying tissues', that causes suffering and contributes a financial burden to the health care system. The Joanna Briggs Institute (JBI) Best Practice Information Sheets (2008) for pressure ulcers (or pressure sores, bedsores, decubiti or decubitis ulcers) suggests that many incidences of ulcers are avoidable and that effective nursing care is a key factor in preventing their occurrence. Graves, Birrell and Whitby (2005) study of the economic implications of pressure ulcers in hospital patients in Australia, calculated an expense of $285 million annually to the health care system. As a summary of the best available

evidence including systematic reviews, the JBI best practice guidelines identify a number of nursing interventions that are effective in reducing the incidence of new ulcers and preventing existing ulcers from worsening. The interventions noted include repositioning, skin care, nutrition and the use pressure relieving devices such as mattresses.

The three clinical conditions described above often impose a distressing level of morbidity, psychological suffering and significant financial impost. The prevention, management and care for each condition should fall within the scope of practice of a graduate nurse. As such they form a useful compact for considering patient care and nursing interventions. It is important that research continue to examine not just the latest technological revolution or medication but to have a focus on the skills and knowledge of the nurse delivering the intervention.

2.2 Conclusion

Constructing a literature review around nursing pedagogy, experiential learning and nurse sensitive patient outcomes is to coin a metaphor much like peeling an onion. As each layer is examined more closely a new subset of insightful discussion and debate, alternative and sophisticated philosophical debate and a raft of clever studies emerge. The challenge is to address those items of literature most recognised for their contribution to the field, retaining an air of critique and remain conscious that not every paper ever published can, should or indeed warrants citing. The literature review presented has taken a funnel like, wide to narrow approach to the topic. For example moving from discussion of the broad principles and the theoretical underpinnings of ontology and epistemology to a more focussed discussion of contemporary pedagogies is important for case study methodology as the theoretical

framework required to establish a case study demands sound construction. A range of nursing literature has been reviewed highlighting the objectives of clinical placement and the role of experiential learning. Educational and nursing research linking the performance of new graduates and the level of care they are able or expected to provide is increasingly being seen as a requirement of government, industry and consumers of health care. This literature review situates this topic as a complex field of study and one that may benefit from a consideration of emerging paradigms of thought. As has been discussed, Complexity theory is one such paradigm. What is clear from the literature review is that the role of the clinical placement experience is integral to nursing education.

3 Chapter 3 - Study Design

3.1 Introduction

This aim of this study was to consider how the teaching model and duration of clinical placement, within an undergraduate nursing program, might affect clinical skill acquisition and nursing practice. In contemplating the range of conditions that would inform such a study design there was a desire to bring together and illustrate the relationship of theory, methodology and method. In working up this illustration it was important to define and describe how the theoretical base, Complexity theory, would be best served by a suitable methodology, case study, which would in turn provide a rationale for the range of study methods involved. Essentially the philosophical and ideological positioning of the study can be traced from the insights of Complexity theory to the appropriateness of case study methodology and then to the actual methods used to collect the data. Denzin and Lincoln (2000, p6) identify the examination of the relationship of theory, methodology and the methods to be used as a '…researcher-as-methodological-*bricoleur*' where the researcher establishes a rationale to move '…from a paradigm and a research design to the collection of empirical materials'. This chapter describes how each of these elements comes together to the construction (bricolage) of an overall research design and establishes for the reader a sense of the integrated nature of case study research.

Methodology is defined by Wheeler (2008,p152) as the

> the philosophical principles, paradigm and underlying assumptions on which the research is based. It affects the research question and the specific approach with its strategies and procedures (methods). The methodology is based on epistemology and

ontology. Qualitative methodology centres on meanings that human beings give to actions and thought.

3.1.1   Selecting a research methodology

The complex nature of the research study and the lack of previous studies with similar focus suggested the selection of a methodology that would allow flexibility and yet was sufficiently robust to ensure that the findings were relevant and valid. The origin of this study had distinct ties to the researchers desire to understand how the education of nurses translates to care provided within the clinical setting. The choice of a suitable methodology for this study was not at first obvious as the researcher wanted an approach that would complement both quantitative and qualitative measures. The risk of using a purely quantitative method of experimental and quasi-experimental study would have had limitations in addressing questions of epistemology and ontology. Similarly, while a large amount of nursing research into education has taken a qualitative approach; fewer studies have identified quantifiable data. While an ethnographic study would have been quite feasible for this study, there was a chance that the focus on cultural issues may have restricted the broader study aims. An action research approach, although increasingly popular in educational research, is ideologically conducted to bring about some form of localized change. Encouraging immediate change was not the intent of the study. Phenomenology and hermeneutics were useful in informing some of the qualitative processes involved in data analysis, however of their own were not sufficiently broad to address the overall complexity of the study. On review of the literature and in consideration of the variables around nursing education it was decided that an appropriate framework was case study methodology.

3.1.2 Case study methodology

To assist with the construction of the research design a range of descriptions and definitions were sought. Gerring (2004,p341) however describes that one of the issues associated with doing case study research, is for researchers to firstly navigate '…a definitional morass'. The use by various proponents of case study as a design, method or methodology or combination thereof may be one of the reasons why case study has not garnered more support in nursing research. Some of the definitional issues are reflected by Long and Bernier (2004) who note that research designs for quantitative studies lay out the plan for gaining answers to the research question. Long and Bernier (2004) go on to distinguish research design in relation to qualitative studies as being emergent or being responsive to the data and the conduct of the intended study. Case studies that combine both quantitative and qualitative approaches to the research design must be able to accommodate both definitions, that is they must be planned and then flexible enough to accommodate the data that emerges from the study. It is also important to distinguish case study research from the commonly used description of *case study* within health care, that usage often describing a clinical discussion of a particular patient.

Case study is described by Yin (2003, p13) in a two part 'technical definition'. The first element of the definition, which Yin presents as dot points, describes case study as;

> An empirical inquiry that
>
> - Investigates a contemporary phenomenon within its real life context, especially when
>
> - The boundaries between phenomenon and context are not clearly evident.

The investigation of a phenomenon in its real life context, where boundaries or relationships are not immediately obvious, fits neatly when considering the nature of pedagogy and the transfer or application of knowledge. Cohen, Manion and Morrison (2011, p 289) write that;

> Contexts are unique and dynamic; hence case studies investigate and report the real life, complex dynamic and unfolding interactions of events, human relationships and other factors in a unique instance.

Any assumption that a class of students will all learn or assimilate lesson content in the same fashion within the same context is flawed especially when there is no consideration of the learning setting and the nature of the interpersonal interactions between educator and student. This rationale clearly extends to the clinical placement experience where the complexity of the relationship between teaching or pedagogy (phenomenon) and clinical practice (context) remains uncertain. By emphasizing context and phenomenon in his definition Yin (2003) requires the researcher using case study to clearly consider the logic of their approach to research. If the research tools are not able to consider both the phenomenon in question and the context in which the phenomenon exists, a risk is that the research tools become ineffective. An example cited by Yin (2003) is that of the survey, a research tool that may be able to study a phenomenon but without adequate consideration of context. This was one of the reasons why the survey and interviews were conducted in the clinical setting so that participant's reflections of their clinical shift were vivid and contextual.

The second element of the Yin (2003, p 14) definition, embraces the potential for many variables and a need for multiple sources of evidence;

Case study inquiry

- copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result

- relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result

- benefits from the prior development of theoretical propositions to guide data collection and analysis.

It is worth noting the contrast to Yin's quite technical outline of case study to that provided by Stake (2000,p435) who writes that '…case study is defined by interest in individual cases, not by the methods of inquiry used'. Stake (2000) argues a differing approach to defining case study research, suggesting three different types of case study, intrinsic, instrumental and collective. If this study had applied Stake's approach rather than Yin, this study would be aligned to the collective case study approach. This approach seeks a better understanding of a group of similar subjects with the possibility of theorizing about a phenomenon and increasing the collective understanding of that phenomenon (Jones & Lyons 2004). The selection of Robert Yin's work to guide the conduct of this study was on the basis of his central text covering all aspects of designing, conducting and analysing case study research.

3.1.3   Case study methodology in nursing research

Luck, Jackson and Usher (2006,p 103) suggest that nurses have not '…fully embraced case study as a comprehensive approach for research'. This may be for a number of reasons as the nurse patient interaction, is an opportunity that often defies definition in a quantitative sense, rather being a subject that often lends itself to qualitative methods. Indeed Luck, Jackson and Usher (2006) suggest it is difficult to adopt a

narrow methodological approach in research where the health care environment and the people that populate it are diverse and unique. Similarly while case study research employs rigorous and numerous forms of assessment and data collection, the overall design is perhaps less defined and this may also serve as a deterrent to those considering this form of research into nursing. An example of this lack of design is evident in an article by Jenner (1998) who describes a case study regarding nursing roles, education and patient focused care. Unfortunately despite the interesting content there is no description at all of the case study analysis. In fact the reference list of the Jenner (1998) paper does not refer to any case study methodology literature of any sort. A contrasting paper is that of Tierney and Vallis (1999), a clearly written example of a case study examining hip fracture outcomes. The description of the methodology and the method in which the case was pieced together is clear, provides explicit detail about the study design and identifies that issues associated with health are often far more complex than suggested by a narrow approach to research. It is important to note that while the final design may be less proscriptive, the research design and instruments are themselves required to be robust, narrow in focus and well described.

Another discussion of case study research in nursing is provided by Pegram (1999, p6) who notes that research '…can be undertaken at a descriptive, exploratory and explanatory level'. In citing nursing studies employing case study methodology, Pegram (1999) surmises that the key to successfully completing a case study is a clear and well-defined case with insightful articulation of the relationship between the case and knowledge development. Developing knowledge at descriptive, exploratory and explanatory levels contributes to the ontological understanding of nursing and patient

care. This study is a form of exploratory case study where the researcher's desire is to examine if any analytical generalisation exists effectively repeated cases that on examination support a similar theoretical position, for example to describe whatever relationship may exist between the experience of clinical placement and student development. It is noted however that at times the study does take on characteristics of both descriptive and explanatory case studies. Another significant concern regarding case study is that they are difficult to conduct and analyse (Yin 2009). Bryar (1999) writes that case study evidence has poor scientific characteristics, which prevent findings from being considered contributions to evidence based research. Indeed Bryar (1999) goes as far as to suggest that case study is simply not fashionable as a research design or methodology. Despite these concerns the link to well established methodologies such as positivism, phenomenology and grounded theory may be apparent in case study design. Authors such as Stake (2000, p435) take this apparent distinction further and identify that '…case study is not a methodological choice but a choice of what is to be studied'. This statement reinforces the need for researchers to identify the 'case' from a number of different perspectives. Interestingly and perhaps paradoxically Stake (2000) also posits that the precise definition of the case provides for researchers to ask how much knowledge about something is required to actually understand it. Is an overwhelming volume of data going to add to the insight of the study or contribute to a lack of clarity in the analysis?

3.1.4 Case study methodology in other educational settings

Bassey (1999) identifies case study within educational research settings as having such diverse descriptions that he feels compelled to reconstruct the concept of case study research itself. Indeed Bassey (1999) identifies Yin (1993) as one of the few

educational researchers that has placed case study within a positivist framework. While Bassey (1999) is critical of Yin's contribution to case study research he has addressed with flair the issue of generalisation from case study findings. This is illustrated by the following two sentences which Bassey (1999, p51) uses to good effect;

'…Do y instead of x and your pupils **will** learn more'.

This statement reads as an absolute, a precise statement where doing one thing will lead to another. Few educators would feel comfortable reading this rigid determination of fact and 'truth', understanding that a class of students with unique and flexible learning styles would not typically encourage generalisability. This is contrasted against;

'…Do y instead of x and your pupils **may** learn more'.

Substitution of 'will' for 'may' is immediately less threatening to the experience of most educators, because as Bassey (1999) notes, due consideration is given to the structures that inform learning. Similarly while this study has sought some positivist measures of nursing knowledge or at least the application of nursing knowledge, there is no intention to develop absolute statements. In this way the study invites critique but perhaps more importantly fosters a reflective appreciation of the findings. () Browne (2005) provides a clever and reflective discussion of structure and pedagogy in respect of information learning technology. The outcome of this reflection is a simple though insightful conceptual model recognising the need for a balance of structure and pedagogy, a similar outcome to that provided by the thematic analysis of this study where the relationship between clinical placement and pedagogy are made evident.

Pare (2001) identifies case study methodology as a research approach suitable for use within information technology systems. The suggestion by Pare (2001, p4) is that case study research is '…useful when a phenomenon is broad and complex, where the existing body of knowledge is insufficient to permit the posing of a causal question'. The adoption of an exploratory case study methodology by researchers in information technology to the study of a rapidly changing and global issue has some parallels to nursing. The contribution of Pare's (2001) work is the careful description of how researchers within information technology have refined the methodology of case study design to allow for rigorous case study research. Consideration is given to four essential themes; the scientific approach to case study design, the most favourable qualities of case study, examples of successful case studies and finally insights to the decisions required by researchers embarking on case study research. The broader question of what is 'science' or 'scientific' is not within the scope of this description however the application of a logically ordered sequence to the research design has merit. Pare (2001) emphasises that a vital element of the case study approach is to begin any research with a clear, well defined question. Questions benefit from certain qualities such as simplicity, intrigue, social importance and feasibility, traits that help confirm the direction of the study. The underlying question, described below, for this study is simple, has social import and is feasible. The element of intrigue exists for the wider educational and clinical nursing community in Australia and arguably the international community.

3.1.5   The Research Question and The Case

As a registered nurse who has worked in nursing and nursing education for two decades, the researcher finds the question of how graduates respond to different curricula and why new graduates often have diverse levels of skill and knowledge

both intriguing and complex. This curiosity led to the development of the overall research question for this study;

How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and nursing practice?

As a clinician supervising new nurses, it was apparent to the researcher that graduates arrived on ward with a range of strengths and weaknesses. While this diversity of skill and knowledge could be related to the unique nature of each person, each of the registered nurse graduates had been trained against the common framework of the National Competency Standards for Registered Nurses (1996) at the time of publication, a product of the Australian Nursing and Midwifery Council. The standards, which were updated in 2006 have since been rebadged under the Nursing and Midwifery Board of Australia. The guidelines provide a description of the core competencies, skills, knowledge and attitudes expected of registered nurses working in Australia. The guidelines inform key aspects of curriculum design and accreditation processes with baccalaureate nursing programs required to show how students will be able to acquire each of the standards in both content and experiential learning opportunities. Despite the presence of the competency standards the multi layered nature of competence is one that resists description and definition. Integral concepts such as critical thinking are contained within the standards and yet are concepts that have defied measurement within a range of studies of nursing education. In acknowledging the multidimensional aspect of competence, a decision was made early in the study design to narrow the indicators of nursing care to discrete items, those interventions that typically impact on patient care.

While the research question establishes the overall intent of the study, the case description provides for the content of the study. It is important to note that one of the central issues for a case study is the need for a clear definition of what the case actually is. Yin (2009) describes that the case is defined by the research questions which form a scaffold on which the larger case study is built. In framing the case, the guidelines suggested by Gangeness and Yurkovich (2006) are very important and emphasize that the case has to be framed within a context, phenomenon and time period. The case defined for this study involves:

Graduate nurse students who attended clinical placement during university and the clinical skills and knowledge demonstrated by them within the first three months of graduation.

Once the overall study question and the case have been described, the development of the specific research question can begin. Writing research questions to be answered by any form of inquiry at first appeared to be a relatively straightforward task however it soon became apparent that this was not so. It was important that the questions that would inform the case were those that had relevance to the participants, could be answered and enabled an opportunity for reflection. The initial research questions, of both quantitative and qualitative orientation, were subject to a number of edits and discussions with supervisors and senior clinical nursing staff. Cohen, Manion and Morrison (2007) describe such a process as operationalisation of the research questions. Taking a research question from an academic situation to reality was achieved by further consultation with a number of clinical experts in the acute

care setting. Senior nurses working in surgical and medical wards were emailed the research questions and proposal together with the first draft of the data collection tools. Each was then asked for detailed comment regarding the applicability of the questions to the current clinical environment faced by graduate nurses. As an example, a question asking graduates about their use of computers to update patient care plans had to be altered to reflect the fact that not all wards allow graduates to alter electronic care plans. In different environments this task falls to the role of the senior nurse or team leader. Questions framed without an understanding of the local context could otherwise intimidate or distance the participant from a frank and honest response, a threat that all researchers should consider.

3.1.6   Case study and analysis

Much of the detail and description of the manner of data analysis used for this study is provided for within Chapter 4. This was a deliberate approach for two reasons. Firstly, seeing the emergence of the themes alongside the description of how the analysis should occur was taken to reflect the integrated and interpretive nature of case study. Secondly the provision of the general analytic strategy at the start of the analysis chapter allows for ease of reference to the remainder of the analysis chapter.

Patton (2002, p447) identifies the relationship between case study and analysis as one of '…organizing the data by specific cases for in-depth study and comparison'. The completion of a case study requires the collection and careful organization of data, in itself an example of an analytic process. Subsequently the analytic process leads to a description and perhaps understanding of the case, ergo the case study. Imagining this seemingly circular relationship suggests at the powerful nature of the methodology to accommodate diverse themes. To accomplish the analysis, data collection is framed

by three core principles of data collection which are noted by Yin (2009) as using multiple sources of evidence, creating a case study database and maintaining a chain of evidence. How each principle has informed the research will be described below.

3.1.7 Multiple sources of evidence

Considered one of the main strengths of case study, the collection of data from multiple sources around a common theme can also be a confronting strategy. Yin (2009) describes the opportunity for data to come together in a triangulating fashion into what he describes as a convergence of evidence. As described within, the potential for multiple data sources to contribute to construct validity is also a way to contribute to the overall quality of the study. At this point however it is apparent the skill of the researcher will ultimately determine how well the various data sources contribute to the case in question. Indeed this requires an understanding of triangulation.

The aim of triangulation is described by Cohen, Manion and Morrison (2011,p195) as a way to explain '...the richness and complexity of human behaviour by studying it ...and making use of both quantitative and qualitative data'. When treated as discrete sources of evidence the thematic analysis, the statistical analysis and the qualitative comparative analysis used within this study are considered non-convergent evidence. However when pulled together to a state of convergence where the data is triangulated, the discrete findings become more revealing and insightful. The manner in which the data sources will be brought together in a triangulated manner will be described in Chapters 5 and 6.

3.1.8 Create a case study database

Yin advises that to further enhance the reliability of the case study it is reasonable to have a comprehensive database that contains the evidence in its raw unedited state (Yin 2009). The suggestion is that the raw database would enable an external review of the case study. For this study the researcher maintains a database which comprises the original paper copy of the questionnaires with field notes and the raw and transcribed responses to survey and questionnaire within the software packages, NVivo 9 and SPSS 19. While the pdf documents cannot be edited directly, housing them in the password protected NVivo database alongside the transcripts and coded data enables ease of access and simple review. The hard paper copy of the questionnaires will also be kept in accordance with the requirements of the university ethics committee. The data that cannot be kept within the research database are the actual patient case notes from which data was sought to confirm the provision of nursing interventions. To further enhance the reliability of the study a 'chain of evidence' was constructed in such a way as to ensure there are transparent two-way links between data and the specifics of when and where an interview was conducted. Essentially enough detail and instruction should remain within the database to enable an external examiner to trace the progress of the case back through the study protocol. For example the dates and times of the interviews, the ward area where the interview was conducted and the bed numbers of the patients cared for by the study participants were recorded.

3.1.9 Case study and theory development

Bryar (1999, p63) identifies that case studies are located in a '…particular social and historical context, and an inductive or deductive approach may be taken to generate or

test a theory'. Having situated the graduate nurse within the social and historical context it is important to explain the approach to theory generation within this study.

An inductive approach to theory generation is described by Burns and Groves (1993) as an element of logistic reasoning. Separation of the whole into smaller parts allows for careful examination of the relationships between the parts and is an approach that would be taken by logistic reasoning. Within the logic of science are the components of inductive and deductive reasoning (Burns & Groves 1993). Inductive reasoning is similar to the process of panning outwards with a magnifying glass. While the parts themselves remain small we are able to see more of the whole, increasing the likelihood of recognising relationships between the parts. Deductive reasoning would require moving the magnifying glass in closer, moving from the whole to focus on the particular, specific nature of something.

3.1.10 Critique of case study methodology

Case study research is not without critics. Some are concerned with the lack of theoretical and philosophical underpinnings of case study (Corcoran & Walker 2004) while others identify a lack of rigour (Kyburz-Graber 2004) as issues affecting wider recognition of the approach. Indeed the Kyburz-Graber (2004) paper could be a first stop for identifying risks to the integrity of the case study as she provides a checklist of items to critique the design of a case study. A lack of documentation, a superficial case report, poor theoretical underpinning and an inconsistent link between data and finding are identified as key problems (Kyburz-Graber 2004). Despite these issues and a further assertion by Kyburz-Graber (2004) that the theoretical foundation for generalisation from case study is not appropriate, this is not the position of this study. The place for analytic generalisation described by Yin (2009) and the extrapolation of

theoretical positions identified by Cohen, Manion and Morrison (2011) do add to the capacity for case studies to be considered as generalisable and important to the growing canon of understanding the role clinical placement experience plays in learning outcomes.

3.2 Method

3.2.1 Introduction

While the methodological basis of case study has a number of nuances and generates some debate in the literature, the actual methods used within case study research seem to generate less concern. From the outset researchers using case study are encouraged to embrace the most appropriate tools and techniques available to implement the study (Yin 2009). The adoption of the most appropriate tools increases the validity of the study and adds to the transparency of how the study is to be conducted. Even after determining the most appropriate research tool, Gillham (2000) suggests all evidence used for case study research warrants checking to ensure the interpretation of that evidence has been performed carefully. A useful insight from Gillham (2000, p10) to the issue of interpretation is that '...Reality (and the truth) is not tidy'. To enhance the trustworthiness of this study, the method in which the study was conducted is described below. This section describes the nuts and bolts of the conduct of the study and includes a description of how sampling logic, validity, reliability, bias, data collection and transcription are interpreted for case studies. Ideally this chapter is written with enough detail to enable someone else to replicate the case study enhancing its reliability or trustworthiness. As Stake (2000, p445) writes '...perhaps the simplest rule for method in qualitative casework is this: Place your best intellect into the thick of what is going on'.

Establishing the methodological basis for using case study provides an opportunity to illustrate how a case study might progress. The following model (Figure 1) is a direct adaption of how to design a case study (Yin 2009, p57) and describes the overall process for guiding the conduct and reporting of the case study.

Figure 1- Case Study design

Develop theory	Draw cross case conclusions	Write cross case report
Select cases	Write individual case study report	Modify theory
Design data collection protocol	Conduct case study	Develop policy implications
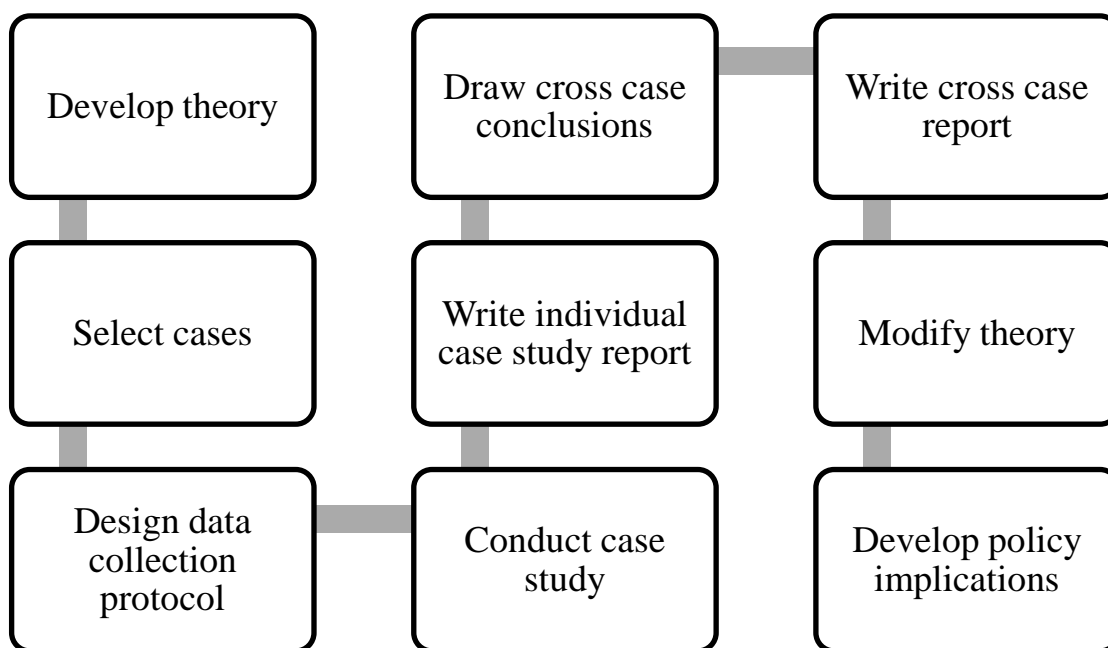
The advantage of modelling the case study design in this way is to provide a blueprint for the researcher and ultimately the reader to follow how the components of the case study relate to each other. This step wise approach was also useful in shaping the chapters and the presentation of the study. The findings, of a case study are suggested by Yin (2009) to be faithful and true to the essential elements of the case but presented in a way that is engaging to the reader. The narrative within the case report blends the findings and conclusions, presents a range of implications and offers suggestion to the role of clinical placement in nursing education.

A strategy that proved very useful for visualising the various components of the case study was the construction of a concept or mind map. Buzan and Buzan (2006) suggest a polycategoric mind map can be used for '...descriptive, analytic and

evaluative tasks'. For example placing the research question at the core of the map helps to maintain the relevance of the items around it, bringing together concepts (Figure 2). The nodes and links identifying the approaches to analysis sit neatly in the top right hand side of the concept map to remind the researcher not only where the study may be going but how it is going to get there. While a concept map does not offer the specific detail of the final process involved it is a useful way for a researcher and particular a novice, to tackle the task at hand. Rather the map provides a visual prompt rather like a storyboard in the staging of a movie or a play and can be very helpful for staying on track to the intended case study design.

Figure 2 - Bringing concepts together
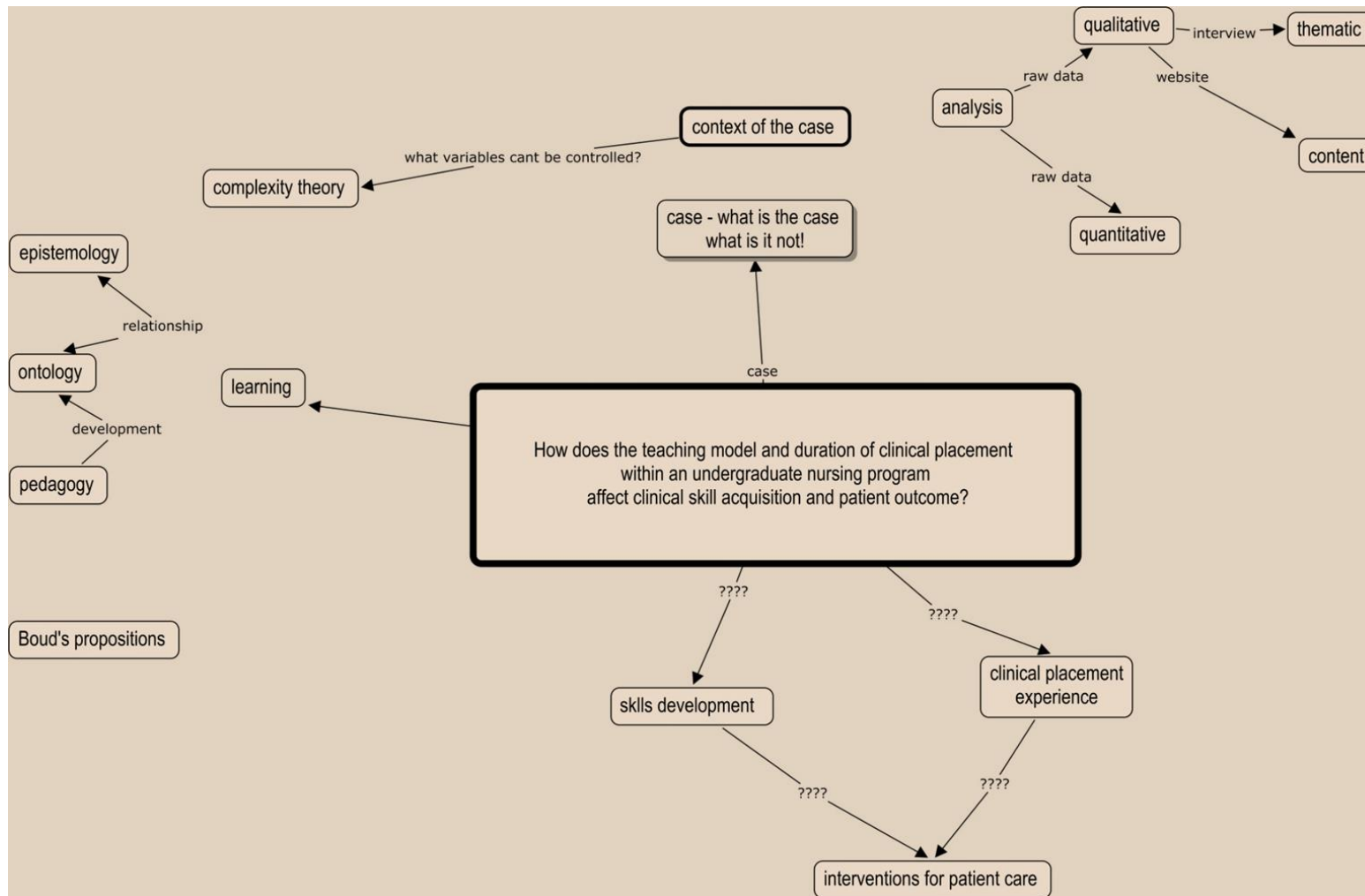
3.2.2 Sample or Replication?

Cohen, Manion and Morrison (2007) note that sampling is one of the most important elements of the research process and one that should be considered early in the planning of the research design. As a case study, the essential requirement for sampling was to recruit enough participants to allow the construction of a case. In a purist sense each participant's description of their university study forms a unique case. Indeed each one of the 16 participants represents a single case study and each response in itself represents a significant opportunity for analysis. A multiple case study analysis by definition requires more than one case and considering the participants as a group reflects this approach. The size of the sample in case study research has to have some degree of representativeness of the topic at hand, a degree of homogeneity but most importantly provide an opportunity for intense and focussed examination. Sample sizes in other recent case studies in nursing education have included six participants in research described by Newton, Billett and Ockerby (2009) and McCarthy (2006) and nine in a study regarding clinical supervision by Lindquist, Johansson and Severinsson (2012). Johansson, Petersson and Nilsson (2011) describe a case study research project concerning personal digital assistants with a study population of one. Large sample sizes in case study research need to be carefully considered for their application to the topic at hand and also for the capacity of the research team to deal with the significant amount of data generated.

Yin (2003) describes that replication logic is more appropriate than sampling logic for such cases. Replication logic requires a population that will predict similar results, known as a literal replication or one that achieves a theoretical replication where contradicting results are as a result of predictable reasons (Yin 2003). The case for

comparing the different responses of the participants and the pattern matching discussed within Chapter 6 represents a theoretical replication. In summary it is possible to theorise that graduates who have different clinical placement experiences may have differing skills and knowledge.

3.2.3 Questionnaire and survey - design and piloting

To address the research question related to the case study, four data collection tools were constructed (Appendix 2). The tools included a closed questionnaire (Form A) regarding the student's hours of placement and their recall of caring for patients with a range of conditions. This data was suitable for descriptive statistical analysis. A semi structured interview (Form B) on aspects of the participant's clinical placement experiences provided data suitable for thematic analysis. A survey (Form C) was also administered, recording the range of skills and knowledge and the care provided by the participants across the shift in question. Form D was constructed to provide a consistent and simple method of data extraction from the patient case notes to confirm documentation of the care provided. The decision to construct a range of data collection tools was not made lightly however at the time of the study design there were no existing survey or questionnaire tools that provided a specific focus on the interventions chosen for the study. Two documents in particular by Burgess (2001) and the Cochrane Effective Practice and Organisation of Care Review Group (2002) data extraction guidelines, were useful for designing the layout and informing the data collection process. Similarly Cohen,Manion and Morrison (2011) provide a comprehensive list of considerations for questionnaire and survey design which are very useful. Each data collection tool (Appendix 2) followed a similar visual design and style to enable easy administration by the researcher and completion by the

participants. Statistical description of the reliability of the questionnaire is noted within Chapter 4.

The questions used to collect the descriptive data were a combination of closed ended, open ended questions and rating scales. Rather than collect Likert scale responses, the questionnaire and the survey both contained a number of semantic differential scales and short answer opportunities. A semantic differential scale is a form of rating scale that places an adjective or descriptive term at one end of a scale and its polar or opposite at another which requires the respondent to form an opinion regarding each position. This form of question was chosen in preference to a Likert scale as the researcher wanted to encourage a more considered response than that offered by a pre-determined range of strongly disagree, disagree, neutral, agree and strongly agree. Cohen, Manion and Morrison (2011, p386) describe that rating scales offer '...the opportunity for a flexible response with the ability to determine frequencies, correlations, and other forms of quantitative analysis'.

The content of the semantic differential scales were based on a review of literature, Best Practice Information Sheets from the Joanna Briggs Institute and nursing textbooks (Brown et al. 2005, Farrell 2005). This content provided a way to build into the scales a series of factors and criteria that would reflect best or at least contemporary nursing practice. The survey presented to the participants a range of factors and criteria related to pressure area care, falls and pneumonia and then required the participants to identify their own skills and knowledge of the factors. For example the survey about pressure ulcers asked participants to rank the impact of

certain factors (nutrition, anaemia, friction and incontinence) on the risk of a patient developing a pressure ulcer.

Similarly participants were then asked to rate their skills against certain criteria (for example recognising pressure ulcer development, using pressure assessment scales, dressing pressure ulcers and using pressure relieving devices) associated with the care of people at risk of or suffering from pressure ulcers. The ranking of the criteria from unskilled (1) to proficient (6) was considered to reflect a level of skill concerning nursing care for the chosen indicators. The process of self-assessment of knowledge and skills was repeated using appropriate factors and criteria for falls and pneumonia taken from literature.

Piloting of the data collection tools was important to ensure the questions were not leading and would be perceived by the study participants in the manner they were intended. Cohen, Manion and Morrison (2011) describe a range of reasons for piloting questionnaires such as checking the format of the actual document through to checking for the readability of the questions themselves. The questionnaire and survey in pilot form were administered to two graduate nurses and two clinical nursing specialists. The commentary from the pilot study regarding the designs was valuable and suggested a review of a number of questions and even a suggestion to change the actual spacing between questions to ensure room for accompanying field notes or comments. This turned out to be a useful addition to the questionnaire for checking the audio and subsequent transcription. The initial data collection tools were constructed as a booklet however again post pilot it was obvious that the data would be much more conveniently collected and collated from single response pages.

All questions pertaining to the range of interventions contained at least one 'red herring' or filter question. The filter questions were provided to ensure the participants had to consider carefully their responses and not select a response at random. For example one filter question asked participants to consider what risk an upper respiratory tract infection might pose to a patient in developing a pressure ulcer. In relation to the survey regarding pneumonia the filter asked what the risk of deep vein thrombosis was for the development of hospital acquired pneumonia while in relation to falls, the filter asked what risk was associated with using lifting machines. A further consideration in the survey design was the use of different options at either end of the response scale. Cohen, Manion and Morrison (2011) suggest that reversing the polarity of question responses (good to bad, bad to good) can contribute to more reliable replies. This was addressed by having different alternate polar descriptors such as *not important - very important, easily avoided - difficult to avoid* and *unskilled - proficient.* Again as each question required a considered response in the presence of the researcher, the risk of an 'automatic' tick a box was avoided.

All the questions during the interview were interpreted easily by the participants except for one question in Form C; How would you define clinical competence? This question caused all participants to hesitate in their response and most asked for clarification of what response was required. Arguably this revealed more about the intent of the question than the structure of the question itself. Creswell (2008) suggest that where possible novice researchers should employ the use of an existing data collection tool however as suggested the emphasis on collecting qualitative and quantitative data around a range of specific care interventions was unique.

3.2.4 Ethical Considerations - Hospital Ethics Committee

Seeking permission from the Ethics Committee of the hospital employing the graduates was an essential component for the study. The ethics application was completed in accordance with the Australian National Health and Medical Research Council guidelines National Statement on Ethical Conduct in Human Research for the conduct of studies involving humans. This was required as data was collected within the clinical setting with obvious implications for both participant and patient confidentiality. As the focus of the study were the graduate nurses and their levels of skill and knowledge, there was no requirement to record in any way the demographic details of any patients. The only reference made to patients during the interviews was to their bed number and their diagnosis. This was useful to the participants as they reflected on the nursing care they provided for each of their patients.

To maintain principles of nonmaleficence and beneficence, study participants were provided an Information Sheet (Appendix 3) and asked to sign a Consent Form (Appendix 4). Participants were clearly advised that they were free to leave the study at any time without prejudice. Participants were also assured of their right to confidentiality and strict assurance that they would not be identified against their responses, especially to peer and senior staff on the ward they were currently working. While some colourful descriptions were offered by participants at no stage did any of the participants appear distressed by their involvement in the study. If they had appeared distressed in any way the researcher would have terminated the interview and sought out counselling services. These assurances were important firstly in respect of the ethical obligation of the researcher but also in the creation of

an environment where the participants felt they could openly discuss events and situations in an atmosphere of safety. Without the assurances of anonymity, participants may not have felt free to discuss their true feelings regarding the clinical placement aspect of their education or the care they had provided during the shift. All material related to the study is maintained in a locked cupboard in the researchers office while all associated software is password protected and only uses a participant code number which is de-identified from the participant responses. All material related to the study will be retained for a period of seven years.

3.2.5 Recruitment

Following ethics approval from the hospital concerned and consultation with the Director of Nursing, the first stage of recruitment began by meeting representatives of the graduate nurse support team of the hospital. This team is responsible for recruitment, orientation and daily support and supervision of new graduate nurses. It was important to establish with this team a sense of trust and purpose as they were understandably concerned for the effect an interview about skills and knowledge may have on new graduates. The researcher attended each of the orientation days for new nursing staff which were held across various dates between January and April in 2009. At each orientation the nature of the study was explained and an information sheet was left behind for those that were interested in participating. This allowed the researcher to introduce the topic and not place undue pressure on many of the graduates who were at the beginning of their first fulltime employment. It was understandable therefore that the initial response to the Information Sheet and request to participate in a research project was poor. Only one graduate returned an expression of interest via the email supplied on the information sheet. To follow up on

possible participants the researcher liaised with the graduate support team to identify new graduates. A number of wards were attended to remind the graduates of the opportunity to describe their university experience and again information sheet were left with possible participants regarding the study. While time consuming this was a much more successful recruiting strategy as it also enabled booking of a time suitable for the subsequent interview. Returning for the scheduled interview was not always straightforward as there were numerous occasions where the participant had called in sick, was asked by their immediate supervisor to do something else or were simply too busy to spare any time away from their nursing duties. For these reasons the data collection of the four pilot studies and sixteen participant studies took place over a period of eight months. Fortunately due to the staggered employment intakes of new graduates into the hospital from January through to June, it was relatively straightforward to identify participants within the first three months of their employment within the hospital.

3.2.6   Validity, reliability and credibility

Research using case study has to be able to accommodate principles which might normally be associated with quantitative research while also accommodating principles more often aligned to qualitative study. As an example Patton (2002, p14) who situates case study in the qualitative domain suggests that validity, more often associated with quantitative study, is equally a reflection of the qualitative researcher who becomes the instrument, measuring what needs to be measured. At this point the language and philosophy surrounding validity and reliability particularly in respect of case study method is dense, sometimes confusing and possibly dichotomous. For example while Yin (2009) and Bernard and Ryan (2010) describe and nominate

strategies for addressing validity and reliability in qualitative studies, Denzin & Lincoln (2000, p21) argue for alternative language such as *credibility*, *transferability*, *dependability* and *confirmability*. Sandelowski's (1986, p30) description of how a researcher can ensure rigor in qualitative research notes that while '…in qualitative research, truth is a much more elusive goal' the researcher provides a description that resonates with the reader providing a sense of credibility. McGloin (2008) aligns and describes criteria of trustworthiness such as truth, applicability and consistency as sound principles more suited to case study methodology than validity.

Acknowledging the insights of McGloin (2008) this study applies the principles of construct, internal and external validity and reliability apply to the quantitative methods used, however within the case report, where the findings are brought together a qualitative perspective embraces truthfulness, applicability and generalisation. Each principle can be considered in the way it contributes to the study. Construct validity for example relies on clearly articulating the theoretical shape of something such that it could be recognised by others and most importantly by the research participants themselves. This was one of the reasons why the data collection took place within the clinical setting, the desire to emphasise the meaning of the interview questions with the participant's real world. Ironically a construct is defined by Cohen, Manion and Morrison (2011, p188) as an '...abstract', something that is less defined in a discrete measurable sense. To provide for a more robust design Yin (2009) suggests a series of tactics to further develop validity in case study. Yin (2009,p41) adds that using multiple forms of evidence and being transparent in the '...chain of evidence' collected also adds to the construct validity of a case study. The draft case study was

also reviewed by some of the study participants to further enhance the construct validity. Their de-identified feedback is provided at Appendix 5.

Internal validity is the requirement for an explanation of something to be clearly related to the data used to describe it (Cohen, L, Manion & Morrison 2011). Yin (2009) places the emphasis of internal validity for case study to the realm of inference where one of the most effective means to demonstrate internal validity is to ensure a transparent data analysis and to use the analysis method of pattern matching.

External validity describes the '...degree to which the results can be generalized to the wider population, cases, settings, times or situations' (Cohen, Manion and Morrison (2011, p186). Sandelowski (1986, p32) describes that generalisability within qualitative research is more connected to a notion of fittingness where the reader can identify with the findings '…as meaningful and applicable'. Generalisation of the findings from this study were never meant to provide proof of the definitive nursing curriculum, clinical teaching model or mandate a specific duration of hours of clinical placement experience. What was infinitely more important was to ask the question of how the clinical placement aspect of curricula might influence student knowledge and skill development. Yin (2009) clearly distinguishes that external validity in case study is directed to analytic generalisation and generation of theory, not statistical generalisation.

Cohen, Manion and Morrison (2011,p199) suggest that reliability is '...essentially a synonym for dependability, consistency and replicability over time, over instruments and over groups of respondents'. Essentially the 'reliability' comes from clearly

defining the case study protocol and resultant study database so that anyone else would be able to repeat the protocol and ideally arrive at similar conclusions. Again Sandelowski (1986) describes that auditability, where another researcher might arrive at a comparable conclusion given the opportunity to review the data is a qualitative approach to the question of reliability.

At first it may be assumed that case studies that seek out and bring together qualitative and quantitative data are by default mixed methods studies. Yin (2009) suggests that while some variations of case study such as embedded case studies may be considered mixed method, case study is not by default a mixed method design. Other authors cite case study as 'merely' a subset of ethnography and rather devote comprehensive chapters to mixed methods designs (Creswell 2008). Perhaps the most challenging issue for the case study researcher in respect of principles such as validity or credibility is to bring together the 'conflicting' philosophical positions of reliability/validity for quantitative measures and the transferability and confirmability for qualitative studies. In bringing together each set of positions the emphasis on the whole of the case can be established.

3.2.7   Researcher bias

The following section in some ways establishes the merit or otherwise of this study. The study author and researcher is a lecturer from an educational institution in proximity to the hospital involved in the study. At least some of the study participants from that institution would have been taught by the researcher in some aspect of either acute care nursing or professional and communication issues. While maintaining a particular sensitivity to the risk that the interview could be subject to a power

imbalance, each graduate was indeed very comfortable describing their stories. At no point was a sense of teacher – pupil apparent, rather the exchange was much more aligned to a peer level discussion. It is suggested this was a combination of the researcher's skills as a nurse and previous experience in conducting interviews for phenomenological research. A further appreciation of the wider nature of educational research was enhanced during the researcher's candidature by the completion of graduate studies in higher education.

While acknowledging a link to the educational preparation of some of the participants it is suggested that the risk of bias is reduced with the depth, detail and transparency of the analysis methods, enough to enable external scrutiny of the results. Sandelowski (1986, p35) identifies that the availability of the research findings, data and analysis provide the opportunity for an audit to be conducted as required. Working towards a more credible description and avoiding the '…holistic fallacy', where a greater degree of congruence is attributed to the findings than is deserved, strengthens the rigor of qualitative study (Sandelowski, 1986, p35).

3.2.8 Data collection

All data collection took place on the ward where the participants had just completed an early shift. To conduct the interview and the survey the researcher waited until the participant had completed their shift and located a quiet room within the ward area. Each interview was audio taped with the express permission of the participants with the digital tapes the basis of constructing verbatim transcripts. The researcher's smart phone with a recording function was used as a backup device. On one occasion the 'empty' staff tea room was utilised however the constant traffic of staff in and out of

the tea room made listening to the recorded interview more difficult. On each occasion for interview the researcher also sought out the senior ward nurse supervisor and informed them of the study and advised that an interview within the ward area was underway. A copy of the supporting letter from the Director of Nursing for the wards areas involved was also presented to staff as required. Similarly at the conclusion of the interview a hard copy of the survey was provided for the participants to look at while the researcher circled the response they nominated. The advantage of this was to allow for field notes to be written alongside the questionnaire and survey responses which became very useful during the subsequent analysis. On completion of the interview and survey, the researcher examined the case notes and bedside care charts of the patients that the participants had cared for. Access to documentation, was granted through the ethics process as no identifying patient data of any sort was recorded. Permission to access documentation was also sought form the nursing director and the nurse in charge of each ward. This examination did not require the presence of the participant as this was an attempt to bring some independent assessment to the description of the participants. The challenges of data extraction from patient notes and hospital records are described below. The collection of a breadth of qualitative and quantitative data at the same time was again a deliberate strategy to examine as closely as possible if any logical (or reasonable) link between nursing education and patient care was possible.

All of the interviews were transcribed by the researcher using the software audio editing program Audacity. This enabled a loop of the audio to play while the data was simultaneously typed into MS Office Word. Transcribing the interviews was a long and at times frustrating process. This was a reflection of the researchers typing speed

and eagerness to hear not just the words but to re-listen to the nuances of participant's speech. While data transcription can occur directly into the NVivo 9 software, the researcher did not feel comfortable enough with the software at that time to use this function. Similarly the spell check function within MS Office Word was useful to vet the transcripts before they were downloaded into NVivo 9. This is important as one of the attractive features of NVivo 9 is the query word search function which relies on correct spelling. On reflection the engagement with the data was very helpful however a caution is noted to consider the value of this engagement against the time taken to transcribe for a single researcher. Certainly if a similar study of 20 participants or more with interviews of 45 – 60 minutes was conducted, the assistance of other researchers or a professional transcription service would be sought.

Survey and descriptive data were entered into SPSS (Version 19) while combinations of qualitative and quantitative data were entered into the TOSMANA qualitative comparative analysis (QCA) software package. For each software package, data washing and data entry are very important considerations. The comparative process within QCA for example is especially susceptible to error as a result of inconsistent data entry.

3.3 Conclusion

The research design chapter of a case study report has a requirement to identify how the collection of case study data was conducted, how ethical considerations for human research were accounted for and provide a description of the way in which the data were managed. More importantly though, the foundation of a case study requires a transparency of method and a detail of analysis to ensure the findings can be considered reliable. This emphasis has been placed within Chapter 4.

4 Chapter 4 – Case study analysis

4.1 Introduction

The following chapter is presented as two related though distinct sections. The first section provides significant detail as to how the framework for the overall analysis was conceived. The second section of the chapter, in keeping with a case study approach, is much like a database, presenting how specific information was collated and analysed. . However while each unit of qualitative and quantitative analysis is presented this chapter does not describe how the data converge to an overall finding or results chapter. This convergent picture is drawn together in Chapter 5, the case report.

4.1.1 Framing a general analytic strategy

Yin (2009, p127) suggests that the data analysis component of a case study is '…one of the least developed and most difficult aspects of doing case studies'. Confronted with this statement it is understandable that those pursuing a case study would undertake a breadth of reading to gain as full an understanding as possible. In also identifying that there is no single recipe to guide analysis, Yin (2009) offers the advice to form an overall analytic strategy and to select the most appropriate analysis technique for the form of data that is collected. Perhaps most importantly Yin (2009) recommends that the analysis section of a case study be presented with as much detail as possible, in effect becoming a case study database to provide for transparency between data, analysis and conclusions. Yin (2009, p119) notes that '...the lack of a formal database for most case studies is a major shortcoming of case study research'. The analysis for this study began with a thorough reading of pivotal authors such as Patton (2002), Miles and Huberman (1994), Bernard and Ryan (2010) and Yin (2009). Each author is commonly cited in qualitative literature however it is difficult

to draw commonalities between their various approaches to qualitative data analysis, at least at the first reading. Just as case study was selected for its application to a complex topic, the selected analytical strategy is equally complex and requires an appropriate introduction.

Following the clarity achieved by the creation of a concept map for the study design developing another map was helpful to tackle the complexity of the overall general analytic strategy (Figure 3). The yellow concepts and linkages describing the analysis are taken from Figure 2 and expanded upon. Again the advantage of the concept map process is to visualise the relationships between many different variables.

Figure 3 - Concept map - General Analytic Strategy
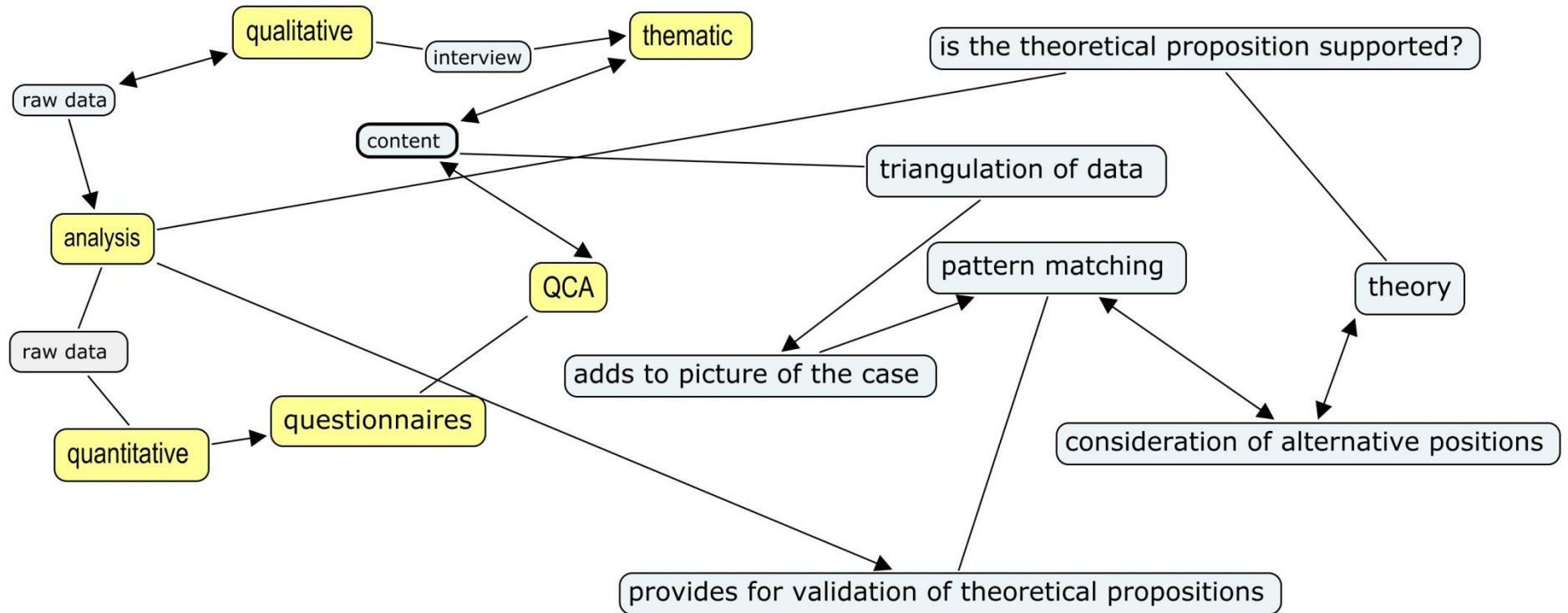
Other than using a concept map approach to depict the analysis strategy, an alternative visual tool to manage the overall depiction of analysis and case study is offered by Rosenberg and Yates (2007) in the form of schematics. The schematic representation (blueprint) they suggest becomes a structured and deliberate portrayal of the study question, context and the individual analysis techniques. This depiction also helps to illustrate the possible links between the various sources of evidence. This is important as Baxter and Jack (2008) note, the researcher must ensure that multiple data sources are not presented as distinct elements; rather they are presented as a part of the overall case.

One of the most interesting passages read in preparation for this case study was that of Patton (2002) whose alter ego Halcolm, is a self-described 'evaluative research master'. Halcolm peppers Patton's writing with advice to help those tackling a qualitative study with one especially apt passage, '...analysis makes it clear what would have been important to study, if only we had known beforehand' (Patton 2002, p431). Patton (2002, p452) goes on to describe that;

> once case studies have been written, the analytic strategies described in the remainder of this chapter can be used to further analyse compare and interpret the cases to generate cross case themes, patterns and findings.

Patton (2002) also notes that the opportunity for the researcher to personally transcribe interviews is a desirable task; albeit one that is very time consuming. Despite the time involved it is clear, even though the researcher may not have appreciated it at the time, that an informal data analysis process was indeed occurring. This became even more evident when revising the transcripts for the first round of coding. Descriptions from participants that raised an eyebrow at the time of the

interview such as '*most of the time you just pull it out of your arse anyway*' (P2Q7), become more significant than just an earnest and colourful description of a student writing learning objectives in the clinical setting. What is it that draws strong, almost angry responses from participants to what are seemingly innocuous questions? It is suggested such reactions occur when such questions invoke a particularly vivid memory, one that may not always be positive. Most interesting considering that clinical placement is often the source of vivid and confronting images, is the question about how such perceptions may have affected the learning process.

While (Patton 2002) has many valuable insights and suggestions for the novice researcher one aspect of his work is indeed frustrating. Looking for a consistent definition and then application of either thematic analysis or other form of qualitative analysis is a challenge when the message is delivered '…no precise or agreed on terms describe varieties and processes of qualitative analyses' (Patton 2002, p453). This ambivalence is taken further when Patton suggests there are in fact no hard and fast distinctions between pattern and theme. That may be, however these positions are not those usually sought by novice researchers beset with the language of qualitative analysis. Patton's (2002) redemption however comes in the form of a clear distinction between the nature of inductive and deductive qualitative analysis. This is explored further below. The opportunity to revisit the questions and design of a study such as this become more and more inviting the further the initial analysis proceeds. There is however a point at which the researcher must acknowledge the findings they have and to work not with hindsight but with the data collected. Other questions can be the substance of further studies. So, practically and ideologically revisiting the study questions and design is not possible, emphasising still further the need for those

considering case study research, to frame the initial questions and define as clearly as possible, the case. Appropriately, alongside a clear definition of the case, Baxter and Jack (2008) recommend that researchers also consider what the case will not be about. Identifying the 'nots' may prevent researchers from trying to answer every possible question, manipulating data to ends it does not reach, becoming too broad through a loss of focus and at worst irrelevant. In this instance the case is bound by the targeted nursing interventions, they provide a constant reference point and help prevent total distraction in the complexities of nursing epistemology. The other tactic to bind this study was to return consistently to the proposition that the nature of clinical placement has some effect on the development of students and the care they might provide. Such statements are examples of *propositions,* described by Yin (2009) as being useful to maintain orientation to the subject at hand. Ultimately the challenge in this form of study is to begin with as clear a description of what the final analysis *might* require.

4.1.2   Qualitative data analysis

Miles and Huberman (1994, p1) suggest that qualitative data such as that which informs a case study are '…sexy (with) well grounded, rich descriptions and explanations of processes in identifiable contexts'. Certainly the colour and warmth provided by the study participants is best served by acknowledging the value of the qualitative aspects of their story. To this end Miles and Huberman (1994) identify three domains (perspectives) for approaching qualitative data analysis; interpretivism, collaborative social research and social anthropology. It is the latter domain within which they situate case study as an approach that is concerned with generation of theory. The authors suggest they have identified the benefits of using a systematic approach to the codification and analysis of case study data. In essence they mirror the advice of Yin (2009) to have an approach to data analysis that is transparent and

reproducible. Perhaps the most important distinction made by Miles and Huberman (1994) is in their identification and advocacy of the strengths of qualitative data. Groundedness, richness, holism and flexibility are key descriptors that resonate both with the nature of case study and the depth of a topic such as nursing education. Among a wide range of insights the two central influences or processes taken from Miles and Huberman (1994) for this study were sampling and coding.

As suggested when commencing case study research, a challenge lies in setting out clearly what the general analytic strategy is going to be. This is due in part to the requirement for the blending of analyses to the overall structure of the case while being able to clearly define the individual pieces of analysis. While it is not suitable for each item of analysis to remain an isolated piece of work for the purposes of case study, the findings of their own may be of significant interest. The first step to the selection of one of the four general strategies nominated by Yin (2009) is to consider their specific nature. *Relying on theoretical propositions*; *Developing a case description*; *Using both qualitative and quantitative data* and finally *Examining rival explanations,* are strategies in which each has their own character and considerations. The general strategy chosen for this study was; *Using both qualitative and quantitative data*, however consideration of theoretical propositions and rival explanations are also linked within. This general strategy was chosen for two central reasons; the first being the theoretical proposition that there is some episteme as a result of clinical placement, ostensibly a link between a graduate nurse's development and their experience of learning to care. Secondly the research tools were designed to complement one another with questions framed for both qualitative and quantitative responses. For example students were asked to describe experiences from their

clinical placement during university, of caring for a patient with a pressure area, fall

or pneumonia and then asked closed questions (Semantic differential scale) about the

nature of nursing interventions for such problems. The triangulation of data around a

common theme lends itself to the construct validity of the study (Yin 2009).

4.1.3   Qualifying a General Analytic Strategy

The recommendation of Yin (2009) to be explicit about the final approach to data

analysis led to the development of the General Analytic Strategy (Table 2) and to the

depth of detail within this chapter. Miles and Huberman (1994) also help to qualify

the general discussion of data analysis to emphasise that the research design is itself a

form of data analysis as the researcher works to exclude certain questions in the initial

research design. As Yin (2009) suggests, all forms of data collection may be useful

when conducting an exploratory case study, where the aim is to develop a hypothesis,

informed by diverse sources of information.

Table 2 - General Analytic Strategy

Data source	Data collection type	Analytic approach	Purpose
Form A	Survey	Descriptive / demographic data	Illustration
Form B	Semi closed questionnaires	Thematic analysis	
Form C	Survey and closed ended questions	Descriptive, correlational and Statistical Analysis – One way ANOVA Qualitative Comparative Analysis (QCA)	Illustration
Form D	Patient records and documentation	Document analysis	Illustration
All data sources		Pattern Matching	Convergent

The goal of this study has been to consider a number of cases or graduate nurses and to identify what elements of their placement experience may have been influential in their development of nursing practice. Each item of data and analysis contributes to a case report where the reader gains a sense of the themes that emerge from the individual participants. These themes form the structure of the case report. Following the case report, a cross case report considers other aspects of the student groups and this is analysed using a pattern matching technique. The analysis techniques selected for this study were done so on the basis of best fit for the type of data being collected and for the potential of each data source to complement or alternatively to contrast findings. The triangulation of data from multiple sources is described by Amaratunga and Baldry (2001) as a means for researchers to avoid leaping to conclusions, ignoring essential statistical properties and overlooking contrary pieces of evidence.

4.1.4 Triangulation

The data and the four analysis methods described above have their own level of implication for the debate regarding clinical placement and student learning. Each finding could arguably standalone however this was never the study intention and the requirement of case study methodology is that data be considered as a whole. Rather a precise focus on the participants (cases) at hand enabled a form of data triangulation, which Patton (2002, p248) describes as a way to test for '...consistency'. The challenges to the consideration of triangulation more broadly and especially data triangulation in informing qualitative studies are identified by Cohen, Manion and Morrison (2011), Williamson (2005) and Patton (2002). Claims of inconsistency, positivism and an assumption that a multiple set of data may be more valid than a single element of data are warnings that precede data triangulation. Yin (2009, p116) provides that in *real* triangulation the corroboration of data occurs when '…the events

or facts of the case study have been supported by more than a single source of evidence'. Addressing triangulation, or looking for a convergence in data in this study is represented by the use of thematic, statistical and qualitative comparative analysis.

The convergence or divergence of qualitative and quantitative data is described by Pluye et al. (2009) as a complex issue that benefits from consideration of four factors. The factors to be considered include reconciliation, initiation, bracketing and exclusion Pluye et al. (2009, p70). Reconciliation occurs when the analysis reaches a conclusion or an interpretation which being plausible may not stimulate further questioning or encourage different data collection. Initiation occurs when conflicting qualitative and quantitative results emerge and require some form of critical appraisal. Bracketing, as opposed to the phenomenological form, is an acknowledgement that extreme results are not going to be able to be considered against each other and that a bracket of plausibility may need to be developed. The rationale provided by Pluye (et al. 2009) for this approach is the least considered of the fours factors. Finally the use of exclusion is possibly most useful for consideration of how qualitative and quantitative data would come together. Contradictory findings between qualitative and quantitative data, incomplete analysis and data lacking validity may pre-empt exclusion (Pluye et al. 2009). The sum influence of the factors is to ensure that the researcher identifies wherever possible '...blind spots' in the data, the analysis and the findings (Pluye et al. 2009, p70).

Given the above advice the actual mechanics of triangulating data are less described in literature. Gerring (2007, p187) argues for a 'synecdochic' approach, acknowledging the whole may be inferred from the smaller parts however Gerring

(2007) does not suggest how one might bring the components of diverse sources together. The Springfield et al. (2012) study of an online dental program and the intended learning outcomes is a good example of a model of triangulation of different data sources. Nominating broad categories of '...program evaluation, academic rigor, faculty experiencing of teaching and students learning and growth', Springfield et al. (2012 ,p417) blended quantitative and qualitative findings into a narrative based on the various results. The presence or absence of certain findings in either qualitative or quantitative data serves as a prompt that requires a back and forth reflective process on the part of the researcher.

4.1.5   Pattern matching and theory development

The analysis method of choice for an overall cross case analysis is described by Yin (2003) as replication logic or pattern matching. While the goal of cross case analysis is to bring together compelling and relevant case studies, the advice to start analysis modestly and build to this level is rational. Attempting to identify patterns too early may ultimately be a short sighted goal. Yin (2003, p116) describes that one of the '... most desirable techniques' for case study analysis is pattern-matching logic. Pattern matching is a logical process in which comparison is made between '…an empirically based pattern with a predicted one' Yin (2009, p136). The predicted pattern is a theoretical construct which a researcher may propose prior to data collection. If the patterns concur the overall case study will have a stronger internal validity. Pattern matching is at first reading an awkward concept however a requirement to present a research poster as a part of candidature requirements was very helpful in coming to a better understanding of pattern matching. Unfortunately literature describing the use of pattern matching logic is limited in nursing journals. The poster presentation drew

heavily on the excellent description by William Trochim of pattern matching <http://www.socialresearchmethods.net/kb/pmconval.php>. Within a literature search of a number of general databases, pattern matching was described more so within business and benchmarking journals. Santos, Powell and Hinks (2001) described the use of pattern matching in a case study of how visual controls are used at a number of building construction sites. The findings from Santos, Powell and Hinks (2001) paper has some interesting parallels to this study in that questions of knowledge transfer and research in the 'real' world are contemporary issues for benchmarking practices. The complexity of manufacturing and building industries and the use of pattern matching as an element of an explanatory case study demonstrate the diversity of the case study approach. One other approach of interest is described by Amaratunga and Baldry (2001) who suggest that cross case analysis provides a vehicle for explanation building, an approach that is complementary to pattern matching. Developing explanations and identifying patterns of how graduates transfer knowledge from placement experiences to workplace functioning, addresses a topic that remains uncertain.

As described above pattern matching compares different patterns of phenomena. The patterns themselves may be comprised of either the dependent and or independent variables of the study at hand. Beanland et al. (1999, p576) define a dependent variable as the '…presumed effect of the independent or experimental variable on the outcome'. Alternatively the independent variable is defined as the precursor or the variable that has the presumed effect on the dependent variable (Beanland et al. 1999). Being aware of the nature of variables encourages a consideration of the possibility of rival explanations to the proposed pattern matching. If a researcher can

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demonstrate the complete absence of alternative rival explanations to the matching of the two patterns then a degree of '…theoretical replication across cases' can be made (Yin 2009, p138). That said there was no desire within this study to control for all variables or to randomise the participants as the value of purely quantitative approaches to the question of precision in pattern matching is questioned by Yin (2009) himself.

One of the more concise explanations of pattern matching comes from de Vaus (2001,p253) who identifies that '...pattern matching is a form of theory testing analysis that establishes a detailed set of predications before the case study is conducted'. A significant component of the predictions identified for this study come from the literature review detailing the nature of clinical placement and experiential learning. The construction of a matrix assists in visualising the relationships between the variables and their predicted outcomes. The following theoretical patterns became a first layer of pattern matching and were written prior to data collection and deeper analysis of the case study data.

4.1.6   A theory of clinical placement

Donnelly and Wiechula (2012) argue that a reasonable extraction from seminal works concerning educational theory from Dewey, Schon and Boud identifies the essence of experiential learning, while a review of nursing literature about epistemology by Carper and Vinson clearly place an importance on the nature of knowing in nursing. Elements of duration, variety and location can be considered key aspects of the placement experience. These elements inform the structure of clinical placement and can be represented as either being in an increased quantity or a decreased quantity

when comparing different elements of the clinical placement experience (Table 3). Labelling these is possible as follows; the up arrow suggests an increased effect, the down arrow a decreased effect:

X_a **↑ duration, variety and location of clinical placement**

X_b **↓ duration, variety and location of clinical placement**

Similarly the nature of patient care, the confidence of the graduate nurse and the capacity for them to provide or initiate a range of interventions may be equally represented in a simple form.

Y_a **↑ patient care, nurse confidence and nursing knowledge**

Y_b **↓ patient care, nurse confidence and nursing knowledge**

The matrix that results from combining these variables results provides a starting point to consider further analysis.

Table 3 - Theory matrix - 4 Pattern

	X_a	X_b
Y_a	**Pattern 1** ↑ duration, variety and location of clinical placement = ↑ patient care, nurse confidence nursing knowledge	**Pattern 2** ↓ duration, variety and location of clinical placement = ↑ patient care, nurse confidence nursing knowledge
Y_b	**Pattern 3** ↑ duration, variety and location of clinical placement = ↓ patient care, nurse confidence and nursing knowledge	**Pattern 4** ↓ duration, variety and location of clinical placement = ↓ patient care, nurse confidence and nursing knowledge

At a glance it could be suggested that Pattern 1 (X_aY_a) is the most likely theoretical outcome where more placements are likely to lead to more experience, knowledge retention and therefore higher levels of patient care. Pattern 4 (X_bY_b) is also likely as one could reasonably assume that less placement experience and less variety of placements may not allow the student nurse to develop skills necessary to provide a greater level of patient care. To place this more clearly two theoretical positions can be considered;

Theory A: a greater duration, variety and location of placement experience will enable graduates to provide a greater level of patient care.

Theory B: a reduced duration and a lack of variety and location will not prepare graduates to provide an adequate level of patient care.

The theoretical positions A and B are crude and of themselves lack many other factors which might influence clinical placement or patient care. Perhaps the most obvious omission and possibly the most complex factor is that of quality, cited by Edmond (2001, p256) as essential for a '…new paradigm for practice education'. When or indeed does the quality of a placement become more influential than the quantity of placement? Is there or should there be an assumption that each must work together? Levett-Jones et al. (2008) identified the role of duration of placement with the concept of belongingness and found that learning was compromised until students felt part of the team, accepted as part of the ward culture. In progressing difficult questions it is very unlikely that a single theory would ever be sufficient to encompass all aspects of the nature of clinical placement and learning. There is however value in generating

theoretical propositions and pattern matching is one approach that considers both individual and cross case conditions.

Following the development of a theoretical position or viewpoint about the phenomenon in question, an initial case study is compared against the theoretical perspective which may or may not lead to a revision of the original position. Subsequent comparisons of the revised position are made against more and more case studies until a final explanative statement is produced. Yin (2003) suggests this iterative approach encourages the gradual formation of an explanation which, being more complete, does not allow the consideration of rival explanations. Generating a more complete understanding of clinical placement through the development of theoretical propositions is one way to ensure students are the beneficiaries of more considered curriculum designs.

4.1.7 Deductive and inductive analysis

The decision to take an inductive and deductive approach to data analysis was a reflection of the breadth of the variables in considering nursing education. For many issues within nursing education there exists a range of previously constructed theories and research identifying positive aspects of clinical education; concepts that provide for deductive theory generation. For other issues though, nursing has fewer studies of core outcomes from nursing education such as the primary knowledge revealed in this study; findings that inform inductive theory generation.

Patton (2002) describes the use of pre-existing theoretical structures as supporting a deductive approach to data analysis. A number of papers by Benner (2004), Carper (1978) and Aiken et al. (2003) have been seminal in the advancement of nursing

education and knowledge development and each paper has identified a range of themes and insights that have sustained reflection and consideration of nursing education for many years. They are in a sense canonical and yet neither, read independently, or as a whole, suggest answers to the breadth of the questions posed within this study. Detailed discussion of the seminal nature of these papers is beyond the scope of this study however it is acknowledged they have had in their own way, a deep influence on the development and consideration of nursing education.

4.2 Analysis framework

The results from each of the data collection tools are provided below and each is associated with a description of the analysis technique used and the core findings.

Figure 4 - Analysis framework
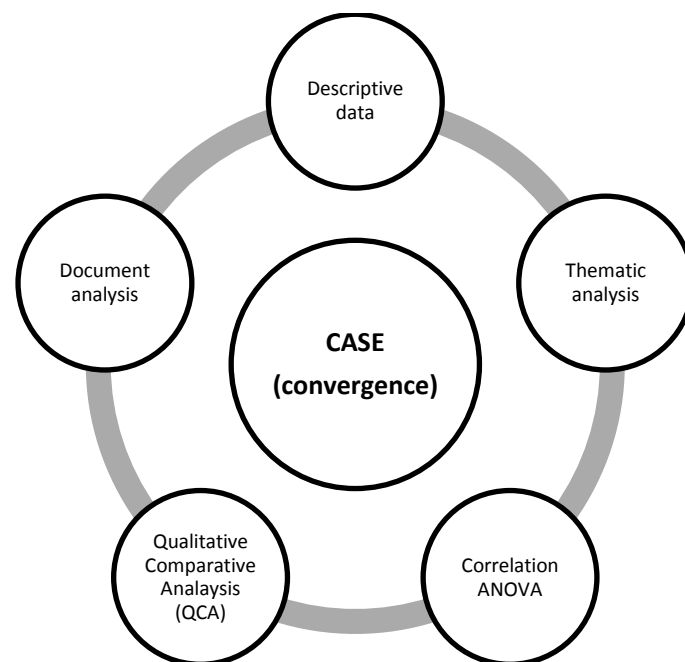
Again this presentation is to allow the reader a constant comparison between the analysis approach and the findings and is in keeping with the advice of Yin (2009) that a case study analysis should be presented with enough detail so that it could be analysed independently. The framework identifying the central nature of the case, the

integrated approach of the analysis techniques and the convergence of findings is provided at Figure 4.
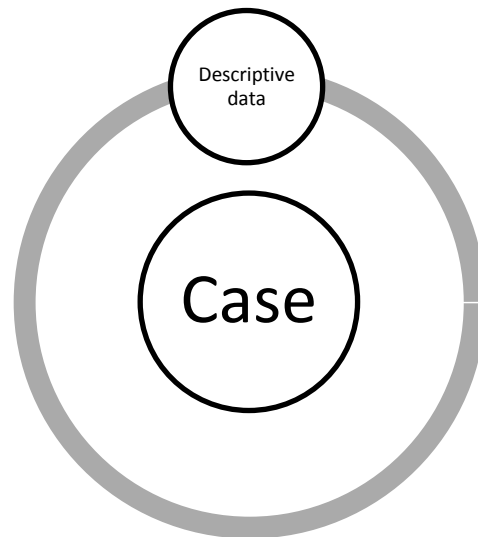
4.3 Descriptive data (Form A)

Underpinning each component of the analysis framework was a range of descriptive data which were useful to inform other aspects of analysis. The focus of the initial descriptive data collected from participants was related to the experiences of the participant's account of placement and duration, timings and exposure during placement to any incident of fall, pressure ulcer or pneumonia (Table 4). Accompanying this inquiry was an opportunity for participants to indicate their readiness for practice as a registered nurse, an indication of confidence. Participants were asked which university they had attended however no further academic detail concerning grade point averages, previous studies (other than nursing), age, gender and postcodes or other demographic data that might be associated with 'typical' educational studies, was gathered. It was considered necessary to keep the context of the study narrowly defined because at some point the range of variables in a study such as this need to have boundaries.

The very first question asked of participants was 'What was the total amount of clinical placement in weeks across the three years of university'? This seemingly straightforward question was in fact difficult to answer as each participant assumed their own definition of 'week', with some counting their 2, 3 or 4 day a week clinical placement as one week when in fact it had been assumed by the researcher that a 'week' would represent 5 days. Clarification of the audio transcripts and a return to the relevant field notes was necessary to refine the data.

Table 4 - Form A questions

Questions
1. Total amount of clinical placement?
2. Total amount of clinical placement in acute care?
3. How beneficial was your clinical placement experience to your learning?
4. On completing university how prepared were you for work in the acute care clinical setting as a registered nurse?
5. Do you recall lectures or tutorials in your course that described nurse sensitive patient outcomes?
6. During your clinical placement experience did you have an opportunity to care for patients who had a pressure area?
7. During your clinical placement experience did you have an opportunity to care for patients who had suffered a fall?
8. During your clinical placement experience did you have an opportunity to care for patients with pneumonia?

To provide a clearer description for the reader, the responses to the questions in Form A have been separated out with Table 5 listing responses to questions 1 and 2 while the responses to questions 3 - 8 are provided in Table 6. The data referring to the clinical **weeks** identified in Table 5 has not been used to represent any of the final findings as this would be incomparable between participants. Instead the calculation of days and hours of clinical placement within the 'week' provided a much more accurate indication of how each participant differed from each other. It is noted however that participants were not asked to identify any extended sick leave or short

absences over the three years of placement from the clinical placement setting. That again would have the effect of reducing the amount of clinical placement time. It is important to note throughout the study the cases (participants/ graduates/students) are numbered as they participated in the study, i.e. Case 1 was the first graduate to be enrolled in the study. Where a case number has been omitted for example Case 3, this was because the participant revealed after the commencement of the interview process some form of exclusion criteria such as a previously undeclared enrolled nursing background. These participants were then formally excluded from the study. The participant's responses to the remainder of the questions in Form A, the individual semantic differential scales, are provided in Table 6.

Table 5 - Form A - All participant responses - Placement hours

Case ID	1	2	4	5	7	8	10	11	12	13	14	16	17	18	19	20	*M*	*SD*
clinical total (weeks)*	20	23	75	16	20	23	75	75	75	16	75	48*	24	26	21	24*	*	
clinical total (days)	100	115	225	80	100	115	225	225	225	80	225	160	120	130	84	162	148	58.4
clinical total (hours = days x 7.0)	700	805	1575	560	700	805	1575	1575	1575	560	1575	1120	840	910	588	1134	1037	409.1
clinical acute total (weeks)	19	20	65	12	14	20	65	65	65	14	65	40*	24	26	21	24	*	
clinical acute total (days)	95	100	195	60	70	100	195	195	195	98	195	160	120	130	84	162	135	49.9
clinical acute total (hours)	665	700	1365	420	490	700	1365	1365	1365	686	1365	1120	840	910	588	1134	942	349.8

*= as each participant interpreted a clinical week as meaning something different for example a 3, 4 or 5 day a week placement it was not possible to calculate

a mean of a 'clinical week'. Clinical days provided a more accurate measure.

Table 6 - Form A - Semantic differential responses

Case ID	1	2	4	5	7	8	10	11	12	13	14	16	17	18	19	20	*M*	*SD*
Benefit 1 = very beneficial 6 = not beneficial	4	2	1	1	3	3	1	1	1	1	1	1	1	2	2	2	1.8	0.9
Prepared 1 = well prepared 6 = totally unprepared	3	5	1	5	3	3	2	2	1	2	2	3	2	4	5	4	2.9	1.3
NSPO lectures 1 =vivid recall 6 = no recall	5	6	1	5	4	6	5	2	3	6	6	6	2	6	6	6	4.7	1.7
Pressure area care 1 = many times 6 = never	2	2	1	1	1	6	1	1	1	1	2	5	3	6	2	2	2.3	1.8
Falls care 1 = many times 6 = never	2	2	2	4	1	5	2	4	1	1	1	4	4	1	2	5	2.6	1.7
Pneumonia 1 = many times 6 = never	2	3	1	4	2	6	2	2	2	4	2	3	5	6	3	5	3.3	1.5

4.3.1 Time in placement

As indicated in Table 5, participants identified a mean time in all forms of placement as 1037 hours across the three years of university with a range of 560 to 1575 hours. As participants generally responded in terms of weeks, the calculation of placement hours was based on the standard shift of eight hours minus a lunch or dinner break of one hour. The majority of the total placement time was related to acute care experience (91%), participants nominated a mean of 942 hours with a range of 420 - 1365. The reported ranges of placement hours for students in the year 2009 when the study data was collected, is consistent with the 2008 data reported in the ANMC National Accreditation Standards and Criteria (p26). From 2009 on however the national minimum for curricula leading to registration as a nurse clearly identified that experiential professional placement is to be a minimum of 800 hours. This minimum however does not identify what percentage of hours should be within an acute care venue. An accompanying notation within the same standard describes that little to no evidence exists to determine a minimum time of placement experience.

4.3.2 Benefit of placement

Participants were asked how beneficial they found their clinical placement in contributing to their learning (Table 6). The scale ranged from 1 = very beneficial to 6 = not beneficial. The mean response of 1.79 (range 1-4) indicated that participants were consistent in the identification that placement was a beneficial aspect of their university education. Participants with the longest duration of clinical placement, all recorded a score of 1 to indicate that their placement experiences were very beneficial to their learning. With less placement on average however, the benefit of placement for participants ranged from 1.6 to 2.3. Participants were also asked how prepared

they were for work in the acute care setting as a result of completing university training. Two participants suggested they were well prepared for beginning work in the acute care sector with no participant suggesting they were totally unprepared.

4.3.3 Nursing indicators and placement experiences

Participants were asked to recall any lecture or tutorial content during university describing the nursing care for pressure area, falls and pneumonia. A mean response rate of 4.7 (1= many times to 6 = never) suggests that participants did not have a clear recall of the more didactic methods and delivery of information regarding pressure area, falls or pneumonia care. Participants were also asked to identify if during clinical placement they had cared for or had observed patients (1 = many times to 6 = never) that had suffered from or developed an incidence of pressure area, falls or pneumonia. The mean response to the care of pressure area was 2.3, falls 2.6 and pneumonia 3.3, indicating that pneumonia was the least observed experience in the clinical setting.

Participants who had the longest placement experience (> 1500 hours), differed markedly from the overall average, reporting that they had more opportunities to care for patients with pressure area care (M=1.2), falls (M =2.0) and pneumonia (M=1.8). Interestingly though some participants with a smaller amount of placement hours also rated their exposure to the care indicators as reasonably high. This may suggest that the recall of experiences from a limited set of opportunities is more precise as limited opportunities necessarily are subject to a greater degree of reflection and recall. This suggestion will be discussed in more detail within the case report, Chapter 5.

4.3.4 Clinical supervision

Each participant was asked to select from a nominated list a description they believed would describe the role of the person who provided clinical supervision at the bedside during their clinical placements. Most participants intuitively understood the term preceptor to be the person they saw as being most responsible for their clinical bedside teaching. This question with responses listed in Table 7, indicated a range of variation in the supervision model that was perceived by the participants.

Table 7 - Supervision of students

Case	1	2	4	5	7	8	10	11	12	13	14	16	17	18	19	20
Permanent facilitators from the university			√				√	√	√		√	√	√	√		√
Casual teaching staff employed by the university	√	√		√	√	√							√	√		
Hospital staff	√	√				√				√	√			√	√	
Academic staff																
Other																
Combination of different preceptors																
No preceptors were provided																

It is clear that most students were taught by either permanent facilitation staff from the university or by casual tutors. There was however a lack of consistent responses identifying the role of hospital clinical staff and there was a marked absence of

academic staff having any 'visible' teaching role in the clinical setting. The majority of participants, 62.5% (n=10) identified only one category of supervision as their clinical facilitator. Of the remaining participants, 31.25% (n=5) identified with two or more supervisors, either hospital or casual staff with only 1 (6.25%) participant identifying they had access to 3 different models of clinical supervision. It is interesting that the majority of students identified that they had only one supervisor responsible for clinical facilitation. This could suggest that the responsibility for clinical teaching resides with either university or hospital staff but not necessarily both. This observation was also revealed within the thematic analysis in relation to who the participants saw as being responsible for feedback of progress during clinical placement.

4.3.5   Descriptive data – summary

The descriptive data sought for this study included data related to placement duration, benefit, recall of participants of nursing care for fall, pressure ulcer or pneumonia during placement and supervision. Participants identified a wide variety of placement timings and various levels of recall of interventions. All participants identified that placement was of benefit; participants with the longest duration of placement reported that they also felt more prepared for work as a result of their placement experience.

4.4   Thematic analysis (Form B)

The thematic analysis for this study took a considered and systematic path to ensure the findings from the participants were an accurate reflection of their story. The specific approach to the thematic analysis was designed to accommodate the inductive and deductive orientation of the subject. This approach followed the five stage

process described by Bernard and Ryan (2010, p54) which includes '...(1) discovering themes and subthemes; (2) describing the core and peripheral elements of themes; (3) building hierarchies of themes or codebooks; (4) applying themes …(5) linking themes in theoretical models'. The advantage of this step wise process was to ensure a comprehensive and transparent approach to theme development. A similar systematic approach to theory generation is described in an article that is recommended reading for those considering approaches to thematic analysis. Fereday and Muir-Cochrane (2006) explain in particular detail an approach to thematic analysis blending both inductive and deductive approaches. The qualitative analysis software NVivo 9 was used to manage the transcripts throughout the thematic analysis.

4.4.1   Discovering themes and sub themes

The analysis of the participant's transcripts involved consideration of priori and a priori themes; the themes within this study based on both inductive and deductive reasoning. Inductive themes are those developed out of the raw data of the transcripts. Deductive themes are those that consider a priori knowledge of the subject at hand which the description below clearly describes.

Three techniques for discovering themes are described by Bernard and Ryan (2010) as searching for repetitions, identifying metaphors and analogies, and mapping theory related material. Each technique was applied to the participant's transcripts. While at times the techniques did overlap generally the process for thematic analysis was achieved by using each technique in three separate readings of the transcripts. This process while time consuming encouraged the researcher to approach each analysis with a different lens. For example searching for repetitions (reading and re-reading) was used to approach the initial and open identification of themes in the questionnaire

responses. The first approach to identifying themes resulted in 119 different broad descriptions. This amount of loose and often similar thematic code was then subject to further re-reading of reviews of the participant's responses in an attempt to exhaust the number of possible themes. This process was a way to sort and remove the chaff from the wheat. It was at this time that the capacity of NVivo 9 to serve as a theme management system became most apparent. The software allows very easy comparison between participant's responses to any number of different questions with the simple click of a mouse button. To illustrate the usefulness of the software package, 16 participants responding to 12 questions resulted in 192 pieces of data stored, coded with themes and colours, tagged with memos and observations and available for ready recall at any time. This function within NVivo enabled the researcher to return to the data again and again to establish how well the developing theme 'fitted', being either supported or unsupported by the stories of the participants. This process was a way to ensure each core theme was reflective of the descriptions provided by all of the participants.

Metaphors and analogies abound in the language of everyday nursing and while they may be somewhat cryptic to those without a health care background they often provide an insightful discussion of patient care. In relation to the meaning of metaphor and the discovery of themes in transcripts, Lakoff and Johnson (1980) work is an essential reference. Lakoff and Johnson (1980, p6) wrote '...that human thought processes are largely metaphorical'. Indeed the authors go on to delineate metaphor into categories of orientational, ontological and structural, layers which are useful to further describe the essence of experience, an important consideration for qualitative researchers. Within the examples provided below there is a selection of metaphors

that illustrate the essence of experiences that result from clinical placement. The review of the transcripts for metaphors enabled the identification of five further themes and allowed the refining of seventeen others.

The use of theory related materials, an exercise in deductive reasoning, was the final stage in the search for thematic content within the transcripts. This stage was conducted based on two theoretical foundations, one the characteristics of Social Phenomenon Theory proposed by Lofland (1971) and the experiential learning insights of (Boud, Cohen and Walker (1993). The application of two theoretical bases was a deliberate approach, recognising both the importance of the social interaction that affects students during clinical placement and the core elements of experiential learning.

Lofland (1971, p15) proposed that qualitative data analysis of many social settings is possible by considering the interplay of a number of domains; *acts, activities, meanings, participation, relationships and settings*. Lofland (1971) modestly identifies that the notion of a social phenomenon, such as that represented by nursing education, can be examined from a micro to macroscopic level. It is suggested modestly because (Lofland 1971) makes something as complex as qualitative analysis of social settings, approachable through his logical description of units of social phenomenon. For example consider a discrete clinical learning experience as an *act* that usually happens in a specific timeframe. The *activity* surrounding that learning experience could well be the wider university experience of the student. *Meanings* are attributed by the students as their context widens and they apply some meaning to the learning situation. *Participation* in the opportunities for learning progresses through

more and more clinical experiences where the student may begin to appreciate or understand the *relationships* among several different people. Finally (although the units may not need to proceed in this rigid step wise fashion) the *setting* in which the clinical experiences are taking place is of inherent interest in this type of analysis. The value of the domains is to offer a scaffold on which to craft a theoretical framework underpinning the thematic analysis. As it is, each domain resonates neatly with the scope of the interview questions and most importantly with the nature of clinical experiences and learning. In this sense this analysis has not proceeded as a purely inductive approach but rather benefited from a general coding scheme with which to gain some initial purchase on the transcripts.

Finally the key propositions of experiential learning, proposed by Boud, Cohen and Walker (1993, p8-16) were used to review the transcripts;

- experience is the foundation of and stimulus for learning

- learners actively construct their experience

- learning is a holistic process

- learning is socially and culturally constructed

- learning is influenced by the socio – emotional context in which it occurs

Considering the propositions above, against each transcript in the search for themes would have been an awkward task. Instead each proposition was listed as a set of more useable key words which encouraged still deeper levels of analysis. The following key words were contracted from the educational propositions above.

- Experience and Stimulus

- Activity and Construction

- Holism

- Culture

- Emotion

It was immediately evident on narrowing the key words that a synergy exists between the social domains identified by Lofland (1971) and the learning principles espoused by Boud, Cohen and Walker (1993). The interplay of social environments, the identification of acts and activities, roles, culture and emotions are wound throughout the participant's transcripts. This interplay emphasises the dimension of learning as a social construct and that the clinical venue as the mechanism for experiential learning is an educational setting than demands closer inspection.

While the process of returning to the data yet again may seem excessive, the exercise had two important outcomes. Firstly the re-orientation to the transcripts on each occasion encouraged deeper levels of familiarity with the broad nature of each participant's opinions. Secondly the opportunity to look with even a slightly different perspective ensured a thematic saturation was achieved, adding further to the reliability of the findings.

4.4.2   From Themes to Codebook

The review of the transcripts after the consideration of Lofland (1971) domains raised the raw coding themes (nodes) to 271. The third formal review of the transcripts after imposing Boud's propositions added another 330 nodes. The total of 601 nodes was achieved with no sorting and little consideration of how one proposition might relate to a domain. Essentially the coding was diverse and very raw. The process for reducing this list to a number of inclusive, insightful and representative themes began with a code list.

One of the central elements to a clear and logical thematic analysis is the production of a coding list and a set of codes comprehensive enough to reveal the nuances of a case. The analysis of words, language and meaning is clarified by Miles and Huberman (1994, p56) as an exercise where it is '…not the words themselves but their meaning that matters'. To this end a simple strategy of keeping to task was to have the phrase 'What are they saying?' stuck across the top of the researchers computer screen. The use of a well-considered coding list not only allows for an effective template for ongoing analysis but also allows for transparency when the findings are considered by those external to the study. Both the primary and co-supervisor for the study were given copies of each stage of development, six in total, of the final coding list for review and comment. The goal for this was to ensure that a logical and consistent approach to the analysis was applied. The other significant advantage of a codebook is to allow replication of the study at other sites concerned with nursing education and learning outcomes.

4.4.3 Describing the core and peripheral elements of themes

It became clear after the initial thematic sorting that the analysis process was not one to occur over the period of an afternoon or evening. Rather the actual thematic sorting took a number of weeks as the benefit of reviewing the lists and reflecting on which codes stood as unique themes or could be subsumed under a similar theme, was to achieve a sense of peace with the final themes. As an example *Systems Issues* was for some time a standalone theme which did not sit logically with any other until the theme of *Clinical Placement Tension* was crafted together.

As described above the inductive analytical approach encourages the emergence of codes from the transcripts which are appropriate to this study. The three types of codes proffered by Miles and Huberman (1994) include descriptive, interpretive and pattern. Each is as the name implies and in themselves they are not difficult concepts. More importantly though is the value of the codes as an '...astringent' (Miles & Huberman 1994, p58), where working together they bring data into forms where it can be considered more deeply.

4.4.4   Trustworthiness and rigour of thematic analysis

Koch, (1994) has been cited in many research papers that are keen to demonstrate a rigorous approach to data analysis. Two fundamental ways to represent rigorous approaches to qualitative research are to ensure the '…research product is well signposted with reflective notes' and to be transparent in the description of the decision making process which led to the conclusions Koch (2006, p101). Similarly having a sensible approach to each aspect of the analysis of a study adds to validity and reliability and this has been discussed more broadly above. Other studies such as Chappy, Jambunathan and Marnocha (2010,p 21) using thematic analysis suggested that rigour is established '…through prolonged engagement with the data to arrive at credible conclusions'. This again would be in keeping with the nature of case study methodology.

4.4.5   Themes

The core themes identified in this study are listed below in Table 8. Each theme title has a brief statement outlining the theme, followed by a selection of exemplars.

Deeper discussion of the themes, the literature and the implications for the themes as part of the wider case study, are provided for within Chapters 5 and 6.

Table 8 - Themes - thematic analysis

Themes
Competence and confidence takes time
Assessment and feedback is lacking
Clinical placement tension
Students can construct their own learning experiences
Cultural affects
Relationships between tutors and students develop as knowledge develops
Responsibility is real
Placement pattern and knowledge development

4.4.5.1   Theme: Competence and confidence takes time

This theme describes that a linear almost equation like relationship exists between the level of preparation, competence and confidence. The role of confidence in developing knowledge is significant.

'yeah that was good especially as we had to go by the competencies, the ANMC competencies we were able to say how we were competent with all the ten rights   that was really good (Q7P1)

oh yeah every placement you sort of have a little bit more when you start off ..yeah ..it builds up a little bit yeah (Q4P2)

if I was in the acute care setting on a regular basis, it would help to build up confidence probably more so, probably more a confidence thing than an ability thing (Q5P13)

I think it gets you working around nursing and figuring out if a) whether you like it at the beginning and b) how you feel, where you feel you lie in the scheme of things, it's how competent you are and what you feel you need to work on (Q11P18)

4.4.5.2   Theme: Assessment and feedback is lacking

Many participants identified that their clinical placement experience lacked consistent assessment or feedback and that the actual mechanism or link between the clinical assessment and the university were inconsistent at best.

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Did anyone watch you on the ward and say yes you are clinically competent?

Umm I think the facilitator kind of asked the nursing staff that had been working with me or allocated to me, feedback from ward as well but really it ended up at the end of the shift so I don't think they were standing there watching me.

So how were you assessed as clinically competent, did you have any practical tests or anything like that?

We do have practical tests, we definitely got one in year three, think we got one in year two as well, like a practical exam (Q9P20)

Like some of the basic stuff like taking obs, knowing ranges of values and doing IV stuff and setting up drips, the specialty stuff like pulling out a sheath is not something you can learn at uni you need to do it on a ward but some of the basic stuff could actually be signed off by competency through uni instead of it being all paperwork, not necessarily clinical based but more time reading up about competencies.

You would much prefer to have a chance to do things hands on? Show you can do a blood pressure and be assessed on that?

Yes and be assessed on that on the clinical placement, rather than a ridiculously large 1000 word competency package that doesn't tell you anything (Q9P5)

The staff members didn't really tell us much about how we were going, just the facilitators spoke to the CNC and the ward and that's really how we got our feedback ……..just the facilitators asked the CNC and then we just asked the facilitator (Q10P1)

Generally positive experience from the tutors. I suppose it's hard for the tutors even though they can get feedback from the nursing staff they're not actually seeing you or standing beside you on the ward but yeah generally positive (Q10P12)

4.4.5.3 *Theme: Clinical placement tension*

The very nature of clinical placement creates tension due to the financial, lifestyle and systems (structural) pressures caused by any model of placement; block, dedicated education unit or integrated. The difficulties translate to a compromise in the level of education possible.

I found it very demanding

Which part?

The expectation of doing so much work and maintaining financial stability, social stability outside of university as well, so I guess just managing (Q1P13)

Time, two eight week placements likewise trying to maintain financial stability and a social life the fact it was full time (Q11P13)

Financial burden as well, as I think the first four weeks are great, first few weeks find your feet get used to the ward, get used to the hospital next two weeks you kind of start to feel a bit more comfortable and you start learning and then I think another two weeks on top of that to initiate that learning and to improve on it would suffice and to improve on it so six weeks ...

so as a student we were working fulltime hours all shifts plus trying to maintain financial stability outside of that so I think that yeah the lengths of the placements were definitely exhausting (Q3P13)

depends how the nurses take (it), some don't mind it but some expect you to be a slave (Q1P17)

Clinical placements, they were challenging and like if you got into a comfort zone that was pretty much bit of a routine for certain placements and the same things happens for GNP .....finally you get comfortable and then you have to move and do it all over again and that in itself is tiring. (Q4P4)

I think it's so important because even though I did enjoy my placement, I didn't want to be there because I wasn't getting paid ....not that it was a huge issue but I'm sure there was a lot of nurses who were single mums or had a mortgage and if I was to be at uni now I wouldn't be able to do it because I do have a mortgage so how the hell are you suppose to , I mean they are screaming out for nurses but they make it way too hard for anyone to want to complete the course (Q11P2)

Placement without pay, it's a huge thing when you're trying to get by. You do five days a week in your placement and then you got two days on a weekend when you you're working for money so I was doing seven and six days a week it was very full on (Q11P8)

Well I suppose only a certain percentage of people could really deal with this kind of course you know people who are really supported financially either by their parents or their quite well off, anyway or they don't have a mortgage or a huge amount of kids so that's a negative of that. (Q11P4)

4.4.5.4   Theme: Students can construct their own learning experiences

In the absence of formal structures of learning in the clinical placement setting, students are able to identify and learn from a range of settings. This suggests a sophisticated level of maturity or critical thinking on their part.

Really not good, I think they should bring back hospital based training, cause half of the theory in reality you forget if you're not using it or putting it into practice, you just forget really...At UNI A there wasn't many placements compared to UNI C where they went three times a week, I thought that was really good...well it is good cause they know a lot more.

How do you know that?

From talking to them. We've got a student from there in second year now, a lot more prepared I think.

What is it, what do you mean by lot more prepared?

'Cause they are using their practical skills and then they go for two days a week at the end for theory, so they're actually putting their practice into theory as well. So they understand it as practice cause that's how I learn...not really just by what you see and read (Q1P1)

a lot of hard work but definitely worth it. I'd rather have the hard work over three years and gradually build up rather than jump in the deep end and find that you're not coping so. I think that was a very good introduction ....yeah you could slowly build up your skills and learn …… there was a lot of things I had trouble learning as a student but now because I've had that level of training I feel that I'm quicker to learn new things (Q1P10)

Umm the first word that came to mind is tedious (laughs) but that doesn't reflect the course. I

think I was just ready to get out there and get as much sort of hands on experience as I could and the three days a week was excellent ......I think we got a lot of exposure to different areas and that was really good in determining what areas of interest I would have for the future and also obviously build up your knowledge base. There are things I recall you know from the plastics ward where I am now was when I was a student and I wouldn't have that prior knowledge if I didn't get the chance to do that (Q1P14)

Essentially it wasn't being spoon fed. The responsibility was on you to study and to ensure you had the knowledge, yeah adult learning ....you just had to suck it up and learn, probably don't quote that (laugh) (Q1P4)

4.4.5.5   Theme: Cultural affects

Without question the cultural aspects of the clinical placement environment take on

far more significant implications than may be initially assumed by the students, the

nursing staff and possibly the education staff within the university.

On that ward the person from the university had been one of the senior nurses on that ward and knew everybody and had personal relationships with people on the ward and so you couldn't go in and say 'oh I'm having a problem with this person' because it would come back to them or it would come back on you and I found that I was very much singled out in a group. I must have looked the wrong way at someone on the first day or something (Q4P18)

I did a third year placement here, one here which made the orientation a bit easier.

No wonder they're getting into you with airway already.

Yeah exactly.

Was it important for your transition?

Definitely, very important.

What was about it that made the transition better?

Just the fact that spending so much time on those wards seeing how they run, how you go about admissions, how you go about all your nursing interventions and getting in contact with the doctors and the processes, just made it so much easier as a graduate to come in and you've already got half an idea of where you need to be going and your daily planning and stuff (Q2P12)

you are an RN and if you want to survive on the ward not only do you have to look after your patients and you have to be safe, you also got to fit in and you have to be able to deal with difficult staff and there's a reason why staff members are difficult and it pays you to understand that and why people are difficult to work with sometimes.

How much did clinical placement affect this learning?

A lot, but I actually learnt more as .... as opposed to being a student and these little things I mean I was always aware that staff could be a real pain(Q3P4)

time management you can't learn, you've got to do....um recognising something you know a change in the patient status and then doing something about it and seeing the results of that. Like you can't teach that side of things, you actually have to do them you've got to see other people doing things and a lot of nursing there's a thousand different ways to do things and until you've seen ten ways you don't develop your own style.(Q3P5)

I was not sitting in the nursing station gossiping I was too busy chatting with the children and they saw that as being incompetent (Q9P18)

4.4.5.6 Theme: Relationships between students and tutors develops as knowledge develops

Similar to the linear nature of competence and confidence there is a linear time dependent dimension to the establishment of a relationship between clinical facilitators, tutors, students and knowledge. It may be argued that these themes are more related than previously considered.

class sizes were much smaller and relationships between lecturers and you know could be developed quite a lot more I guess than they would be in the bigger classroom, so that was good (Q1P13)

I think the fact we were a small group of students rather than 300 students was very good, get to know people and build good relationships that held us together we had facilitators who know you (Q3P10)

initially it was a probably a bit more social than anything just a lot of probably 50/50 in terms of discussions about clinical issues and 50 being social discussions and I think that worked well in terms of with making us feel more comfortable on the wards and developing a relationship. I asked staff members sometimes but you know I just think their just gonna say you're doing good…but I wanted to know the truth so I just asked the facilitator.

And they were forth coming with the truth?

They said I was doing fine but you know I was just being paranoid (Q10P10)

4.4.5.7 Theme: Responsibility is real

A predominant theme throughout the study revolves around the implications of transferring and accepting responsibility. It is clear that the concept of being responsible for something influences the learning around that issue.

When you couldn't have a patient obviously as well you knew you couldn't take that step further. I've been on the ward for really quite a long time and I thought I'll be fine and then I actually got out onto the ward and the responsibility and I knew I had to be responsible and I knew I was responsible for a lot of things as an RN but the impact of that responsibility really did take me back (Q2P4)

everyone will have to take that leap because you can't give a student all the full responsibility and you've got to take care of all the areas when you're a student you kind of focus on the things you need to learn you don't see the whole picture, you don't see everything for the patient (Q5P10)

I don't think you could ever be, you know 100% responsible as a student 'cause there's always someone watching you, helping you (Q5P10)

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the nurse I was working with, told me what I needed to watch for and because it was a real patient I'll never forget that I didn't want him to die in the night because he had a big heart attack. As student you don't have the responsibility you're just helping out learning as much as you can (Q6P5)

hospital training it's not a bad thing to happen, actually working within a hospital where they've got limited responsibility but responsibility nonetheless and there's a huge amount of work in that 'cause you can't get enough clinical. You can't get enough experience between sitting through lectures (Q6P5)

I can understand why some of the RN's were the way they are. You know you're in charge of patients and you've got a student with you that's supposed to be doing your work and you're supposed to be supervising them but at the end of the day you're responsible. So it is hard to let someone do that for you when you're taking the credit for it ....I try and help them as much as I can 'cause I do know what it feels like (Q7P2)

I do think there needs to be more clinical placement. Like if I hadn't had a PNA job I would have struggled coming straight out and having worked in a nursing home as well. If you didn't do either of those two I think you really put yourself behind the eight ball because you don't know what it's like when you're not the one responsible (Q3P18)

4.4.5.8   Theme: Placement pattern and knowledge development

Perhaps not surprisingly the actual placement pattern also had an effect on knowledge

development with block placement having different consequences for learning than an

integrated placement pattern.

Very independent, very independent gotta to be on the ball with what you're doing no one's gonna chase you up which was difficult ....Um I found a lot of the coursework not terribly related sort of we got space let's just throw it in there we can do that sort of (Q1P8)

You got less time to study. If you've got examination on the block was between or before the examination dates, you got like five days a week , quite tiring, it's kind of the opposite of DEU actually yeah but I get the continuous, what do you call, the refreshing everyday (Q11 P20)

guess within the hospital setting it was probably a university based thing but not enough time was allowed for us to do the academic side of things. The university expected us to do so we would come onto a shift and the staff would expect that we were there and that you know were there to work (Q11P13)

I think very important it's a major adjustment coming over to GNP and I just don't think I would have coped at all if I didn't have all the clinical experience in this hospital

Sure... why do you think you wouldn't have coped?

Cause it was a major adjustment, time management , all the duties that you never do as a student that takes up a lot of your time and it makes it so much easier knowing where to go (Q2P11)

4.4.6   NVivo and thematic analysis

As noted above, the NVivo software of itself does not perform an analysis of

qualitative data. As a tool it requires the reflection and insights of the researcher to

generate appropriate themes. That said there are a number of features of NVivo 9 that were very useful to the process of analysis. As an example the ability to generate graphical word trees (Figure 5) and word clouds from any number of nodes (themes) or indeed from all of the data available presents the researcher with an alternative perspective of the themes.
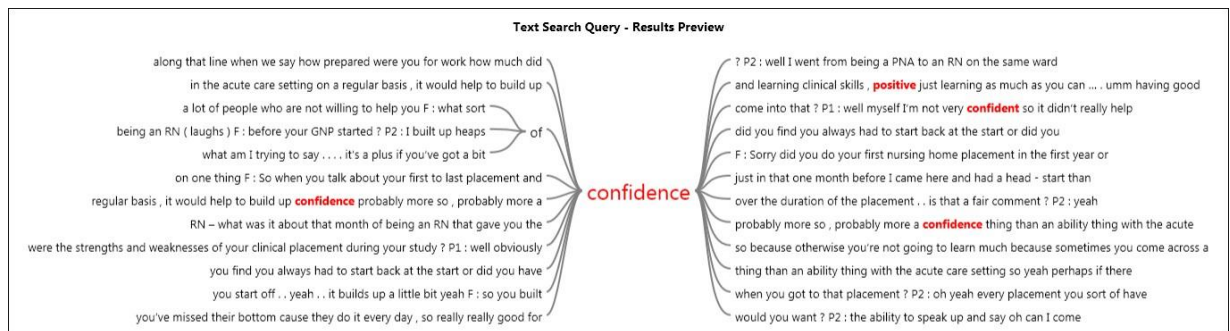
Figure 5 - Word Tree Confidence

In the example provided at Figure 5, the direct and indirect references participants made to confidence, when asked about their placement experience, can be readily compared and considered. The visual depiction of the more important concepts uncovered within the thematic analysis provide a fresh perspective of the data and act as a constant stimulus for reflection, one that was essential in crafting the final summary of the analysis, the case report. There are a visual reminder of the complex nature of experiential learning and the significant variation that is possible when asking different people to consider a similar issue. Similarly the use of word count analysis and text query function within NVivo 9 allows the exploration of text by selecting key terms, further enabling researchers to narrow or broaden as required the associated search string as per the example in Figure 6.
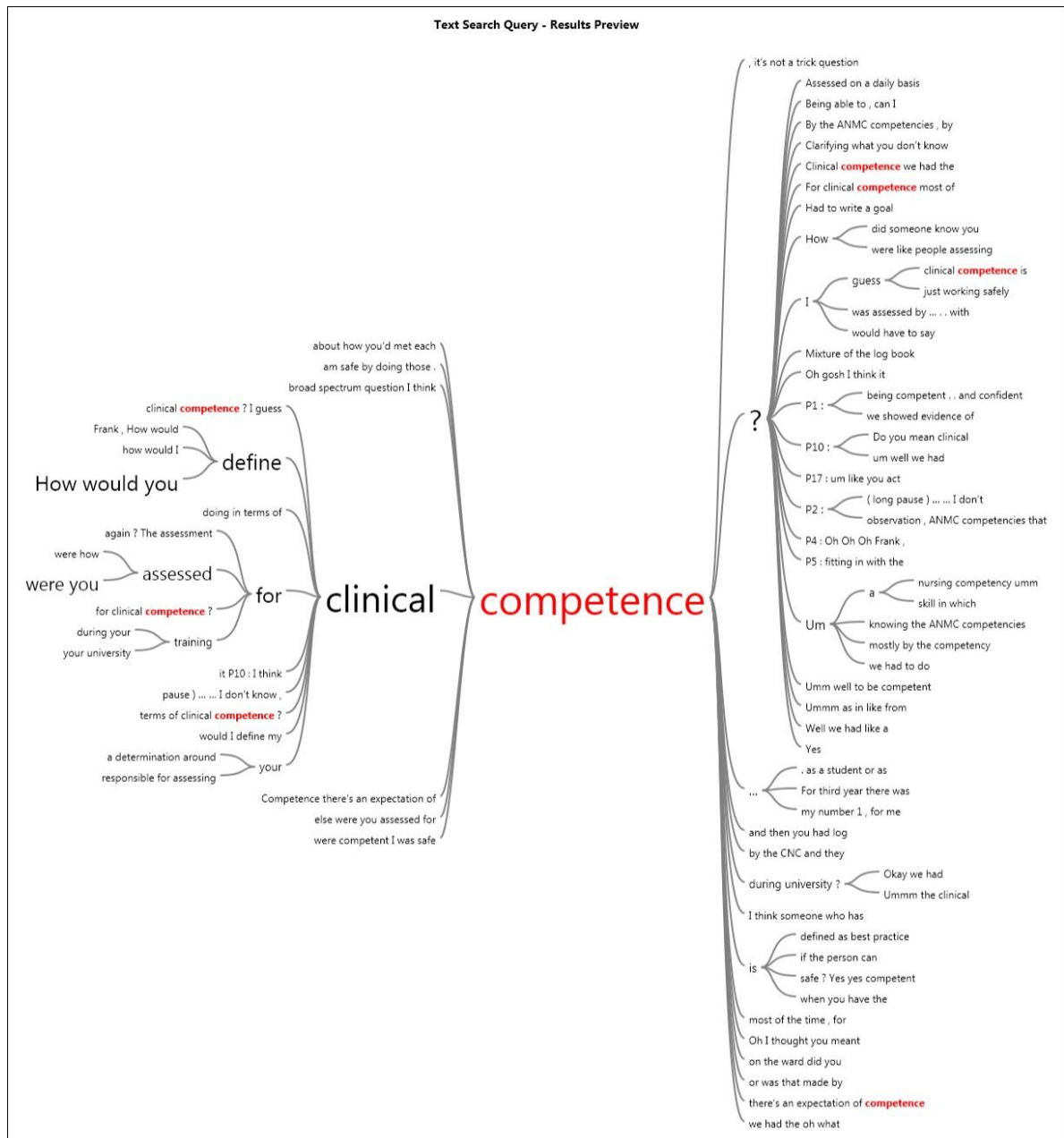
Figure 6 - Word Tree Competence

Cohen, Manion and Morrison (2011, p539) describe one of the advantages of qualitative analysis software as '…funnelling from the wide to the narrow'.

4.4.7   Thematic analysis - Summary

A number of the themes revealed in the thematic analysis reflect similar findings in previous studies. The cultural affects or belongingness and its influence on learning supports the work of Levett-Jones, et al. 2009; Levett-Jones et al. 2007) while the

tension of placement and value of effective tutor support have been noted in a recent study by Gidman et al. (2011). The generally negative description of assessment and feedback is contrasted against the Courtney-Pratt et al. (2011) finding that placements for second year students at an acute care hospital were of high quality. The description by participants of how the perception of responsibility influenced their learning is not widely reported in nursing literature. Vivekananda-Schmidt, Crossley and Bax (2011) however describe that doctors in training are being expected to take some level of responsibility during clinical placements to facilitate the transition to graduation as a doctor.
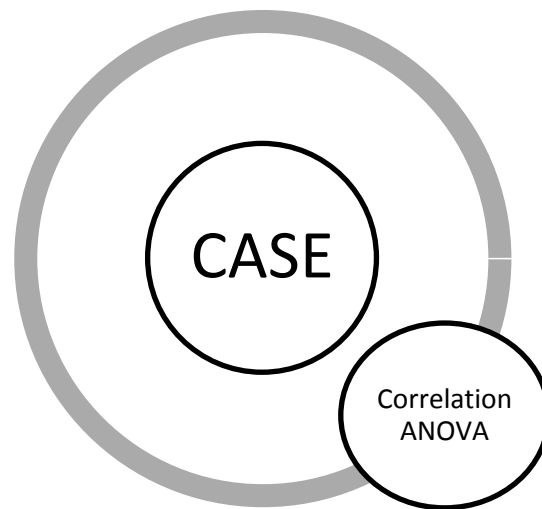
4.5 Scatterplot, Correlation and ANOVA (Form C)

As case study methodology benefits from forms of data triangulation it was decided early in the design phase of the study that some level of quantitative data would be collected regarding the skills and knowledge of the participants. Quantitative data analysis is useful in case study research as a way to support qualitative data '…to explore, describe or explain events' at a higher level (Yin 2009, p133). The approach to this topic was to ask the participants a range of questions regarding their level of skills and knowledge about the interventions for pressure area, falls prevention and pneumonia. The questions contained in Form C were a mix of semantic differential scales and open ended questions. A key assumption made in the use of the semantic differential scales was that the dependent variable, the responses of participants, provided an interval level measure. A caution here is however noted that while there were a large number of individual pieces of data available for analysis the small number of participants (n=16) did not lend itself to significant statistical analysis.

Davis & Summara (2006, p123) argue that statistical methods are '...problematic in the study of complex unities'. Rather than a negative outcome the statistical analysis identifies that while the relationship between clinical placement and the acquisition of skills and knowledge is less obvious, the importance of a longer duration of placement in the acquisition of confidence and preparation for practice is apparent. Pallant (2005) reminds one that statistical significance is not to be relied on too heavily and that many other factors, as in the whole case study, should also be considered.

4.5.1   Scatterplot and correlation

Using Microsoft Excel 2010 a number of scatterplots (X-Y plots) were constructed to provide a visual depiction of the results and determine if there was any reason to pursue a correlation analysis. Pallant (2005) describes that prior to correlation analysis, scatterplots are useful to check the distribution of outliers, enable rapid inspection of distribution and suggest the relationship that may or may not exist between the variables.

4.5.2   Placement Hours Vs Level of Preparation

A scatterplot was created to examine the relationship between the placement hours for each participant and the level of preparation they felt when beginning work as a registered nurse. The X axis identifies the hours of placement, the Y axis the level of preparation nominated by the participants. Figure 7 shows that most of the students who had attended the largest component of placement experience felt the most prepared to commence work as a registered nurse (1 = well prepared, 6 = totally unprepared). The downward slope of the plot line reflects the reverse scale of the responses.

Figure 7 - Scatterplot - Hours of placement Vs Preparation as RN
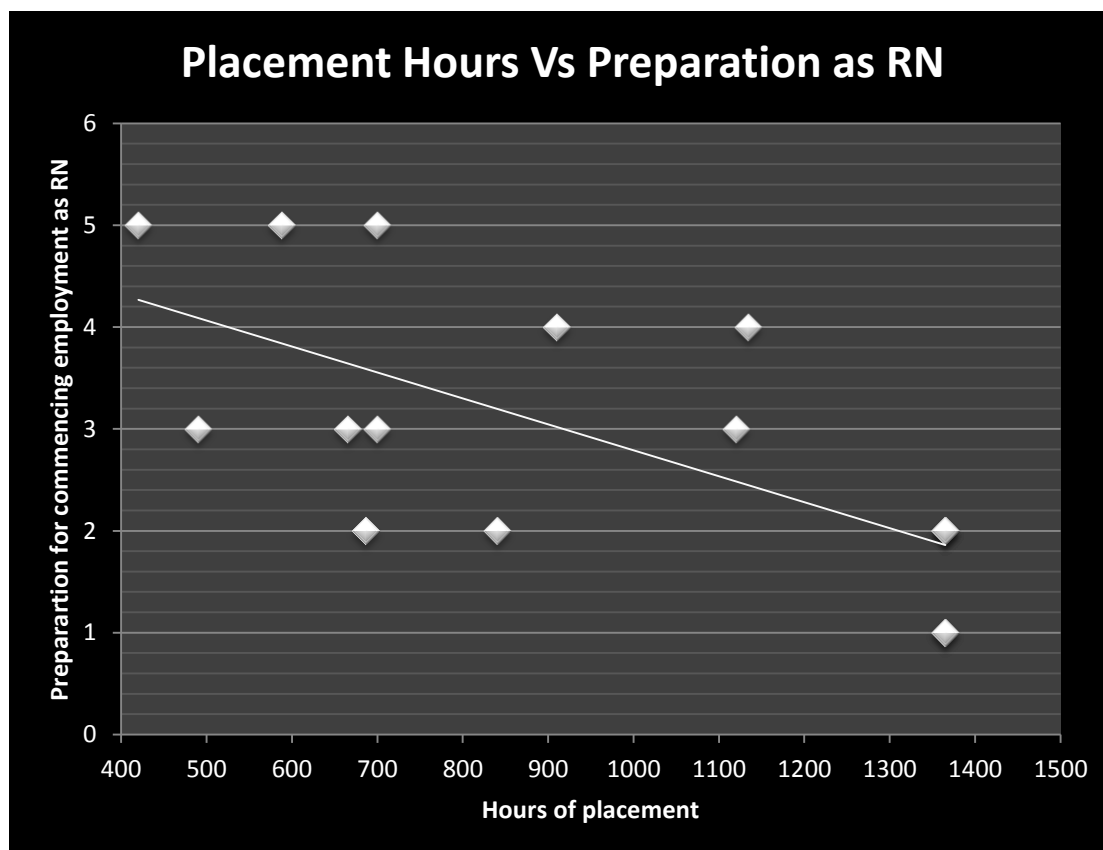
Table 9 - Correlation - Hours of placement and preparation as an RN

Correlations		Hours of placement	Preparation as RN
Hours of placement	Pearson Correlation		-.716[**]
	Sig. (2-tailed)		.002
	N	16	16
Preparation as RN	Pearson Correlation	-.716[**]	
	Sig. (2-tailed)	.002	
	N	16	16

The Pearson Correlation value of r = -0.716 (the minus sign is a reflection of the reversed scale of responses, 1 = well prepared, 6 = totally unprepared) suggests there is a positive correlation between the number of placement hours and the level of preparation reported by the participants (Table 9). Cohen, Manion and Morrison

(2011, p 637) suggest a correlation between 0.65 and 0.85 provides for '...group predictions that are accurate enough for most purposes'. Calculation of the *df* for 14 (*N*-2) requires a level of significance of 0.628 (*p* =0.002) leading to the result that there is a statistically significant correlation between the length of placement in hours and the sense of being prepared to commence work as a registered nurse.

4.5.3 Placement Hours Vs Number of care interventions reported by participants

A scatterplot (Figure 8) was created to examine if there was any correlation between the hours of placement attended by the study participants and the number of interventions they described in providing for falls, pressure area and pneumonia across the shift in question. The X axis identifies the hours of placement; the Y axis refers to the number of interventions provided by the participants.

Figure 8 - Scatterplot - Placement Hours Vs Number of care interventions
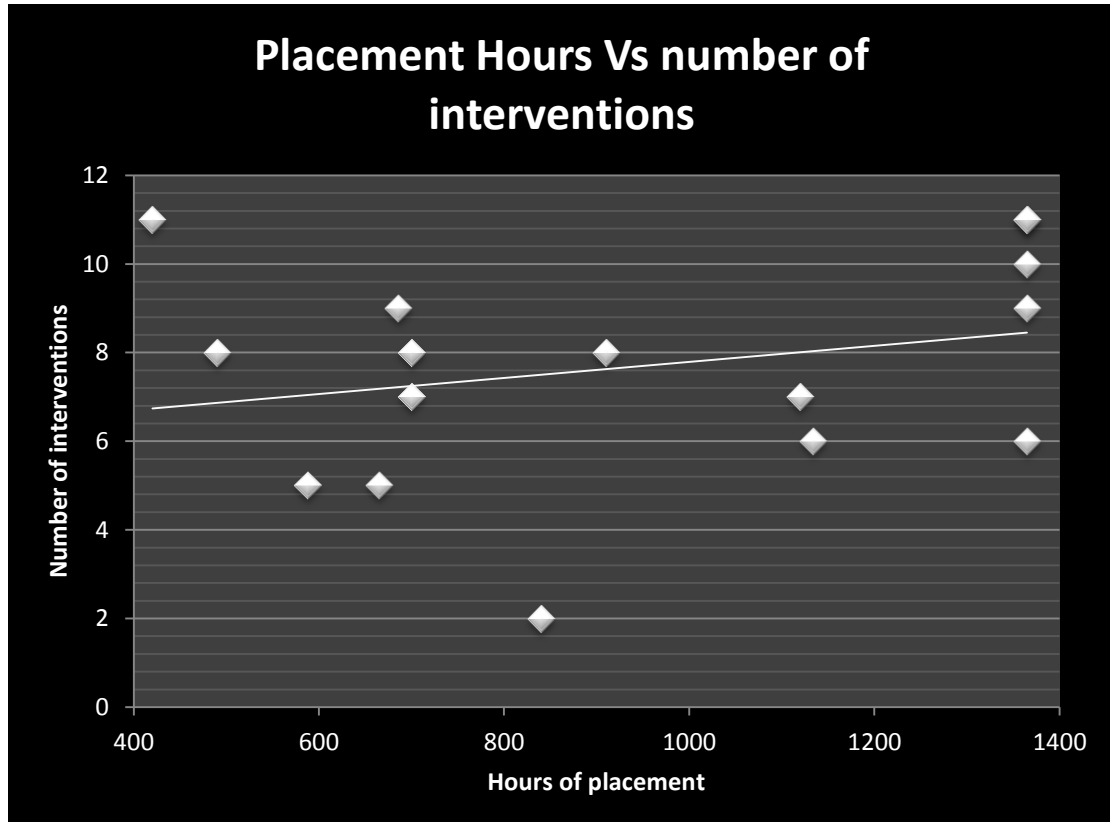
Table 10 - Correlation - Hours of placement Vs Number of interventions

		Hours of placement	No. of interventions
Correlations			
Hours of placement	Pearson Correlation		.251
	Sig. (2-tailed)		.348
	N	16	16
No. of interventions	Pearson Correlation	.251	
	Sig. (2-tailed)	.348	
	N	16	16

The Pearson Correlation value of $r = 0.251$ (Table 10) suggests there is a low correlation between the number of placement hours and the number of interventions provided by the participants. Cohen, Manion and Morrison (2011,p 636) advise that an r result of between 0.20 and 0.35 provides for correlations which may have '...limited meaning in exploratory relationship research' noting however it is still appropriate to assess the statistical significance. Calculation of the df for 14 (N-2) requires a level of significance of 0.628 ($p = 0.348$) suggesting there is no statistically significant correlation between the length of placement in hours and the number of interventions provided by the participants.

4.5.4 ANOVA

A key assumption made in the analysis of the quantitative data was that the underlying scales, the differences between participant's responses as indicated on the semantic differential scales, were treated as interval measures and not ordinal scales. This was an *a priori* conceptual assumption and not a statistical one. Other assumptions made in using the ANOVA were, normality, constant variance and independence. It was on the basis of each assumption and review by a senior

statistician that the parametric test, a one way ANOVA could be used to analyse the data.

A one-way between subjects ANOVA was conducted to compare the effect of university attended on the knowledge of participants in relation to pressure area, falls and pneumonia care. There were no statistically significant results for ANOVA (Table 11) between the university the participants attended and the knowledge of each participant for pressure area (F 3.370, df 2 p = .066), falls (F .455, df 2, p = .644) or pneumonia (F .26, df 2, p = .974).

Table 11 - ANOVA Knowledge

		Sum of Squares	df	Mean Square	F	Sig.
Pressure Area Knowledge	Between Groups	11.267	2	5.633	3.370	.066
	Within Groups	21.733	13	1.672		
	Total	33.000	15			
Fall Knowledge	Between Groups	3.204	2	1.602	.455	.644
	Within Groups	45.733	13	3.518		
	Total	48.938	15			
Pneumonia Knowledge	Between Groups	.504	2	.252	.026	.974
	Within Groups	124.433	13	9.572		
	Total	124.937	15			

4.5.5 Knowledge - Pressure area care

In relation to knowledge two issues, friction (M = 5.8) and incontinence (M = 5.6) were regarded as the most important contributors to pressure ulcer development. As a risk factor for developing a pressure ulcer the role of anaemia was the least considered issue though most participants identified that it had some role in pressure ulcer formation. When asked participants were less certain about the influence of an upper respiratory tract infection on the development of a pressure area with a mean score of

3.5. In response to this question participants 11 and 5 commented respectively, ' ...is that a trick question?' and '...that's left field'.

4.5.6   Knowledge - Falls care

The issues contributing to falls risk were identified as medication, previous history of falls, elimination patterns and mobility. All but one of the participants identified mobility as a risk indicator for falls with most participants nominating that a previous history (Phx) of falls was also a significant indicator of risk. The question of patient lifters was provided to again act as a form of filter to ensure that questions were not answered in an unthoughtful manner and indeed participants were more considered in their interpretation of the question.

4.5.7   Knowledge - Pneumonia care

At the time of the survey the participants were more reflective and considered in ranking issues associated with pneumonia, than with either falls or pressure area. Dysphagia and conscious state were ranked as the most significant issues impacting on the development of pneumonia. The risk of enteral feeding and nutritional state in the development of pneumonia were scored the lowest of the factors. Participants 5, 7 and 19 scored the risk associated with enteral feeding and pneumonia between 3 and 5, despite identifying in the interview that they were not sure how enteral feeding would be a risk factor in the development of pneumonia. Having field notes to record these sorts of responses is important in the overall approach to data collection in case studies. Participant 11 asked for a definition of the term dysphagia before identifying it as a very important risk factor. The administration of opiate medication was generally regarded as a risk factor for the development of pneumonia in hospitalised

patients with a mean of 4.8. While Participant 8 ranked all the issues as important risk factors for developing pneumonia, she was more circumspect in assessing what role a deep vein thrombosis might play in the development of pneumonia. This again suggests that filter or red herring questions may be useful to prevent automatic or ill-considered responses in similar surveys.

4.5.8 Skills

A one-way between subjects ANOVA (Table 12) was conducted to compare the effect of university attended on the skills of participants in relation to pressure area, falls and pneumonia care. There were no statistically significant results for ANOVA between the university attended and the skills of each participant for pressure area (F 3.32, df 2 p = .068), falls (F .796, df 2, p = .472) or pneumonia (F 1.89, df 2, p = .190).

Table 12 - ANOVA - Skill

		Sum of Squares	df	Mean Square	F	Sig.
Pressure area Skill	Between Groups	66.917	2	33.458	3.325	.068
	Within Groups	130.833	13	10.064		
	Total	197.750	15			
Fall Skill	Between Groups	23.604	2	11.802	.796	.472
	Within Groups	192.833	13	14.833		
	Total	216.438	15			
Pneumonia Skill	Between Groups	22.300	2	11.150	1.890	.190
	Within Groups	76.700	13	5.900		
	Total	99.000	15			

4.5.9 Skills - Pressure area care

Particpants responded to the self-assessment of their skills in relation to management of pressure area (1 = Unskilled, 6 = proficient). The skills listed included the

recognition of stages of pressure ulcer development, use of assessment scales, dressing pressure ulcers, using pressure relieving devices such as mattresses and multidisciplinary coordination. Participants considered themselves mostly proficient in the use of pressure relieving devices ($M = 5.3$) and use of pressure ulcer rating scales ($M = 5.3$) such as the Braden Scale. Participants considered themselves less skilled in the recognition and dressing of pressure ulcers with Participant 8 identifying that she had not once dressed a pressure ulcer either during her university training or her first few months of working as a graduate nurse.

An interesting set of responses was provided to the question of how participants rated their skills in coordination or liaison with other members of the multidisciplinary team to address pressure area care. The range of responses from unskilled (1) to proficient (6) suggest the experience of interprofessional collaboration is difficult for some. That said the average response ($M = 4.3$) indicates most participants are working towards or already consider themselves proficient in coordination and liaison regarding pressure ulcer management. Washington (2012) found a similar result in a study suggesting that the performance anxiety of new graduate nurses affecting their interprofessional communication skills was not as significant as expected.

4.5.10 Skills - Falls care

Participants identified their skills in reducing and managing falls risks in questions that asked them to rate their skills in recognition and description of falls risks, implementation of preventative measures and their ability to apply hip protectors. Participants suggested they were mostly proficient in the use of falls assessment forms and in recognition of patients at risk of falls. Responses suggested participants were

less skilled in actually implementing fall prevention measures. The application of hip protectors was a contrasting result with participants either being unskilled and not sure of what they were, through to participants who had applied them many times.

4.5.11 Skills - Pneumonia care

Participants were also asked to rate their skills (1 = unskilled to 6 = proficient) in the management of patients with pneumonia. The skills the participants were asked to rate themselves against included the recognition of patients at risk of pneumonia, prevention of nosocomial (hospital acquired) pneumonia, auscultation of chest sounds and teaching patients coughing and breathing exercises. The skill which most participants saw as their strength was that of teaching coughing and breathing exercises with the least skilled intervention being auscultation of chest sounds. A number of participants asked for a definition of what auscultation was. Participant 18 was adamant that auscultation was a skill required for the emergency department and not one required for a medical ward setting.

4.5.12 Summary

The statistics presented above include a number of scatterplots (XY plots) and a correlation analysis (Pearson r coefficient) between the hours of placement and the participants' description of the nursing care they provided. A further correlation of the hours of placement and the individual scores of participant's falls, pneumonia and pressure area care is presented. On the basis of the range and distribution of responses, assumptions of normality and considering the independence of the observations, the statistical advice was to use a parametric approach, specifically an ANOVA (analysis of variance). As the ANOVA was not statistically significant no further post hoc tests were conducted.
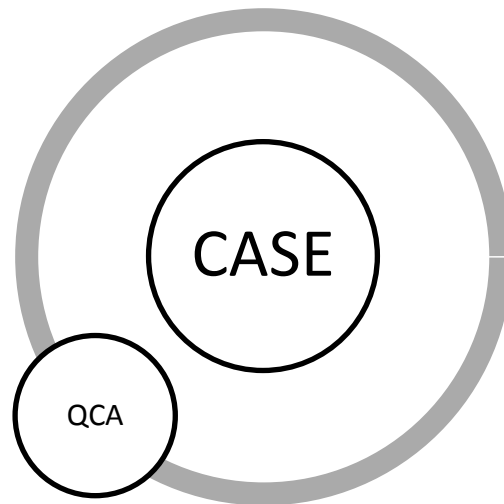
4.6 Qualitative Comparative Analysis - QCA (Forms A, B & C)

If case study can be considered a bridge between paradigms (Luck, Jackson & Usher 2006), Qualitative Comparative Analysis (QCA) might be conceived as a span between quantitative and qualitative approaches to data analysis. Qualitative comparative analysis is defined by Berg-Schlosser et al. (2009,p4) as a '...comparative method' for qualitative research that is both an analytic technique and an approach to research. Methodologically, QCA is aligned to some extent with grounded theory approaches to qualitative research (Berg-Schlosser et al. 2009). Initially developed by Charles Ragin as a social science research tool some years ago, QCA has had only a relatively small amount of exposure in other disciplines such as education and health (Blackman, Wistow & Byrne 2011; Maughan 2006). Indeed Schneider and

Wagemann (2010,p397) identify that as a '…relatively new methodological tool, QCA is still a work in progress'. As the name suggests QCA is a technique for comparing a number of different variables (conditions) to one another and then to an outcome (the outcome condition). The mechanics of the comparative approach rely on comparing conditions within a table (a Truth Table) and visually representing the overlay of conditions in the form of a Venn diagram. Wagemann and Schneider (2010,p380) note that the general goal of QCA is to '...support the researcher in the attempt to arrive at a meaningful interpretation of the (causal) patterns displayed by the cases under examination'. Causal complexity or conjectural causation describes that a simple causal relationship is less meaningful than a position of multiple conjectural causation. Multiple conjectural causation encourages the recognition that a number of different paths may be taken to reach the same goal. A single outcome focus is likely to be of little meaning use than the interpretation of several cases presented at the same time (Berg-Schlosser et al. 2009). The skill that the researcher brings to the issue at hand is a capacity to accept that complex settings or cases invariably have complex interactions and that systematizing or bringing together case study results is ultimately more insightful than a singular perspective (Ragin, 1999).

While there are a number of variations to QCA, central principles involve the use of Boolean algebra, construction of Truth Tables and a parsimonious approach to the data to be analysed. Each element will be described further below. The identification of QCA as a technique to gain a depth of understanding from a small number of cases posits this as an innovative and topical method and arguably one most suited to case study methodology. There are three distinctive variations of QCA, crisp set (csQCA) fuzzy set (fsQCA) and multi value (mvQCA) with each approach placing a different

emphasis on the dichotomous (or not) nature of the data at hand (Rihoux, 2006). Rihoux, (2006) suggests that when using QCA, small –N studies (<30) are most suited to the dichotomous (few variables) nature of the subject at hand, while the fuzzy set (more variables) approach may be more useful for considering medium –N sets (>30). Wagemann and Schneider (2010) plead that whatever the form of QCA taken, researchers should not reduce its approach to 'just' another analysis technique, rather the power of QCA comes from the engagement of the researcher with the original case.

A crisp set, as the name suggests, requires a researcher to identify two and only two (dichotomous) states for a study variable with a [1] typically identifying a state of being present, on or white; a [0] would indicate an alternative position, a state of absence, off or black. It is important to acknowledge that qualitative studies often have shades of grey within the conditions of interest so for the researcher who wishes to examine the substance between two dichotomous positions, fuzzy set or multi value approaches, which allow for greater variation, may be more appropriate than crisp set. The clearest visual representations of the variations of QCA are provided within the book Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques edited by Rihoux and Ragin (2009) and the journal article work of Rihoux (2006); both a necessary first read for researchers considering this approach. The limited uptake of QCA in nursing research is possibly a reflection of its newness and the difficulty of the approach to analysis. This study describes an application of crisp set QCA, from this point referred to simply as QCA.

An important distinction made when discussing QCA is that the term condition is used in distinct preference to that of variable. The term variable is one more closely aligned to quantitative studies in which the researcher may wish to vary or manipulate one of the study parameters. Rather, in considering conditions, the researcher using QCA maintains the emphasis of a case based approach with less import on manipulation of the study conditions or the data at hand.

As suggested the first stage of the QCA is to identify what conditions of interest may be suitable for comparison and to determine an outcome (which itself could be a variable or condition of interest). The conditions need to lend themselves to a form of polarity where the researcher can argue along practical or theoretical lines the justification for the allocation of the condition to one of two dichotomous states. For example two of the conditions of interest for this study were the duration of placement, a quantitative condition and the sense of preparation or confidence gained by students as a consequence of attending clinical placement, a qualitative condition. Identifying an outcome condition related to the patients being cared for by the study participants was more conceptually challenging. In keeping with the case boundaries the outcome condition of participants providing care for falls, pneumonia and or pressure area care was applied. Many other indicators of nursing care could have been identified such as, turns, mouth care, wound dressings and management of elimination for example, however the use of interventions previously identified as sensitive to nursing intervention was considered a more robust baseline of nursing care. The evidence was based on the participant's description of which NSPO interventions they had provided for the patients in their care across the shift in question. It should be noted that while all participants provided at least one intervention for at least one

patient across the shift in question some participants provided a greater number of interventions and on the basis of their interview were much more reflective in their responses. It should also be noted that the acuity of the patients, their admission diagnosis and their current medical treatment plan were not recorded. While it was obvious that not every patient in the acute care facility required exactly the same level of interventions for pneumonia, pressure area or fall, the patient cohort was homologous to both acute medical and surgical wards. Each of the nursing interventions of interest are also generic enough that some consideration of them would be expected for each patient within a typical medical or surgical ward.

In assessing the care provided by the participants a positive response, a score, was recorded if the graduate either provided a direct intervention related to any of the NSPOs or gave a rationale for why they had not provided some preventative level of care. For example the assessment of a falls risk was deemed a positive intervention even if the patient required no further direct nursing care for falls intervention. Similarly, assessment of patient's pressure area and pneumonia risk was considered a valid intervention even if no further intervention was required. Graduates who did not identify any form of intervention, assessment or insights to any aspect of the targeted interventions for the patients in their care did not receive a score. Simply participants who described a higher level of assessment or intervention scored higher than those who did not. The use of a straightforward and relatively simple measure to gauge what levels of direct nursing care were being provided reflected the aim of the initial research question.

As described above the skill in identifying the most suitable form of QCA analysis is the researcher's capacity to argue for the identification of the initial set of conditions and then determining if they should be considered crisp or fuzzy data. Allocating research conditions to one of two states could be considered reductionist and at first seems at odds with qualitative approaches to data analysis. Similarly while at first there may appear to be a tension between the complexity of clinical education and the parsimony suggested by the QCA approach, this is addressed when one acknowledges that parsimony is a function of the algebraic approach and does not suggest a reduction of the complexity of the overall case. Parsimony is simply the result of using Boolean algebra to reduce complicated formulaic relationships between conditions down to their bare elements. Secondly and perhaps most importantly as a small -N analytical strategy, QCA is meant to be considered within a larger case description. An analogy may be to consider QCA the magnifying glass focusing on the spark plug while the larger goal is to understand the complexity of the motor. One does not function without the other.

While QCA reads as an exciting and powerful approach to data analysis, ones initial enthusiasm may be tempered by their level of comfort with concepts of Boolean algebra and the need to identify a specific range of conditions from within the available data. At this point the actual application of QCA becomes less supported in journal literature, especially nursing literature, although (Ragin, C 1987,p85) provides a step by step description of Boolean algebra, how to construct a matrix comprised of raw data and the production of a Truth Table. Similarly the analysis of data and the production of truth tables and Venn diagrams are constrained by a small number of software platforms, fsQCA 2.0 and TOSMANA being the two most reported and

available (freeware). TOSMANA is the software package that has been used for this analysis (Cronqvist, Lasse. 2011. Tosmana - Tool for Small-N Analysis [Version 1.3.2]. Trier. <http://www.tosmana.net>). Software is required for the analysis as even a small comparative process can generate many combinations of conditions. For example comparing five study conditions against each other can be calculated as 5x4x3x2x1 = 120 possible combinations. Adding only one more condition would increase the possible combinations from 120 to 720.

4.6.1 Principles for using QCA

Two papers by Schneider and Wagemann (2010) and Wagemann and Schneider (2010) suggest a number of exemplary practices for the use of QCA. Central to all of these are the use of QCA as a method directed to understanding or at the very least interpreting a number of causal patterns. Moreover QCA is designed to be applied with other data analysis techniques within the overall research project. This is reflected in this study by the conditions identified in Tables 14 and 18 below. Those considering QCA have to be comfortable that what they are seeking is to establish a theoretical description and not one defined in a strict empirical fashion. Amongst a number of other recommendations for the process of QCA, the reporting of QCA merits particular attention. Schneider and Wagemann (2010) advise that three central requirements for the presentation of QCA findings are, describing as much outcome data as possible through the use of Venn diagrams, Truth Tables and numerical data, ensuring the QCA remains related to the cases and offering the Boolean notation to accompany the resultant narrative.

4.6.2 Identification of conditions

In keeping with the goal of a case study analysis which is to also present a case study database, the following description of the QCA findings is presented in three parts. Part 1 describes the initial conditions of interest, application of the QCA and then construction of the first Truth Table (Table 15) and associated Venn diagram (Figure 9). Part 2 describes how the addition of other conditions effectively narrowed the range of possible causal combinations associated with the outcome. The third part of the QCA provides the final Truth Table free of any contradictory configurations and more suitable for Boolean minimisation.

The conditions (variables) that populate the Truth Table were selected from the quantitative data regarding the nursing interventions, the participant's descriptions of their clinical placement experiences and from the thematic analysis. Using data within the QCA from other aspects of the wider study encourages a focus on the material related to the overall cases. The conditions that populate the Truth Tables are both qualitative and quantitative in nature, a configuration that may be challenging for those with allegiances to either philosophical position. The rationale for this is provided by Rihoux (2006, p683) who notes that '…the use of QCA is an iterative and creative process', where the emphasis on reaching an analytical generalization related to the case is of primary importance. In selecting variables that represent both inductive and deductive aspects of the study, the QCA is confined in scope by the material at hand. This is a desirable outcome aptly described by Berg-Schlosser et al. (2009, p6) as a way for the researcher to engage '…in a dialogue between cases' informed by relevant theories and the data collected. In this way the analysis described below has been a more active and intimate process for the researcher, more

so than that described for the thematic analysis or the statistical description above. Indeed this aspect of the analysis was the most rewarding as the process allowed and indeed required a continuous engagement with the cases and the final discussion.

As above, the outcome condition, which is distinct from an outcome measure, selected for this study was the number of interventions provided by the participants to their respective group of patients (three or four) across the shift in question. The interventions described by each of the study participants under pressure area, falls and pneumonia are listed at Table 13.

Table 13 – Patient care interventions provided by participants

Case	Pressure area	Falls	Pneumonia	Uni	No of interventions
1	Encourage mobilization for x1 patient	nil	Mobilization Deep breathing and coughing (DB+C) Assessment of SpO_2	A	4
2	Pressure area care (PAC) Nimbus mattress Sheets flat	Ongoing assessment X 1 assist Used lifters Posey restraint	Turned off enteral feeds prior to mobilising	A	8
4	Sit out of bed (SOOB) Shower Check for incontinence	Frame for pt Stand by assist	DB+C Clean bag Flu jab Respiratory assessment	C	9
5	Rolled pt r)CVA SOOB	Transfer assist Pt assessment	SOOB Check temp Increased fluids DB+C	A	7
7	SOOB Independent pt	Lowered bed Mobility aid nearby Non slip mat Check falls risk before each pt mobilisation	Triflow (incentive spirometry)	A	7
8	SOOB Encourage to wriggle	Brakes on bed Feet dry Bed rails up Counselled pt to not shower unsupervised	DB+C Sit up in bed 'wet' chest	A	8

Case	Pressure area	Falls	Pneumonia	Uni	No of interventions
10	Assessment sacrum – reddened Pillow to chair	Independent pt Stand by assist Slippers to feet De-clutter area	2 x tracheostomy pt Increased mobility Increased physio DB+C education	C	9
11	Nimbus mattress Assessed as low risk	Falls and mobility assessment for all patients x3	DB+C Triflow (incentive spirometry) Vital capacity	C	8
Case	Pressure area	Falls	Pneumonia	Uni	No of interventions
12	Check for incontinence Change pads Extra care for mobilising	Commode near bed Bed height adjusted	DB+C exercises	C	6
13	PAC Nimbus mattress Kylies changed Wrinkles in sheets Gown not marking skin	Bed rails up Used lifter	SOOB Elevate in bed DB+C exercises Triflow (Incentive spirometry)	A	11
14	Regular PAC Changed pad Managed traction + external fixators	Stand by assist Lowered bed Bed Rails up Removed TEDS (embolic stockings)to mobilise	Bed to 30 deg LLB pneumonia – sit out in chair No nebs ordered DB+C	C	11
16	Regular PAC	Bed rails up Overway in front of bed	Admin IV antibiotics Sit upright PRN Nebs when required Encourage short walks	B	7
17	nil	1x assist Assist with frame to mobilize	nil	B	2
18	2 hr PAC	Moved pt to visible bed Pad cotsides Transfer on commode chair Frame for pt Slippers for pt	DB+C exercise	B	8

| 19 | Pressure mattress in place Advise pt to wriggle | Corrected pt walking | Triflow DB+C exercise | B | 5 |
| 20 | Taught leg exercises Checked skin during shower Cream to sacrum | Clean up spill on floor Assist x 1 to commode and bed | Triflow | B | 6 |

Following identification of the outcome conditions the QCA required justification for the selection and comparison of each of the **study conditions** of interest, provided in Table 14.

Table 14 - QCA - Study conditions and rationale for dichotomy

Condition CODE	Allocation of dichotomous state
Duration DURA	Participants were asked to describe the length of their clinical placement experience. There was an obvious distinction between the length of placement between UNI A, B or C. Placement duration greater than 1000 hours was assigned a [1]. Placement duration less than 1000 hours was assigned [0]
Preparation CONF	All participants were asked to rank from 1-6 (1 well prepared, 6 totally unprepared) how prepared (confident) they believed they were on commencing graduate employment. Participants that scored themselves 1-3 were assigned [1] 4-6 [0]
Benefit BENF	All participants were asked to rank from 1-6 (1 highly beneficial, 6 no benefit) how beneficial clinical placement was in preparing them for commencing graduate employment. Participants that scored 1-3 were assigned [1] those who scored 4-6 [0]
NSPO Lectures NSPL	Participants were asked if they had any recall of lectures throughout university that described NSPOs. Those with some to clear recall were assigned [1], those with little to no recall [0]
NSPO Experiences NSPO	Participants were asked if they had an opportunity to care for patients during their clinical placement experiences who were suffering from pneumonia, falls or pressure area. Many opportunities to care for the NSPOs were [1], little to no experience of caring for any of the NSPOs was allocated [0]
Outcomes OUTC	Perhaps the most difficult variable to apply in a dichotomous manner was that of outcome. As a snap shot of the care given to a group of patients across a day, the number of interventions from each participant were simply tallied (the total of all interventions was 116 with a mean of 7.25). Participants that provided 8 or more (i.e. more than the average) interventions for their patients across the shift were allocated [1]. Those who nominated 7 or less interventions (i.e. less

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than the average) were allocated a [0]. While there was no discussion noted of each specific patient group, each participant was similar in that they were working in a multiple bed surgical or medical ward of a large public hospital with responsibility of 3 or 4 patients.

Each of the study conditions being considered were taken from the participant transcripts, the thematic analysis and the descriptive statistics. For example the condition of Duration (DURA), referring to the length of placement hours across the participants program was assigned a dichotomy of > 1000 hours of placement represented by [1], while < 1000 hours of placement was represented by [0]. The summary of each participant's responses to the study conditions enable the construction of the initial Truth Table (Table 15).

4.6.3 Part 1 - QCA Results

Once the initial conditions for the study were assigned a dichotomous value, each was then able to be compared against the other within a Truth Table and Venn diagram. In keeping with the advice of Schneider and Wagemann (2010) the presentation of the QCA data below includes a range of graphical, numerical and tabulated forms. Each aspect of the QCA has an accompanying description of the analysis and the way in which the analysis is related intimately to the cases. One of the important principles to ensure that the consideration of QCA reflects the complexity of the case at hand is the principle of equifinality. Wagemann and Schneider (2010) describes equifinality as a concept that allows for the possibility that more than one discrete path may be associated with an outcome. Rather than being a limitation of the QCA, consideration of alternative pathways articulates neatly with the theoretical opportunities of Complexity theory.

4.6.4   Truth Table

The Truth Table provides a framework for a '…first synthesis of the raw data table' (Rihoux, B. & Ragin 2009, p44). The Truth Table displays a range of configurations which depict possible combinations that may be associated with the outcome condition. The initial QCA analysis compared the following conditions associated with clinical placement; duration, preparation for beginning practice (taken as a measure of how confident the participants were), benefit, lectures regarding falls, pressure area and pneumonia and any clinical experience of caring for someone with a fall, pressure ulcer or pneumonia. The columns of the Truth Table (Table 15) identify each of these conditions while the rows identify each of the participants (cases) responses to the conditions, represented as either a [1] or a [0]. For example the first row of Table 15 describes that Participant/ Case 1 had < 1000 hours of clinical placement (DURA [0]), felt prepared to begin employment as a registered nurse (CONF [1]), did not feel that her clinical placement experiences were beneficial (BENF [0]), had little to no recall of lectures regarding falls, pneumonia or pressure area care (NSPL [0]) and could recall some patient care experiences from placement (NSPO [1]). Participant 1 also provided less than the average of seven interventions (OUTC) for the patients in her care for the shift in question and so had an outcome condition (OUTC) of [0]. In comparison Participants 10 and 14 identified a positive response [1] for all conditions except NSPL and a [1] for the outcome condition as they both provided more than seven interventions for the shift in question. The Truth Table allows for quick identification of a range of conditions associated with the [1] and [0] outcomes.

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Table 15- Truth Table 1 - includes contradictory cases

CASE	DURA	CONF	BENF	NSPL	NSPO	OUTC
1	0	1	0	0	1	0
2,5,19	0	0	1	0	1	C
4,11,12	1	1	1	1	1	C
7,13	0	1	1	0	1	1
8,16	0	1	1	0	0	C
10,14	1	1	1	0	1	1
17	0	1	1	1	0	0
18,20	0	0	1	0	0	C

After entering the data into the TOSMANA software the Truth Table also identifies cases that are contradictory, denoted by a 'C' in the Truth Table. Contradictory configurations occur when for some reason the combination of conditions may result in either a [1] or a [0] outcome, that is they are contradictory. These results will be examined more closely below.

4.6.5 Venn Diagram

The Venn diagram below (Figure 9) is a graphical depiction of the configurations represented in the Truth Table above (Table 15). Both the Truth Table and the Venn diagram are produced by the Visualizer tool within the TOSMANA software (version 1.3.2). Venn diagrams are useful as they allow a visual representation of the logical relationships between many conditions. Each defined space within the Venn diagram is represented by colours of white, pink, green or green and pink stripes (the software also provides an option that allows the diagram output to be patterned with various black and white shapes and lines). The white spaces represented by [R] are the logical remainders, combinations which have not been observed amongst the conditions and

the outcomes. For example the upper left space of the Venn diagram has the notation 00000 and represents that participants did not achieve the outcome in the absence of any combination of duration, confidence, benefit, lecture or clinical experiences involving NSPOs. More simply, no participant provided a level of care without the influence of at least one condition. The other different configurations possible include [1], [0], [C]. Green spaces indicate cases with conditions that indicate the positive outcome [1]. Pink spaces coded [0] are examples of where the conditions in the observed cases did not come together in any way to achieve the outcome condition. In Figure 9 below, Participants (Cases) 1 and 17 despite having a positive response to some of the conditions did not arrive at the outcome condition of more than seven interventions. Finally the green and pink striped spaces are contradictory configurations [C], examples of combinations of variables that in some instances result in a [0] outcome but in others result in a [1] outcome.

Figure 9 - Venn diagram - Truth Table 1

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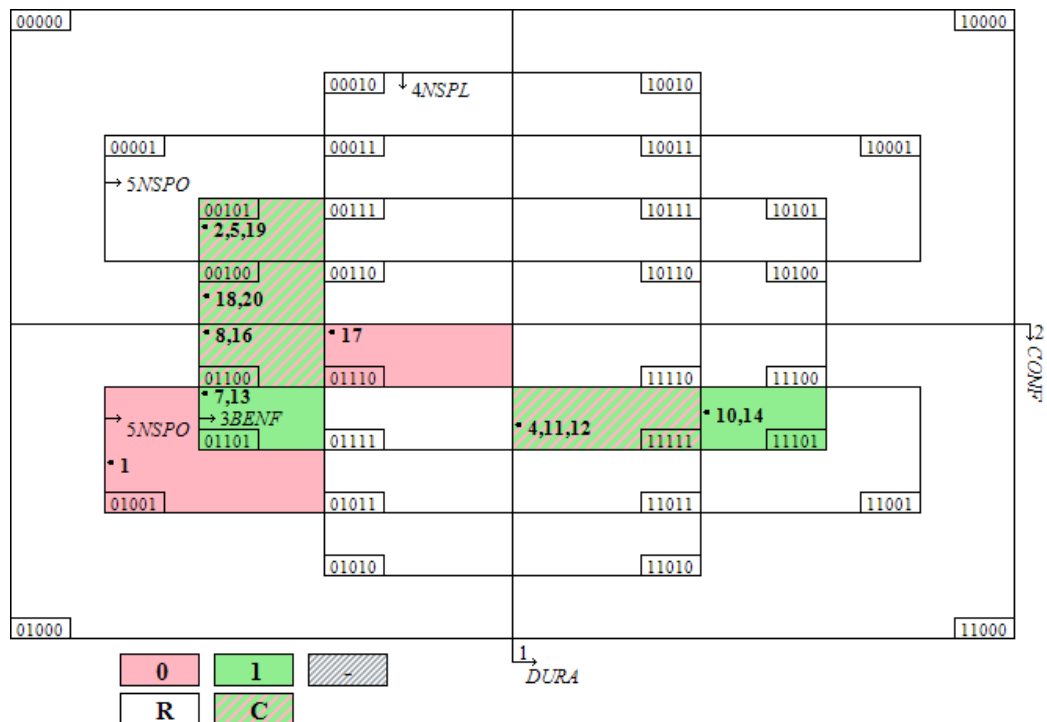
Table 16 - Boolean Analysis for Truth Table 1 - all outcomes

DURA{0} * BENF{1} * NSPL{0} +	DURA{0} * CONF{1} * NSPL{0} * NSPO{1} +	DURA{1} * CONF{1} * BENF{1} * NSPO{1} +	DURA{0} * CONF{1} * BENF{1} * NSPO{0}
(2,5,19+7,13+8,16+18,20)	(1+7,13)	(4,11,12+10,14)	(8,16+17)

Table 17 - Prime Implicants - Truth Table 1 - [1] outcomes

CONF {1} * BENF{1} * NSPL{0} * NSPO{1}
(7,13+10,14)

4.6.6   Prime Implicants

Another of the fundamental descriptions required when presenting QCA findings is that of the Boolean analysis (Table 16) and the prime implicant/s (Table 17). The prime implicant is defined by Rihoux and Ragin (2009, p183) as the '…subset of the prime implicants that are derived, constitute a minimal formula, the endpoint of Boolean minimization. A prime implicant is usually a set of conditions joined by the Boolean "AND" [*] operator'. For cases 7, 10, 13 and 14 the prime implicants are:

CONF [1]* BENF [1]*NSPL [0]* NSPO [1]

On face value the suggestion posed by the prime implicant at Table 17, is that the graduate's sense of being prepared, the benefit they ascribed to placement and the opportunity to observe or participate in relevant clinical placement experiences were associated with a positive outcome. The NSPL [0] item that was not implicated in the

positive outcome were lectures describing the nurse sensitive patient outcomes. The results of the QCA analysis presented at Part 1 however simply have too many contradictory conditions to be a useful finding and hence the prime implicants can be questioned. On the basis of the first run of comparing conditions it is obvious that a number of other factors may resolve contradictions in the comparative analysis. This concern is achieved by further comparisons (iterations) of different conditions to reduce the number of contradictory cases, ideally to where no contradictory cases occur at all.

4.6.7   Part 2 - Resolving contradictory configurations

While at first it may seem that negative cases and contradictory configurations would be a poor outcome of an analysis method, QCA is directed at theoretical generalization and the contradictory configurations are findings in themselves. That said one of the key aims of QCA is to remove or reduce to the smallest number the range of contradictory configurations so that the comparative process can identify the range of conditions most closely aligned to the outcome condition. Most importantly such findings emphasise the subtlety of QCA to address distinctions that may be lost in the 'precision' of a purely quantitative analysis. The results presented above represent the first run of the conditions and their consideration against the outcome described. However as can be seen from the initial Truth Table (Table 15), cases 2, 5, 19, 4,11, 12, 8, 16, 18 and 20 return a contradictory configuration [C] represented by the pink and green striped boxes. Reassuringly Rihoux and De Meur (2009) note that contradictory configurations are not uncommon and that resolution of such findings reflects the iterative nature of QCA.

Rihoux and De Meur (2009, p48) describe eight strategies to resolve contradictory configurations among which adding, removing and or replacing a condition are options. Effectively, enlarging the pool of comparative conditions encourages consideration of other factors that may influence the most likely causal relationships. The solution to the initial QCA result was to re-examine the thematic analysis and the qualitative data to identify other conditions that may have influenced the outcome condition. To this end the following further conditions at Table 18 were considered:

Table 18 - Further conditions for QCA

Condition CODE	Allocation of dichotomous state
Carer/ AIN/ PNA PANW	Participant's transcripts were reviewed for the evidence that they had been employed during their 3 year program as either a personal assistant in nursing (PNA) the equivalent though alternatively named, assistant in nursing (AIN) or as a personal carer. Working in either role was assigned [1]. Participants who did not work in a health care role within their 3 year degree were assigned [0]
Feedback FEED	Participants transcripts were reviewed for the description they provided to the amount and quality of feedback from either their facilitator or their tutor. Those who nominated excellent to good levels of feedback were assigned a [1], those who identified little to no feedback [0]
Hospital HOSP	Participants were asked to identify if they had had a clinical placement as a student within the hospital they were now working as staff. Prior exposure to the hospital setting was allocated [1], no prior exposure was allocated [0]
Tutor TUTR	Participants were asked to describe the nature of the interactions between themselves and their clinical facilitators. Those who described a positive, supportive relationship were allocated a [1]. Poor or dysfunctional relationships were allocated a [0].

The TOSMANA software package allows the incorporation of a range of conditions however only five conditions can be considered at any one time against each other. The value of the TOSMANA software in enabling an instant comparative analysis of many conditions is significant.

Table 19 - Exemplar conditions and contradictory configuration outcomes

Condition combinations	Contradictory configurations
DURA*BENF*HOSP*CONF*FEED	8
DURA*NSPO*BENF*PANW*FEED	4
CONF*NSPL*PANW*FEED*HOSP	6
CONF*NSPO*PANW*FEED*HOSP	7
DURA*CONF*NSPO*FEED*HOSP	5
DURA*CONF*BENF*NSPO*FEED	5
CONF*BENF*NSPO*FEED*HOSP	4
BENF*NSPO*PANW*HOSP*TUTR	8

Table 19 describes just a small number of the comparative analyses that were conducted using TOSMANA and the resultant contradictory configurations which were associated with each combination.

As a result of considering many further combinations of conditions, which requires many attempts at comparing conditions within the TOSMANA software, a second Truth Table No 2, (Table 20) describes a refinement of the conditions to produce a Truth Table with the least amount of contradictory configurations, three in total (cases 4, 7, 12). The comparative approach which identifies many possible combinations is informed by certain conditions which do not contribute to the final outcome picture. For example it was clear from early combinations of data that NSPL (lectures) were not a positive influence on the condition outcome. Every time the NSPL condition was used within the comparative analysis it increased the number of contradictory configurations. This meant that the NSPL condition could be removed from consideration; similarly the inclusion of BENF (benefit) generally had a more positive

effect of reducing the number of contradictory configurations. This is again an example of the constant and intimate engagement with the study data that researchers must consider when using a QCA approach. The combination of conditions that produced the minimum number of contradictory configurations was BENF, NSPO, PANW, FEED and HOSP. This is represented in Truth Table No 2 (Table 20) where only cases 4, 7 and 12 had contradictory configurations.

Table 20 - Truth Table No 2

CASE	BENF	NSPO	PANW	FEED	HOSP	OUTC
1	0	1	0	0	1	0
2,10	1	1	1	1	1	1
4,7,12	1	1	0	1	1	C
5	1	1	1	0	1	0
8	1	0	0	0	1	1
11,13,14	1	1	0	0	1	1
16	1	0	1	0	1	0
17	1	0	1	1	0	0
18	1	0	1	0	0	1
19	1	1	1	0	0	0
20	1	0	0	1	1	0

Table 21 - Boolean formula Truth Table 2 - [1] results with [R] included

BENF{1}PANW{0}FEED{0} +	NSPO{0}FEED{0}HOSP{0} +	NSPO{1}PANW{1}FEED{1}
(8+11,13,14)	(18)	(2,10)
BENF{1}PANW{0}FEED{0} +	NSPO{0}FEED{0}HOSP{0} +	PANW{1}FEED{1}HOSP{1}
(8+11,13,14)	(18)	(2,10)

Figure 10 - Venn diagram - Truth Table 2
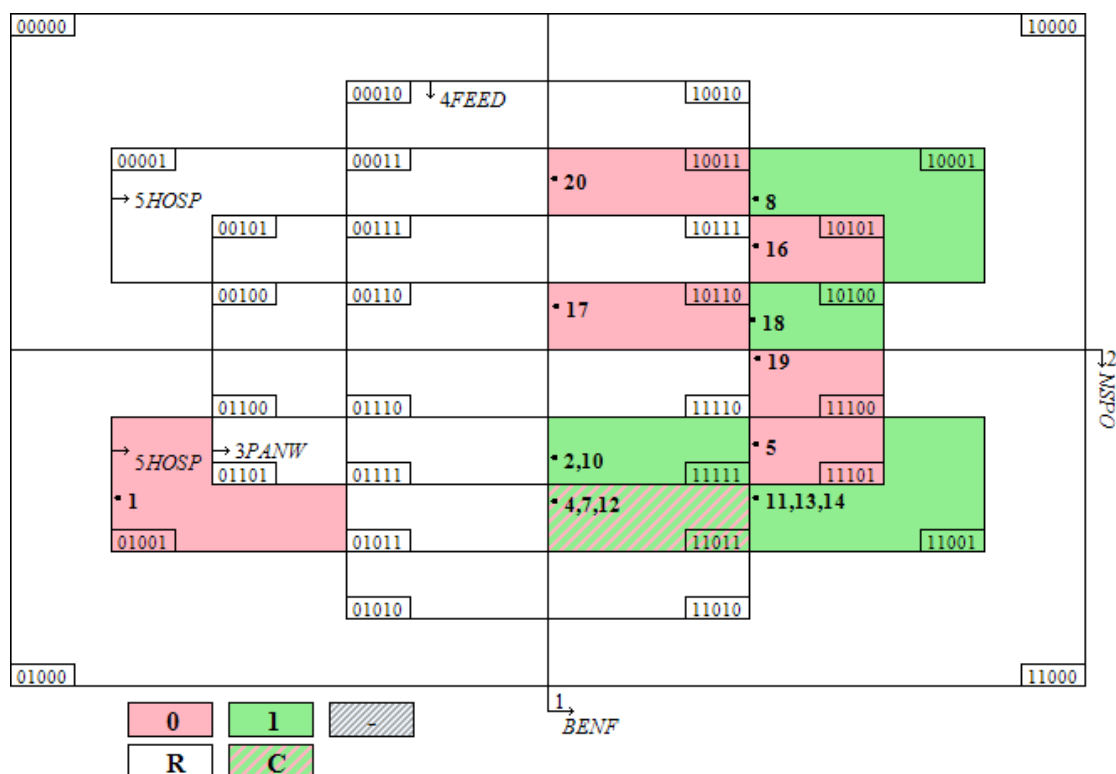
The advantage of the QCA approach to comparative analysis is to not only to identify [1] or positive outcomes but equally to identify the [0] results. A quick visualisation of the Truth Table (Table 20) or the Venn diagram (Figure 10) reveals that cases 1, 5, 16, 17, 19 and 20 all had a range of combinations that were related to the negative outcome. Case 1 for example suggested that her clinical placement experience was of little benefit to her education, did not work as a carer or nurse's assistant across her program and suggested that she had poor feedback associate with placement. The most obvious condition that was missing from a comparison of cases 5, 16, 17, 19 and 20 was a low level of exposure to the NSPOs during their experiential learning. The other case that is immediately at odds with the surrounding cases and their conditions is Case 18. Case 18 did not have the combination of hospital placement, effective

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feedback or exposure to the nurse sensitive outcomes (other than falls) to meet the [1] outcome. Case 18 however was a personal nurse assistant (PNA) during her training, an experience she described as a valuable addition to placement. Again this is an example of the level of reflexivity required for case study and QCA, a response which may be lost in purely quantitative approaches to nursing education research.

4.6.8   Part 3 - Acquiring Boolean minimisation

As described above the goal of QCA is to identify a range of conditions which when combined have a causal relationship with a nominated outcome. Ideally the final set of conditions can be expressed through the QCA process in the most succinct (parsimonious) fashion using Boolean algebra. Using additional conditions as above reduced the final number of contradictory cases to three however these cases still needed to be resolved prior to minimisation. Another strategy described by Rihoux and De Meur (2009, p49) is to consider such contradictory cases (4,7,12) in a more '...qualitative and thick' fashion. The contradictory cases (Cases 4,7,12) being excluded from the final causal combinations require some description. Both Case 4 and 7 did provide the [1] outcome with 9 and 8 interventions respectively for the NSPOs. In fact both cases were a [1] for all the conditions within the Truth Table except PANW, where neither Case 4 nor 7 worked as a PNA across any aspect of the nursing program. Case 12 alternatively did record a [1] outcome for the conditions within the Truth Table however was associated with a [0] for the outcome condition, providing less than 7 nursing care interventions. As appropriate for QCA, both the broader case findings and theory will be used to consider the results within the case report and to consider those cases that the software flags as contradictory. Removing the contradictory cases from the final QCA provides for the final, contradictory free

Truth Table (Table 22), Venn diagram (Figure 11) and the final (parsimonious) Boolean expression which is described below in written form.

Table 22 - Truth Table - no contradictory configurations

CASE	BENF	NSPO	PANW	FEED	HOSP	OUTC
1	0	1	0	0	1	0
2,10	1	1	1	1	1	1
5	1	1	1	0	1	0
8,11,13,14	1	1	0	0	1	1
16	1	0	1	0	1	0
17	1	0	1	1	0	0
18	1	0	1	0	0	1
19	1	1	1	0	0	0
20	1	0	0	1	1	0

Figure 11 - Venn diagram - no contradictory cases

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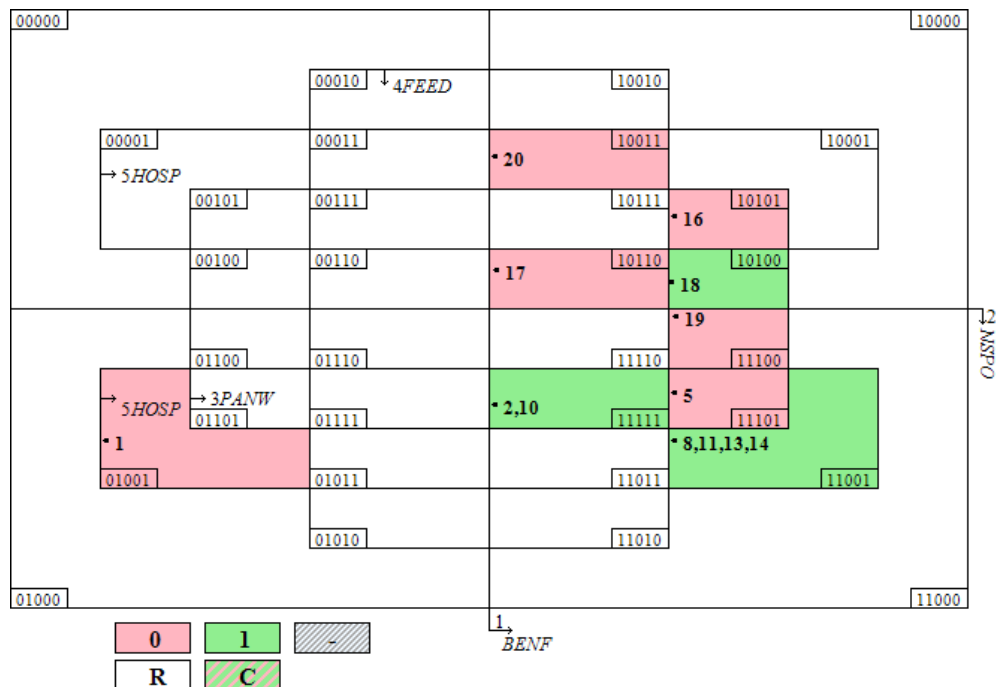
4.6.9 Interpretation of QCA

Rihoux (2009, p65) stress that the QCA is not an '...end in itself; rather it is a tool to enhance our comparative knowledge about cases in small and intermediate -*N* research designs'. The key task facing the researcher is to consider the minimum formula (the parsimonious expression of the combination of the conditions) and to return to the wider case description. A warning is provided by Rihoux and De Meur (2009) that unreasoned emphasis on the influence of one condition, risks undermining the comparative process that culminated in the minimum formula and should be avoided. There is however significant opportunity to examine why it is that certain combinations of conditions are more closely associated with a positive outcome than other combinations such as, DURA*BENF*NSPL*FEED*HOSP (which produces nine contradictory configurations). If the only conditions to change between the two combinations are those of NSPO (clinical experiences) and NSPL (lectures), it would suggest that within a certain combination of conditions, substituting clinical experiences with lectures is less likely to be associated with a positive patient outcome.

The final stage of the QCA analysis requires the researcher to consider the minimal formulas produced by each stage of the Boolean minimisation. The advice of Rihoux, and De Meur (2009) at this stage is to consider the minimum formulas against either the cases or the theoretical proposition that led to the formation of the original research topic. One of the approaches to this analysis is to 'allow' the software to assign the remaining [R] cases (the white spaces in the Venn diagram) to either a [0] or a [1] outcome. This process is a way to identify the simplifying assumptions, essentially a way for the software to continue the comparative process to contribute

further to the parsimonious solution. The simplifying assumptions are located with each of the TOSMANA reports located at Appendix 6. Rihoux and De Meur (2009, p66) describe that the key in the final step of analysis is a '...case or theory informed interpretation, which should be focussed on the link between key combination of conditions and the outcome'. Analysing each stage of the process above it is revealed that the parsimonious solution for the [1] or positive outcome is

NSPO [1]*FEED [1]+BENF →higher levels of patient care

The 'long hand' version of this formula to represent the [1] positive QCA can be read as;

For six participants (Cases 2, 8, 10, 11, 13, 14) the exposure to the nurse sensitive patient outcome interventions (NSPO) AND effective feedback (FEED) OR a positive recognition of the benefit of clinical placement (BENF) explains the outcome of more than seven nursing care interventions for falls, pressure area and pneumonia.

The long hand version to represent the [0] or negative QCA can be read as follows;

For five participants (Cases 1, 5, 16, 17, 19, 20) an absence of the recognition of clinical placement as a beneficial learning experience, limited exposure to the nurse sensitive patient outcomes and poor or inconsistent feedback explains the outcome of less than 7 nursing care interventions for falls, pressure area and pneumonia.

Participant 18 although associated with a [1] outcome is unique in not having the full combination of conditions listed above. In fact the only [1] condition for this participant was working as a PNA throughout their university education.

The QCA, although relatively unknown in nursing research is a powerful tool to compare different and complex conditions (variables) that may be either quantitative or qualitative in nature. In long form this suggests that the most important combination of conditions in which the participants were associated with a positive outcome were those who identified clearly that placement was of benefit to their learning, that they had an opportunity during placement to care for someone with a fall, pressure area or pneumonia and had effective feedback as to their placement experience. A cautionary note is provided however that this list of causal combinations is neither exhaustive nor generaliseable to other populations. It is important to stay true to the case study methodology and to consider this relatively narrow range of causal conditions within the breadth of the case study within.
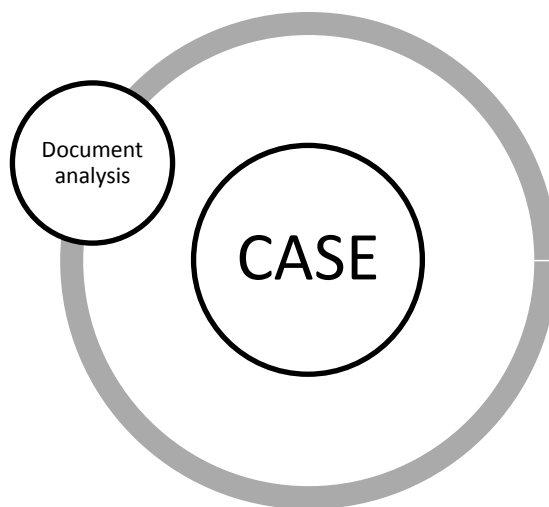
4.7 Document analysis (Form D)

During the design phase of the study it was determined to use of a variety of data sources in keeping with case study methodology. It was anticipated that patient case note documentation would be an appropriate data source to confirm the descriptions the participants gave of the nursing care they had provided over the shift. Bowen (2009, p30) describes that the '…researcher can use data drawn from documents, for example, to contextualise data collected during interviews'. The document data collection sheet (Appendix 2) was designed to collect the evidence that the interventions described by the participants had been documented. Indeed this was initially considered a way to 'legitimise' the description of the participant's interventions and enhance the in situ nature of the data collection. Further still it was intended that a comprehensive document analysis was to stand alone as another aspect of triangulated data and lend weight to the participant's descriptions of the

interventions they had provided for the patients. During the survey, participants were asked to identify the bed numbers of the patients they had cared for over the shift. At the conclusion of each interview the researcher reviewed the patient case notes and their daily management charts for documentary evidence of where the participant had documented care regarding pressure area, falls prevention or pneumonia care. For example a description of the falls assessment made for a particular patient should ideally have a corresponding assessment form completed, updated or another form of data noted. The patient's hospital case notes are a paper based multidisciplinary record of patient management and contain all items such as admission notes, medical observations, laboratory results and tests and the shift by shift nursing record of care. The daily management charts contain the running daily observation charts and record nursing interventions such as vital signs and patient turns, among other items. Along with the paper records, electronic computer records within the electronic patient management software, ExcelCare are also completed by hospital staff. The participants had varying levels of access to and responsibility in completing the electronic record. It was expected that if the graduate had described a wound dressing or assessment for a patient with a pressure ulcer during the interview, there would be a corresponding documentation detailed within the patient record. Graduates were also asked if they had completed or updated electronic computer documents however it was not possible for security reasons to access the central electronic database for review. It became clear after a period of document review that the patient case notes and bedside records were inconsistent with many missing descriptions of the interventions that were provided, a pattern that remained across all participants. There is a maxim in nursing that 'care not documented is equal to care not done', however the researcher had no reason to doubt the earnestness of the graduates descriptions of

the care they had provided that shift, despite at times a lack of documented record. The lack of documentation can happen for many reasons (Dimond 2005; Paans et al. 2011; Prideaux 2011) although it is possible that graduate nurses much like their senior counterparts, are selective in what they annotate in patient notes. The specific act of sitting a patient out of bed may be quite important in reducing their risk of pneumonia however the act itself may not prompt a written description in the patient's case notes.

Table 23 - Coding for document extraction

Code		Description
Always	A	All documentation was related to the question and easily found in either case notes or daily patient management charts.
Most often	MO	Most documentation was found and related to the question in either case notes or daily patient management charts
Often	O	Documentation was completed for at least 2 interventions in either case notes or daily management charts
At times	AT	Documentation was completed for at least one intervention in either case notes or daily patient management charts
No entry	NE	Unable to determine an entry in either case notes or daily management charts related to any of the interventions
Not applicable	NA	This response was recorded when the participants identified that the team leader or another nurse was responsible for the data entry regarding the interventions

The researchers approach to the collection and classification of data from the patient records was generous (Table 23). If the participants had indicated a series of patients turns to prevent a pressure area with a series of up and down arrows that was deemed a piece of documentation for recording purposes. That the case notes were either incomplete, made only passing reference to the interventions that nurses had provided is a further reflection of Setz and D'Innocenzo (2009, p313) findings of nursing documentation, '…It is important to note that (sic) was difficult to measure nursing care outcomes reflected in nursing documentation on the medical records'. While acknowledging the above issues there is some value in presenting what data (Table 24

was collected from the case notes and bedside charts. The most useful presentation of this data is in the form of a Frequency Table.

Table 24- Frequency table - documentation regarding nursing interventions

Q1	Graduate has documented information regarding interventions within case notes and other ward documentation as required				
Always	Most often	Often	At times	No entry	Not applicable
3	3	3	3	4	0
Q2	Documentary evidence of patient assessment regarding interventions				
Always	Most often	Often	At times	No entry	Not applicable
2	2	3	3	6	0
Q3	Documentary evidence of existing interventions is clearly identified				
Always	Most often	Often	At times	No entry	Not applicable
2	1	3	3	6	1
Q4	Graduate has documented care or management of pressure area				
Always	Most often	Often	At times	No entry	Not applicable
4	1	0	2	5	4
Q5	Graduate has documented pressure area risk score				
Always	Most often	Often	At times	No entry	Not applicable
1	0	1	0	9	5
Q6	Graduate has documented care or management of pneumonia				
Always	Most often	Often	At times	No entry	Not applicable
0	0	1	5	9	1
Q7	Graduate has completed documentation regarding falls risk or management				
Always	Most often	Often	At times	No entry	Not applicable
1	1	1	2	10	1
Q8	Graduate has completed computer care plans to reflect care				
Always	Most often	Often	At times	No entry	Not applicable
9	0	0	1	3	3
Q9	Graduate has competed documentation in accord with hospital guidelines				
Always	Most often	Often	At times	No entry	Not applicable
8	3	1	1	2	1
Q10	Graduate has completed documentation in accordance with nbsa* guidelines				
Always	Most often	Often	At times	No entry	Not applicable
9	2	1	2	2	0

The document analysis revealed that of the possible 160 individual forms of data entry possible, 16 were identified as being N/A or not applicable. Of the remaining 144 opportunities to record some form of data, 39 % did not have any form of record entered. Of the four questions related specifically to the interventions (questions 4, 5, 6 and 7) no form of data entry or record of the nursing care was described in over 62% of participant's documentation. As above this may reflect a number of reasons such as the use of electronic care plans and a reflection of ward policy where for example a pressure area prevention score was only performed on admission.

The analysis of the available documentation suggests that there are a number of aspects of nurse documentation that are well noted while others are consistently lacking. All graduates were reasonably consistent in that when documentation of interventions was made, they were made in accordance with local hospital guidelines (Q9) and were generally consistent with, the then current, 2009 Nurses Board of South Australia (nbsa*) Guidelines (Q10). While there was generally poor documentation of pressure ulcer risk scores (Q5) there was more consistency in relation to the assessment and management of pressure area care. In keeping with a lack of emphasis throughout all the study results, less documentation of pneumonia assessment or intervention (Q6) was noted. Unfortunately despite the consequences of an adverse fall, there was little recorded data in patient case notes in respect of falls prevention and intervention strategies. A cautionary note is that the overall level of documented description of interventions, assessment and management is across a small cohort of participants. The not applicable (NA) response was recorded in those ward settings where the responsibility for updating the notes was identified as the responsibility of the team leader, especially in relation to the electronic record.

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4.8 Chapter - Conclusion

Yin (2009) is very clear in his advice that in presenting a case study the analysis section should be clearly described, transparent and include a variety of data around the case in discussion. The analysis chapter is in effect the chain of evidence around the case and establishes the framework for which the results of the overall case study converge in Chapter 5 (case report) and Chapter 6 (cross case report). Three distinct techniques, thematic, statistical and qualitative comparative analysis (QCA) have been used within the case study. It was anticipated that a document analysis would also be useful however a lack of consistent documentation across all of the participants prevented this. Three powerful data analysis packages in NVivo 9, SPSS 19 and TOSMANA 1.3.2.0 have contributed to specific aspects of the analysis. The nagging sensation that this question could have or should have been framed more clearly or that this variable may have been more interesting than another has been a companion throughout. Ultimately though each analysis described above has to be considered together within an overall case study report. The blend of approaches to questions and methods described above is a reflection of the sage advice of Crotty (1998, p216) '...rather than selecting established paradigms to follow, we are using established paradigms to delineate and illustrate our own'.

5   Chapter 5 - Case Report

5.1   Introduction

The question that prompted this study was borne out of a desire to know more of how nursing education and particularly the clinical placement experience influenced the nursing practice of graduate nurses. This question has been framed as;

How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and nursing practice?

The question reflects previous concerns in literature that the essence of nursing education has resisted description through normal research methodologies. The case study report within is directed to addressing this question. Yin (2009) prescribes a number of qualities that define exemplary case study reports. The case study should be based on a phenomenon of significance and should impart a sense of completeness around the case/s of interest. The case report must consider alternative perspectives, should bring together a range of evidence and be presented in an engaging manner. The compositional structure is typically one of six styles that include linear–analytic, comparative, chronological, theory building, suspense or unsequenced (Yin 2009). The report below is framed in a linear –analytic fashion where the individual data analyses are intertwined around the core issue of clinical placement; the result a number of conclusions and implications. Patton (2002) provides the warning that attempting to describe the case or precede with analysis beginning with the highest level of the possible cases for example the broader cross case analysis, is likely to lead to missed opportunities for a deeper understanding of the overall situation. As an

example Vallis and Tierney (1999) who were explicit in their approach to the case study analysis of their hip fracture study, began with separate data sets, moving from single case to cross case and finally to the overall or final analysis. The executive summary of the case report below is presented, focussing on the individual participants. The cross case report in Chapter 6 will consider the differences between different participants.

5.2 Case report - Executive Summary

Clinical placement retains a significant place within the curricula of contemporary nursing education, particularly in programs leading to registration. With complex and varied levels of timing, location, supervision and expectation, the role of clinical placement in the education of nurses remains essential though ill defined. One approach to the study of clinical placement in nursing education that has been used in limited fashion is that of case study. The report within describes the use of case study research in the investigation of sixteen nursing graduates (cases), their clinical placement experiences during their university education and how these experiences may have influenced their ability to provide nursing care. The presentation of qualitative and quantitative data and the use of unique methods of analysis such as qualitative comparative analysis have enabled a form of analytic generalisation. In bringing together the insights of each component of the analysis and in addressing the original theoretical proposition, the case study report is structured with the following headings;

- Individual case reports

- Being competent

- Indicators of nursing care - pressure area, falls, pneumonia

- Confidence and learning

- Avoiding dissonance

- Responsibility

- Relationships, placement pattern and knowledge development

- The value of clinical placement

The use of pattern matching to test rival explanations is provided for within the cross case report and similarly establishes a theoretical argument that Complexity theory may be useful for future examinations of the links between clinical placement experience, learning outcomes and curricula design.

5.2.1 The researcher

It is important to identify the role of the researcher early within a case report and it is clear that it was not one of an outsider. As a nurse educator at one of the universities where some of the participants come from there is a need to address the notion of balance and bias. There is a genuine acknowledgement that the researcher has spent the majority of his working life in the delivery of education to nursing students both undergraduate and postgraduate. That working life has been directed on a daily basis to the issues of competence, professionalism, safety and critical thinking. While the benefit of intimacy for the case study researcher with the cases at hand is significant, the depth and transparency of analysis is offered to address any questions regarding probity. The awareness gained from this study has enabled the researcher to consider more deeply the distinction aptly noted by Davis and Sumara (1997) that what teaching and learning represents is more than complicated, it is complex.

5.3 Individual case reports

5.3.1 A Case Description

Between January and August of 2009, sixteen graduate nurses working within a large South Australian tertiary hospital setting were interviewed and surveyed at the completion of an early shift. The interview centred on the graduates university training and especially their clinical placement experiences while the survey collected descriptions of nursing interventions they had given to the patients in their care across the shift in question. Patient and hospital records were reviewed to identify documentary evidence of the interventions provided. The focus of the care was based on three nursing interventions that are typically provided for patients within acute hospital ward settings; falls, pneumonia and pressure area care. Each intervention is important to maximise patient safety and well-being in the course of a hospital admission. All interviews, surveys and subsequent document review were conducted by the researcher within the ward where the graduates had delivered the care, a combination of acute general medical and surgical wards. The graduates, from a number of different universities, spoke with sincerity, thoroughness and passion about the journey that led them to the beginning of their nursing career. Each described a range of fears, uncertainties, confidences, highs and lows.

This is their story.

5.3.2 The Graduates

Each graduate (hereafter referred to as either participant or case) involved in this study had completed a three year baccalaureate program from one of three nursing programs offered at a different South Australian university. All participants were female. Fourteen participants came to study nursing after graduating from high school while two participants considered themselves mature age students. Seven participants

had worked during their undergraduate degree as nurse assistants or care workers in aged care institutions. Working as a nurse assistant in South Australia generally requires the completion of two years of registered nurse education while other students may gain employment as carers after completing a year of university study. The inclusion criteria for the study did not discriminate against age, race, or sex or delineate between academic results. Exclusion criteria were simple in that graduates with a previous history of formal nurse training, such as enrolled nursing, were excluded. This resulted in two recruits with partial enrolled nurse training being excluded. Another two recruits were excluded from the study as they had completed a two year graduate entry program rather than a three year undergraduate degree. The differences in their clinical background and the time to completion would have lessened the homogeneity of the participants. The graduates were essentially at the beginning of their career and represented the 'raw' product of the university of which they had attended. While the participants were similar in their level of registered nursing experience this was not a factor in their willingness and ability to tell their story, all were very keen to recount their experience of university and the clinical placement component of their education. Due to the staggered employment process at the hospital in question, it was possible to interview each graduate within three months of starting employment at the hospital.

The primary case for this study is the graduate nurse, represented by the participants. The narrative describing each participant at Table 25 was constructed from their individual responses to an open questionnaire and a survey; specifically asking questions related to the experience of attending university and the strengths and weaknesses of clinical placement. Eisenhardt (1989) describes that there is no

standard format for presentation of individual cases and they are often simply descriptive in nature. This descriptive process is however highly recommended as the value of the narrative table becomes more evident as the researcher moves backwards and forwards between cases comparing aspects of the study and looking for patterns. Each item listed within Table 25 is related to some aspect of the study. The participants were asked what in-service (ward education) they had received since starting employment regarding pressure area, falls and pneumonia. A yes / no answer is indicated in Table 25 alongside 'In-service education'. This was to establish if the nursing care interventions they had provided across the shift were prompted by recent hospital instruction and less so as a result of university education. The item in relation to 'In hospital placement' notes if the participant had attended a clinical placement as a university student in the same hospital where the study was conducted. Participants were also asked if they had worked as a personal nurse assistant (PNA) or carers during their university training. Finally to add texture to the summary of the cases, a quote from each participant has been included which gives some insight as to the issues they found most challenging regarding university. Another advantage of using a table format to consider cases is the ability to easily compare backgrounds and experiences, continuously searching for themes.

Table 25 - Individual case descriptions

Participant	Study results
Case No 1 Narrative	Case 1 described her experience of university as 'not that positive'. The positives she saw in her program included the science component and lots of theory. The negatives related to not having enough clinical placement and study that was at times irrelevant. Case 1 suggested she had good opportunities to care for patients with falls, pneumonia and pressure area during her clinical placement. With 4 weeks in second year in palliative care the preferred placement opportunity came in the ICU where she was exposed to high levels of knowledgeable staff.
Clinical hours (acute)	655
Benefit / preparedness	4/3
Skills and knowledge	18.43
Nursing care score	5
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*I think they should bring back hospital based training, cause half of the theory in reality you forget if you're not using it or putting it into practice, you just forget really.*
Case No 2 Narrative	Case 2 felt that she had been shoved in the deep end and that university was long, hard and contained too much theory. The positive dimension of gaining friends during university was offset by the lack of payment for attending placement and a lack of hands on. Case 2 saw working as a PNA (personal nursing assistant) as the only way to be prepared for working as a graduate nurse. Case 2 had returned to the ward in which she was a PNA to work as an RN.
Clinical hours (acute)	700
Benefit / preparedness	2/5
Skills and knowledge	19.29
Nursing care score	8
In service education	nil
In hospital placement	yes
PNA / Carer	yes
Insights	Insights: *I found the objectives and all writing objectives and writing in journals a load of crap. I mean like at the end of the day you just worked a whole day for free and then you gotta go home and you've gotta do homework and then it takes you forever to write this stuff and most of the time you just pull it out of your arse anyway.*

Case No 4 Narrative	Case 4 clearly found the clinical placement component of university as the most significant benefit of attending university. Case 4 also acknowledged that the transition from students to registered nurse was more difficult than she anticipated. The negative aspects of placement for her were a change in clinical tutor during the program.
Clinical hours (acute)	1365
Benefit / preparedness	1/1
Skills and knowledge	19.71
Nursing care score	9
In service education	nil
In hospital placement	yes
PNA / Carer	PNA/ Carer: no
Insights	*I understood the type of nurse I wanted to be and I know why and I've got time management, and clinically I'm very safe and I've got good skills there and I know what I need to do and what I can't do, but just that adjusting to being a registered nurse. I underestimated how difficult that would be. I kind of got locked off into a comfort zone during third year where I thought yeah I'll be fine I've done so much placement ...I knew I was responsible for a lot of things as an RN but the impact of that responsibility really did take me back ....not that I came out and was over confident I wasn't like that at all and I was quite modest. I thought I would be better than I am.*

Case No 5 Narrative	Case 5 was one of two mature age graduates who enjoyed the in-depth science study however commented that simulation was not effective in clinical scenario training. Case 5 felt unprepared for university with no time management skills and not enough clinical placement preparation. A significant negative for her was the quality of facilitation during clinical placement. While having the lowest amount of acute care placement hours, Case 5 however provided the equal highest amount of care interventions.
Clinical hours (acute)	420
Benefit / preparedness	1/5
Skills and knowledge	20.43
Nursing care score	11
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*In a lot of nursing there's a thousand different ways to do things and until you've seen ten ways you don't develop your own style.*

Case No 7	Case 7 found university challenging without any income. The
Narrative	provision of an extended placement in 3rd year was noted as a
	positive although comment was made as to the need for
	experiencing night duty. The support of hospital staff during
	placement was noted to be 'great'.
Clinical hours (acute)	490
Benefit / preparedness	3/3
Skills and knowledge	20.57
Nursing care score	8
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*The large amount of placement time in the last year was great but because of how they was blocked it was really hard to study at the same time and to have an income. That was definitely a no but at the same time the length of placement was good because you got the continuity of care. You really got to know an area before you had to move on.*

Case No 8	Case 8 noted the requirement to be an independent learner during
Narrative	university and that some course work had no relevance to the
	placement. A desire for more biological sciences was described
	however Case 8 also pointed out that clinical skills lab sessions
	were rushed. Negative aspects of placement were too little
	placement time and impersonal correspondence through emails
	and phone calls from tutors.
Clinical hours (acute)	700
Benefit / preparedness	3/3
Skills and knowledge	18.14
Nursing care score	7
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*Sometimes you're unsupported. You feel leave you felt left in the dark and because everything is such a rush, rush job, a lot of the RN's don't have time to stop and thoroughly explain something to you and walk you through it ..... If they do try which is nice you got a mad day. Students can be ah, maddening.*

Case No 10	Case 10 commented that university was difficult although she appreciated the gradual build-up of skill development. The positive aspects of the placement aspect included the small cohort of students, the length of placement and knowing the same tutor for the 3 years of the program. Negatively the hard work, time consuming and tiring nature of the program were noted.
Narrative	
Clinical hours (acute)	1365
Benefit / preparedness	1/2
Skills and knowledge	19.71
Nursing care score	11
In service education	on line quiz for pressure area.
In hospital placement	yes
PNA / Carer	yes
Insights	*I think the fact we were a small group of students rather than 300 students was very good, get to know people and build good relationships. That held us together we had facilitators who know you…. we get a lot of other students who finish their placement and don t really know them.*

Case No 11	Case 11 found the clinical placement experience during university as very beneficial to her development. The positive aspects were the amount of placement and the access to a common clinical tutor. The negative issue was seen to be the placement at one home hospital and its possible effect on transition. The content in the 3rd year of the program was found to be somewhat repetitive.
Narrative	
Clinical hours (acute)	1365
Benefit / preparedness	1/2
Skills and knowledge	19.57
Nursing care score	10
In service education	pressure area
In hospital placement	yes
PNA / Carer	no
Insights	*When you look around when you're working with people at the moment, how do you know that person is clinically competent or that person is not clinically competent?* *Oh following protocols* *So following protocols is that a way to be clinically competent?* *I think so ….I think it is because some people always follow them.*

Case No 12	Case 12 suggested university was 'fantastic' and that clinical placement was particularly good. The amount of clinical placement was both a positive and negative experience. The experiential component was very positive as was only having 2 placements in first year. The pressures of university expectations as a result of the placement commitment were negative.
Narrative	
Clinical hours (acute)	1365
Benefit / preparedness	1/1
Skills and knowledge	21.57
Nursing care score	6
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*The clinical placement was, the experience was obviously a positive….the negative was the pressure of university and the clinical placement and the attendance of clinical placement as well.*

Case No 13	Case 13 described small class sizes as being better for developing relationships with good orientation to placement and positive tutor support as beneficial. Placement durations longer than 6 weeks were too long while attending placement also did not provide enough time for academic work.
Narrative	
Clinical hours (acute)	686
Benefit / preparedness	1/2
Skills and knowledge	20.14
Nursing care score	9
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*Define clinical competence?, I think someone who has the ability to recognize something when they don't know something and to follow up the appropriate field to find out that information.*

Case No 14	Case 14 described university as a positive experience although noting that at times study was 'tedious'. Attending placement for 3 days of the week was positive however the negative responses to students from staff and the provision of unpaid work were negative aspects.
Narrative	

Clinical hours (acute)	1365
Benefit / preparedness	1/2
Skills and knowledge	22.00
Nursing care score	11
In service education	1 hour assessing pressure areas
In hospital placement	yes
PNA / Carer	no
Insights	*I found that it helped a lot because we had the same facilitator from first year right through to third year so consistency helps a lot ...so obviously they a can keep a track of your progress program if you having a hard time in your personal life as well, you can sort of share that.*

Case No 16	Case 16 had an overall positive university experience but questioned the relevance of some course content. The dedicated education unit was very important not only for learning but as an employment destination. Case 16 stayed in the DEU style of placement for the entire 3 years of her study. The negative aspects of placement were a lack of diversity and a lack of a specialty placement experience.
Narrative	

Clinical hours (acute)	1120
Benefit / preparedness	1/3
Skills and knowledge	18.71
Nursing care score	7
In service education	nil
In hospital placement	yes
PNA / Carer	yes
Insights	*Not much from RNs I don't think ....I guess you would have heard if there was something wrong but facilitator, I would get a lot of feedback from and that would be feedback that she had heard from the RNs about how I was going.*

Case No 17 Narrative	Case 17 enjoyed the pathology and pharmacological aspects of university and the associated clinical placement experience. The positive aspects of placement were the opportunity to see knowledge applied in practice and meeting new people. A lack of sleep during placement and skills labs which were not useful were negative aspects.
Clinical hours (acute)	840
Benefit / preparedness	1/2
Skills and knowledge	19.57
Nursing care score	2
In service education	nil
In hospital placement	no
PNA / Carer	yes
Insights	*I think it is but it depends how the nurses take, some don't mind it but some expect you to be a slave.*

Case No 18 Narrative	Case 18 saw university as an eye opening experience to different learning styles however some content in 1st year was 'pointless'. In depth anatomy and physiology were regarded as positive and the reception of the university staff was generally constructive. Negative was the lack of placement time and a rude reception during a paediatric placement where clinical staff created a 'poor learning environment'.
Clinical hours (acute)	910
Benefit / preparedness	2/4
Skills and knowledge	20.43
Nursing care score	8
In service education	nil
In hospital placement	yes
PNA / Carer	yes
Insights	*I know one of them had a short job as a PNA working for the Children's. He said the same thing as me if hadn't done that, he would have been in real trouble you just don't know what it's like to have your own patient load for real there's so much you don't know even now, still chasing your tail a little bit.*

Case No 19	Case 19 changed from a medical science degree to nursing and saw this as a positive. Clinical tutors and university lecturers were strength while a lack of placement and a mix of DEU and block placement patterns were negative. The block placement pattern was preferred as you could get 'into it', indeed confidence was noted to be higher as a result of block placement.
Narrative	
Clinical hours (acute)	588
Benefit / preparedness	2/5
Skills and knowledge	20.43
Nursing care score	5
In service education	nil
In hospital placement	no
PNA / Carer	yes
Insights	*We never got told really word for word what that feedback was I think they like to keep that fairly ...... like they wouldn't come up to you and say you did this, this and this wrong they'd never say it directly to you they'd go to the facilitator*

Case No 20	Case 20 found that tutors and tutorials were effective learning sessions until she came across a 'racist' tutor. Her experience was that placement was occasionally affected by unfriendly clinical staff. The DEU placement was less tiring than block although the lack of continuity associated with DEU was a negative aspect of her clinical placement experience.
Narrative	
Clinical hours (acute)	1134
Benefit / preparedness	2/4
Skills and knowledge	21.14
Nursing care score	6
In service education	nil
In hospital placement	yes
PNA / Carer	no
Insights	*I can't remember a fall but pressure ulcer, I think it might be my first patient in second year on a cardiac ward which they had lots of patients which they often got ulcers and oedemas. I once saw a patient, I was going to say a pressure ulcer because he got like a toe cut off*

5.3.3   Industry and graduate expectations

Within the Australian health care system the majority of nurses on graduation from university complete a graduate nurse program (GNP), sometimes referred to as transition to professional practice program (TPPP). This program which generally runs for a year is comparable to the traditional internship year for junior doctors. Graduate nurse programs are provided to assist the transition of graduates from their university education to the health care setting. At the time of writing (2012) the prospect for graduate nurses on completion of their university education in Australia, is very positive with 92.9% of graduates who commence looking for work, employed as registered nurses

<http://www.graduatecareers.com.au/Research/GradJobsDollars/BachelorAll/Nursing Initial/index.htm>. However the current opportunities for employment **past** the initial graduate nurse program in Australia may not be as positive with the uncertainty of national and international financial pressures affecting health care budgets.

The expectations that industry has of graduate nurses should not be underplayed. Although new to practice, graduates are expected to provide a level of safe and effective care and ultimately practice as registered nurses with all the obligations and responsibilities that the title requires. The perception of the participants however is that they, regardless of the amount of clinical placement and the perceived benefit ascribed to placement, may not recognize themselves as working even at the level of novice. Indeed only two of the sixteen participants, Case 4 and Case 12, saw themselves as being well prepared for commencing work as a registered nurse on completing their university training. An insight as to how industry expects graduates to commence their employment as a registered nurse is revealed by Case 10,

The first week was a nightmare especially on this ward it was really busy, I had to take care of a tracheostomy the first day, I was like I can't remember anything, I had two discharges and a post op and it was just a really busy shift (Q5P10).

While White (2008, p18) notes that new graduates who think themselves ready for practice, without the need for more practise are '...severely deluded', industry would also benefit from a clearer description of graduate capability. The suggestion that industry may be '...unduly pessimistic' of the proficiency of new graduates has been previously noted by Benner (1984, p189).

5.4   Being competent

Among all the questions asked of the participants the one that caused most hesitation and uncertainty was 'How would you define competence?'. This was notable as the participants would likely have had many references to the notion of competence across their university training, especially in relation to the standards that determined their suitability to graduate as a registered nurse. Indeed the label of competent is by default awarded to those who complete an undergraduate degree program. The 2006 National Competency Standards for the Registered Nurse in Australia, which outline the requirements for nurse education, have been subject to numerous revisions since the early 1990's. One of the functions of the standards is to describe the '…core competency standards by which **your** performance is assessed' and to provide a definition of competence and competent. The emphasis placed on the word 'your' is to highlight the distance between the broader conceptualisation of what it is to be competent and the perception graduates have of competence. The emphasis here is not on the participants' ability to be able to produce on demand a neat or precise articulation of competence. Rather any suggestion of ownership implied by the term 'your' is at odds with the reflections and descriptions provided by the participants.

The ten core competencies within the standards range from items such as conducting a comprehensive assessment to practicing in accord with evidenced based guidelines, to the establishment of therapeutic relationships. When defining competence, reference back to the ANMC (recently rebranded NMBA) competencies was a common response among a number of the participants and for Case 5 was the only way she could define what it was to be competent. Indeed a number of participants identified in some way that they had followed or had been required to demonstrate competency in accordance with the ANMC standards.

> *Yeah yeah well I suppose the baseline it would be what the ANMC guidelines say as being competent but in each different environment it becomes more specific and the competency is, for example how would you define clinical competence….(Q8P4)*

When asked to define clinical competence the two most common responses were; 'to follow the ANMC guidelines' or 'to be able to follow protocols'.

> *being competent …and confident at a certain skill by following the protocols and procedures (Q8P1)*

A key word count of the participant's transcripts, produced within NVivo 9, in describing their definition of competence is represented in the form of a pie chart at Figure 12.

Figure 12- Pie chart - Participants descriptions of competence

Participants descriptions of competence

- may be contradictory 10%
- is indefineable 10%
- competence is not confidence 10%
- a clinical expression 10%
- a personal characteristic 10%
- ANMC 10%
- checklists 20%
- takes time 20%
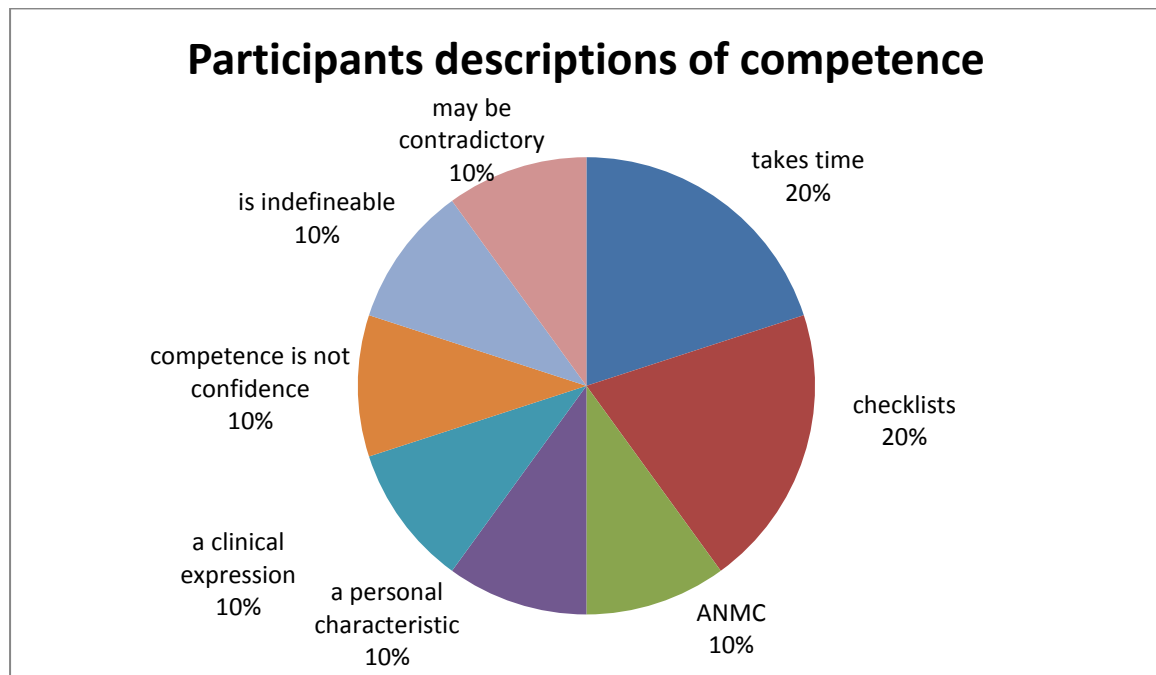
The wide variation and uncertainty regarding competence contrasts with the 2006 Australian Report on Recommendation 24 of the National Review of Nursing Education (2002) – Our Duty of Care. This report highlights that industry expectations of graduates are that they are work ready, an expectation offset by the goals of the university sector to equip graduates with transferable skills and a 'foundational knowledge'. Neither expectation however is reflected in the graduate's perceptions of competence. Indeed the level of dialogue between graduate and benchmark seems missing, suggesting it may be useful to reignite a discussion of what industry expects and what academia is aiming for. Describing competence as an ability to 'follow' guidelines, complete checklists or protocols does not imply capacity for critical thinking, an identified goal of the ANMC domains. Of more concern and irony is the suggestion by those graduates, competent by virtue of completing their program, who identify that competence is 'undefinable' or is a 'contradictory' concept. It is a challenge to those who provide nurse education to

ensure that the standardised description of competence becomes at the very least 'definable' for those preparing for the rigours of working in a busy acute care setting. Rather than the ability to simply follow guidelines and protocols a competent nursing graduate should have the ability to 'interpret' or critique guidelines or protocols, something that would be indicative of the broader goals of training autonomous, though beginning level practitioners.

Levett-Jones et al. (2011, p 64) appropriately note that the '…multidimensional nature of competence', is often lacking in consideration of assessment of clinical assessments. Indeed there is a disclaimer made that this study is not suggesting that the competence of the graduates has been assessed in its full complexity. It has not and it is likely that few studies would be able to claim a definitive measure of the multidimensional aspect of competence and the influence of placement. Ramritu and Barnard (2001) phenomenological study of new graduates found similar diverse and 'basic' understandings of competence. Unlike the subjects of the Ramritu and Barnard (2001,p55) study however who saw their education program as a weakness in achieving competence, the case study participants tended to be less critical of the external influences of competence. Rather the participants were more introspective suggesting competence did not necessarily imply confidence, takes time to acquire and even then is a concept which defies measurement and definition.

While appreciating the complexity of competence the significance of discrete indicators of competent nursing is however offered for consideration as being important in the provision of safe nursing care. In contrast to the use of fundamental competencies such as getting the wrinkles out of a patients bed to avoid a pressure

ulcer, critics of competency focussed higher education such as Barnett (1994), would argue that the function of university should be exclusively towards levels of ontological change. An ontological change, aiming to produce the professional that is flexible, critical and representative of an elevated ideology for education however cannot be achieved without consideration of competence. An alternative concept of 'capability' for nursing education is offered by Watson (2006), as a way of reconciling competence and the expectations of higher education. While this description encourages reflection on the ontology of higher education and has been reinforced in a recent and insightful plea by Dall'Alba and Barnacle (2007), higher education must continue to articulate what measures of practical success translate to a higher ideology. While the limitations of competence may exist and influence 'lesser' curriculum design, it remains an important challenge for higher education to construct and measure the success of a particular ideology especially when more conservative measures (and definitions) of competence elude. The uncertainty of competence has implications for individual assessment tools let alone the design of innovative curricula. The graduates, who at times are caught in the netherworld between industry and academia, would also gain from a transparency of expectations and opportunities and at least may have a greater opportunity to appreciate the nature of what it is to be competent. Theirs is a unique perspective and one that will likely contribute to a more detailed description of the nature of competence.

> *How would you define clinical competence?*
>
> *Fitting in with the ANMC competencies*
>
> *Fitting in with?*
>
> *Defining with …um….*

So if someone here on the ward turns around and says are you clinically competent you would say yes because I follow the ANMC competencies?

(Laughs) no I would say in what? .....what are you asking am I competent in – can I take obs yes can I do a vac dressing no, depends.

So there are ranges?

Previously you are only competent in as much as you have actually done, if you've done seven thousand vac dressings then your competent if you've done one you're not really (P12)

5.5 Nursing practice – interventions

The indicators of nursing practice, pressure area, falls and pneumonia selected for this study reflect some of the basic but key interventions that contribute greatly to the experience of a patient admission in an acute care hospital setting. The implications of a fall, a pressure ulcer or pneumonia acquired during a patient admission can range from a slight delay in discharge to death. While it is acknowledged that many other basic nursing interventions and assessments may be equally important it has been argued above that these three particular interventions have significant patient and cost implications and have been thoroughly examined in literature. Each participant was asked specifically if they had recall of any lectures associated with nursing care for any of the indicators, 69% of participants offered little to no recall of any particular lecture associated with falls, pneumonia or pressure area; only one participant identified a vivid recall of associated lectures. Alternatively 81% of participants recalled vivid memories of clinical experiences of situations and patients that had an issue associated with falls and pressure area care;

In first year, my first placement there was a lady she was very old, 98 or something, who got a pressure ulcer on her foot and it wasn't there when she got in. She got it in hospital. I remember very clearly there was a lot of drama around that and people said she should never have got that, didn't have regular pressure area care, she wasn't turned enough, she didn't have a

nimbus mattress. I remember that, kind of taught me to think about all that kind of stuff (Q6P10)

Actually well it was quite horrific to see., It was at the nursing home I went to in first year and um this lady was wheel chair bound, diabetic and she had a pressure sore begin on the back of her calf from sitting in her chair for so long. And it was enormous, it took most of her calf and it took I think about 5 crepe bandages to cover and to wrap (Q6P13)

When I was finishing third year ... the patient got pressure ulcer on the sacrum area, umm I'm not that clear now but I remember its smell and we do have to redress which we took down and the pus and the pus coming out but I'm not too clear now, I just remember the smell (Q6P20)

For students in nursing who have a firsthand or graphic exposure to a particular medical condition the experience becomes one that stimulates the affective aspects of the experience. The manner, in which the students embrace this affect, in either a negative or positive direction, is going to have an influence on the value of the learning episode. Similarly the presence or absence of facilitators to enable a positive processing of challenging experiences has been previously described by (Hickey 2010) as an important determinant to learning. While Cases 10, 13 and 20 recalled the graphic nature of pus and significant pressure ulcers, a contrast is found in Cases 5 and 18 who could not recall any significant detail of clinical experiences related to any of the interventions. Case 5 could not recall any instance of pressure area or pneumonia as a result of placement, nominating only one incident concerning a patient fall. Case 18 could 'not distinctly' recall any instance of caring for pressure sore, falls or pneumonia. At the time of interview both participants identified they were only somewhat prepared for employment as a RN. Interestingly when some of the participants were not able to recall a vivid clinical learning experience they reflected on their simulated laboratory based patient encounters.

5.5.1   Comments on simulation

There was no intention within the original study to investigate the role of simulation as an element of the participant's experience. A number of participants however offered their views of simulation training as a supplement to their clinical placement experience.

> *it's how competent you are and what you feel need to work on and it's all fine and good working in the labs but they're not real patients and they don't ask the same questions, which they don't , you can't study for a day of work, you don't know what you're going to get (Q11P18)*

> *the pressure of it like the reality of it like bed making is fairly simple but doing it for someone who's in bed, has had a stroke, is in pain who's got four things attached to them and I've been aware of this and you do have to do this and then you have a broader issue of elder abuse and she's frightened.. I've had that ...you can't create that in the clinical (sic teaching environment) setting (Q1P5)*

> *Lab session were really rushed and you sort of fumbled through*

> *When you say lab session was that a clinical skills lab session? (nods)*

> *They were rushed?*

> *Very, there was 30 people in an hour class pushing for time*

> *Were they beneficial, the ones you did get time?*

> *Not as much as they could have been they would quickly demonstrate at the start of the lesson which reinforced it but you never actually got the hands on to it (Q1P8)*

For the study participants who nominated information regarding simulation it was generally not viewed positively as a preparatory or developmental dimension of placement experience. The surge in recent years of low, moderate and highly sophisticated simulation technologies has been matched by a burgeoning research agenda to the assessment of how such technologies contribute to the learning process.

Levett-Jones et al. (2011) describe that students at one university found their experience of simulation to be a positive regardless of the level of fidelity. Ironically, in light of the tension that surrounds the definition of competence, Gobbi et al. (2012) suggest that assessment of the success of simulation in learning will need to use self-efficacy and competence as measures of its success.

5.5.2 Pressure area care

As one of the more common nursing practices in the acute hospital setting, knowledge of pressure area care was the first topic asked of the participants. The rationale for beginning with this item was to make the participants feel somewhat comfortable with a topic the researcher assumed they would have a level of familiarity. Most participants suggested that pressure ulcers were mid-range between being easy or difficult for patients to avoid. The responses ranged from Case 4 suggesting they were easily avoided (1) to Case 19 identifying pressure ulcers as being more difficult to avoid (5). When asked to determine which factors could have an influence on the development within hospital of a pressure ulcer participants rated highly the importance of nutrition, anaemia, friction and shearing forces and incontinence as significant risk factors in the development of pressure ulcers.

In relation to the self-assessment of skills for pressure area care, participants identified that they were closer to proficient (6) than unskilled (1) in recognition of pressure ulcers ($M = 4.4$), were able to use pressure ulcer assessment tools ($M = 5.3$) and could use pressure relieving devices such as air mattress ($M = 5.4$). In relation to dressing of pressure ulcers, Case 8 indicated that she was unskilled (1) not having had any opportunity during any of her placement experiences to dress a pressure ulcer. The average self-assessment score for dressing pressure ulcers was 4.4.

The results of the knowledge and skills survey indicate that the participants have some ability to rank the major determinants of pressure ulcer causes and consider the risk of acquiring a pressure ulcer in hospital to be almost exactly between 'easily avoided' and 'difficult to avoid'. The preparedness of graduate nurses to be aware of a burden that is likely to increase as the Australian population ages is going to be a vital dimension of avoiding the pain and suffering caused by pressure ulcers. A recent United Kingdom study identified quite clearly that the majority of '...PUs identified in hospitalised patients are hospital acquired' (Dealey et al 2004). A recent follow up to this study has suggested that the costs of pressure ulcers are set to lift even more significantly as the population ages (Dealey, Posnett &Walker 2012).

The interventions listed in Table 13 for pressure area are a combination of 'typical' nursing interventions such as sitting the patient out of bed, encouraging mobility (including 'wriggling'), checking for incontinence and employing the use of pressure relieving devices. It is suggested that these interventions while important are reasonably straightforward and possibly habitual or learned responses. For example despite the prompts afforded by participating in the survey where graduates were asked how they ranked issues such as nutrition and anaemia, few participants offered higher level descriptions of such interventions during the interview. For example there were no care interventions described by any participant directed to checking a patient's nutritional requirements or anaemia despite these being identified by many participants as important factors in preventing pressure ulcers. It is noteworthy that when asked to describe care interventions graduates describe those nursing 'tasks' that are visible, bed changing, sheet straightening and sitting patients out of bed,

interventions which have parallels to the descriptions of the participant's clinical experiences. It is quite possible that less visible nursing care interventions such as checking nutritional charts or blood results do not provide the same affective stimulus to learning as dressing a pressure ulcer oozing pus. The challenge for students undertaking clinical placement is to look past the mechanics of the intervention to the rationale for the intervention. An experienced facilitator would encourage this insight.

5.5.3 Falls

The experience of a patient falling in a hospital setting can be traumatic for any nurse especially if the patient suffers harm as a result. The different falls interventions provided by all the participants across their respective shifts totalled 41 and was the highest total number of interventions described. Only Case 11 however described conducting a fall and mobility assessment for all 3 of her patients across the shift. Similar to the issue of pressure area, participants were mid-range in relation to the risk of a patient suffering a fall in hospital ($M = 3.25$) however the range of responses (1 = easily avoided, 6 = difficult to avoid) indicated a wide variation between participants. Case 1 suggested that falls were easily avoided (1) in the hospital setting while Case 19 suggested they were difficult to avoid (6). Interestingly Cases 2, 8 and 19 who all suggested falls were more difficult to avoid in hospital, had either worked as a personal nurse assistant (2 and 19) or had seen a patient fall during their clinical placement experience (2 and 8). Participant 12 had a unique experience where she was exposed to a patient that suffered both a fall and a pressure area.

> *You don't need to tell me which ward; I don't need to put that sort of detail down. What was about it that particularly stood out for you?*
>
> *That it was so deep, the deepness of it was yeah….*
>
> *And was that person bed bound, paraplegic or ……*

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Probably after a fall probably bed bound from then onwards.

They had a fall after the pressure area?

They had a fall after the pressure area cause they came in already with this established pressure area.

And they had a fall as well?

Yes

So you saw both ends?

That's what brought them in but the pressure area was there (Q6P12)

Case 1 suggested that falls were easily avoided in hospital due to the completion of falls risk assessments however contrastingly suggested that pneumonia was difficult to avoid. Case 1 also described that her first year placement experience was one restricted to a palliative care environment where falls may not have been of primary concern for patients that were largely bed bound.

that would have been in first year, general medical just a palliative patient we just performed pressure area care (Q6P1)

In contrast Case 19 who noted that falls were difficult to avoid, gave a similar response to her assessment that pressure areas were difficult to avoid for hospitalised patients. Again it is possible this is a reflection of her working life as a PNA across the third year of her program where the mobilisation and hygiene of patients was her primary focus. This may also be reflected in the fact that she regarded pneumonia as more easily avoided because her work focus may not have had pneumonia prevention as a primary task. Each example hints at the influence a previous experience may have on the manner in which a graduate might subsequently prioritise care.

5.5.4 Pneumonia

The consideration of pneumonia by the majority of participants was that pneumonia is an adverse outcome more easily avoided following hospital admission than either falls or pressure area. Participants identified a range of appropriate responses to the risk of pneumonia from deep breathing and coughing exercises through to the care of patients with tracheostomy requiring suction. An experience of pneumonia during clinical placement in the clinical setting was common for only one participant,

> *that was a medical ward .... and pneumonia a lot (Q6P11).*

The lack of exposure to caring for a patient with pneumonia during the clinical placement experience is reflected in a lower rating of pneumonia risk compared to falls and pressure areas. The item of interest here is not that the participants identified pneumonia as being less difficult to avoid, it is that this decision was made in the absence of exposure to pneumonia as a placement experience. It is likely and understandable that exposure to particular nursing episodes prompts a more considered response as to future nursing care practices.

The summary of each indicator and how they are perceived by each of the participants suggests that the greater the exposure to a particular condition, the more likely the participants are to identify that as a nursing condition that may be challenging to address. Ironically the less the clinical placement exposure to a disease state the less considered it may be as a consequence of hospital admission. That said the range of interventions for pneumonia prevention for example, described by the participants included deep breathing and coughing, respiratory assessment, increasing mobility, use of incentive spirometry (triflow) and care for patients with tracheostomy. Despite

the reported lack of clinical experiences during clinical placement, participants generally described a good range of interventions directed to preventing pneumonia.

One of the findings from the survey concerning pneumonia was the identification by the participants that the skill they felt most proficient at was teaching coughing and breathing and yet they rated the skill of recognising patients at risk, as the most important skill. The suggestion from this is that participants have an awareness that the recognition of patients at risk of pneumonia is something that is arguably more intuitive and reliant on experience. Rather than suggesting this was the skill they were most proficient in, by nominating skills in teaching coughing and breathing there is a level of self-awareness that a higher level skill may not yet be theirs to claim. While the participants were not all that complimentary of reflective practice it would appear they have acquired some of the traits of a reflective and critical thinker.

5.5.5 Summary of nursing practice

The selection of falls, pneumonia and pressure area care as indicators of nursing care was based on a range of literature suggesting these common issues were sensitive to nursing intervention. Falls, pressure area and pneumonia remain significant complications of admission to an acute care hospital such as the site of the study. Graduates described with some comfort and precision the range of interventions for both falls and pressure area they had instituted for their patients for the shift in question. Pneumonia care and intervention was however equally low in self-assessment across all graduates. It is important to consider why this might be so against the other care provided. It is noted that graduates described with some depth, vivid experiences of placement when they were able to recall a foul smelling pressure sore or had observed a patient fall. There were no vivid descriptions however of

patients with pneumonia like symptoms and it is reasonable to suggest clinical signs and symptoms of pneumonia may be less obvious to a graduate nurse. Indeed the care and management of patients with pneumonia was reported universally by all graduates as their weakest set of skill and knowledge, two participants asked for a definition of what the term auscultation meant. In the absence of a sudden respiratory arrest the outward signs of a patient developing pneumonia are often less obvious and may ultimately be less vivid in the memory of students on placement. As an example only one graduate was able to recall any patient care situation during placement in which a patient had pneumonia or supervising nurses highlighted the need for deep breathing and coughing exercises. Considering the conditions from the QCA (perception of benefit, effective feedback and exposure to the care interventions for falls, pressure area and pneumonia) that are contributory to higher levels of nursing interventions, it is clear that while a vivid experience may be an important precursor to learning, a skilled clinical educator may still be required to bring clarity to the student experience.

Within the survey data the willingness of some participants to identify they were completely proficient in all the nursing skills required to care for patients with pressures ulcers was notable. On the basis of the original semantic differential scale this would suggest that some participants, who scored themselves highly, are completely proficient in recognition and identification of risk factors, assessment and dressing of pressure ulcers, use of pressure reliving devices and perhaps most interestingly for junior graduate nursing staff, coordination within the multidisciplinary team. In distinct contrast the skill which had the least mean score is that of pneumonia care, suggesting this intervention may not have been considered or

provided consistently by all participants. The minimum level of interventions for pneumonia would suggest at least some participants are unable to identify risk factors, are less likely to prevent hospital acquired (nosocomial) transmission and either don't consider or have poor skills in teaching coughing and breathing to patients. The skill with the least positive response amongst all participants was that of auscultation. Rather than this being considered a negative finding, what is more reassuring is that the participants have a level of self-awareness of their deficit skills and knowledge for a range of nursing interventions. How this level of self-awareness influences other domains of learning and the development of intrapersonal qualities such as confidence, is intriguing.

5.6 Confidence and learning

It's a plus if you've got a bit of confidence so because otherwise you're not going to learn much because sometimes you come across a lot of people who are not willing to help you

What sort of confidence would you want?

The ability to speak up and say oh can I come and watch that procedure or do you mind if I do this medication and you watch.....(Q4P2)

One of the propositions put forward within the literature review for this study was the description by Boud, Cohen and Walker (1993) that learning is influenced by the socio-emotional context in which it occurs. In the context of the clinical placement setting the role of confidence as one of the most important influences on experiential learning is profound (Boud, Cohen & Walker 1993). The role of confidence in this study was considered to be a reflection of the level of preparedness graduates felt on beginning employment as a registered nurse. Asking participants how prepared they were for beginning work was a way to incorporate the socio-emotional context of

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commencing work as a registered nurse. Simply asking 'How confident are you?', would have shifted the intent of the question. More recently the role of confidence in the acquisition of knowledge has been examined by Fiedler, Breitenstein & Delaney (2012) in respect of nursing students undergoing mental health placement experiences.

Clearly confidence has a circular and intimate relationship to learning. While confidence is important for learning, learning itself imbues confidence and it would have been useful to have measured this more discretely during data collection with an existing tool. That said the question of how prepared participants' felt for work in the acute care setting was a mean of 2.9 from a range of options (1= well prepared, 6 = totally unprepared). Unfortunately three Cases, 2, 5 and 19 rated themselves only slightly above totally unprepared as a result of their university education. However supplementary and alternative experiences and self-confidence building opportunities were common among the study participants, obtained through roles as carers or as assistants in nursing (PNA), generally across the third year of their program.

> *umm ....I think the only reason I was prepared was because I worked as a PNA...and that again was pretty much where I learnt a lot of things I did get to see a lot of things even though I wasn't allowed to do a whole heap there were things I got to assist with and just see (Q5P2)*

There are clearly times when student nurses seek out employment due to the financial burden of attending university, a common theme amongst the respondents. The implications of students seeking nursing work outside of the program of study has been considered in Recommendation 13 of the Final Report of the Australian National Nursing and Nursing Education Taskforce (N[3]ET) 2006. While the recommendation suggests further examination of the financial and **experiential** (emphasis added)

aspects of students working as assistants in nursing, a point is made that the development of competence should be considered a requirement of their educational program, not their employment. This statement is incongruous in two ways. Firstly it is clear that there are students who as a result of reduced clinical placement opportunities within their university program, do seek out additional clinical experience, de facto through a nurse assistant role. It is suggested that the primary motivation in this instance is developmental and educational, not financial. Secondly, a recommendation to examine experiential learning while suggesting competence (and confidence) is the remit of the educational program, suggests that concepts of competence and confidence between work and education can somehow be compartmentalised or quarantined, a position that is inconsistent with the complexity of education. Considering the integrated nature of knowing and development it is reasonable to suggest that alongside any further investigation of financial issues, a concomitant and focussed examination of how working as an assistant in nursing influences competence and ultimately patient care, is required.

> *What do you believe were the strengths and weaknesses of your clinical placement during your study?*
>
> *Well obviously confidence and learning clinical skills, positive just learning as much as you can .... umm having good staff members makes a world of difference (Q11P1)*
>
> *I guess the university can't really I mean they can put you in that situation as much as they can but as a student there's limitations, I think maybe if I was in the acute care setting on a regular basis, it would help to build up confidence probably more so, probably more a confidence thing than an ability thing (Q5P13)*

Each of the participants above clearly identifies how they saw confidence affecting their learning and how a lack of confidence affected their capacity to interact meaningfully with other clinical staff. Case 19 was explicit in her preference for the

block style of placement in developing her confidence. While identifying that she wanted more clinical placement overall, block placement allowed her to 'get into it' and had the effect of increasing her confidence (Q4P19) as opposed to attending the DEU where her knowledge 'slipped out of her head' (Q4P19). Case 19 also noted that she wanted checklists to explain where she was going and that her performance feedback was based on a principle of 'no news is good news'. In fact Case 19 suspected that this was a deliberate ploy on the part of her clinical tutors.

> *We never got told really word for word what that feedback was I think they like to keep that fairly ...... like they wouldn't come up to you and say you did this this and this wrong they'd never say it directly to you they'd go to the facilitator (Q10P19)*

If students are seeking out opportunities to feel more prepared from placement opportunities outside of the university program, a challenge exists as to how curriculum designers may consider how existing placement resources are best applied and integrated.

In all the attempts at finding a set of conditions associated with the care provided, the smallest number of contradictory configurations achieved was three. To consider the role of confidence further the researcher conducted another QCA this time replacing the outcome of 'nursing interventions' with the 'level of preparation' for commencing practice as a registered nurse. The level of preparation for practice (CONF) was taken to represent a measure of confidence as a condition outcome. Changing the outcome condition within the software (TOSMANA) is relatively easy once all the data has been entered. One of the strengths of using QCA is that a theoretical argument can be established for substituting a quantitative outcome condition for a qualitative one. The rationale for any substitution is that QCA is directed to generalisation and theory

generation and not towards statistical confirmations. The theoretical justification for doing so in this instance is based on the literature review and the results of the thematic analysis which clearly emphasise the value of confidence in supporting learning. Replacing the nursing interventions with a qualitative outcome condition produced an unexpected result. Using the level of preparation (CONF) as the outcome measure instead of the number of interventions and using duration (DURA), clinical experiences (NSPO), working as a carer or PNA (PANW), feedback (FEED) and hospital (HOSP) as the study conditions, a Venn diagram (Figure 13) with zero contradictory configurations was achieved.

Figure 13 - Venn diagram – Confidence –zero contradictory configurations
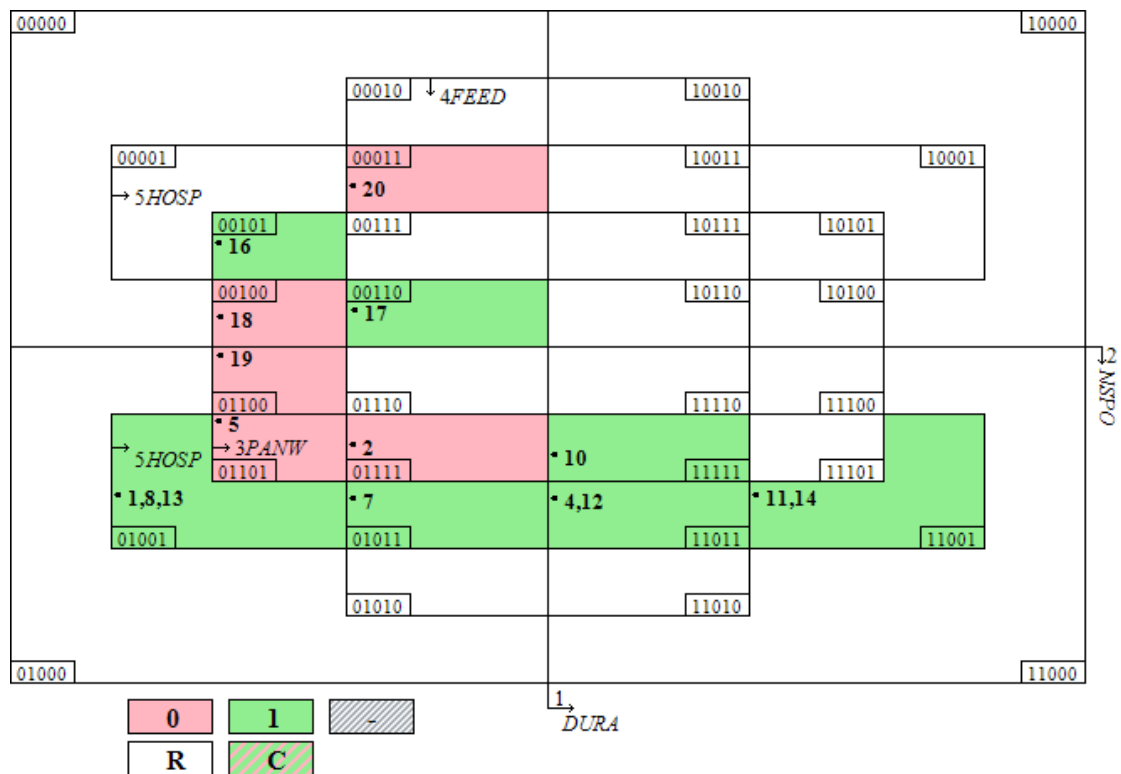
The implications of this result indicate that there are a range of conditions that resulted in an elevated sense of preparedness for beginning work as a registered nurse. In this instance it is also useful to consider the [0] outcomes, those cases in pink (2, 5, 18, 19, 20) who did not begin their working life with a sense of being prepared for

practice. For the cases that did not feel prepared or confident that their university training had adequately prepared them, a range of interesting reasons were revealed in their interviews. Case 2 considered her university placement experiences as lacking hands on and considered her PNA role in her third year as the only way in which she was prepared to begin nursing. Case 5 described her most negative placement experience as being compromised by facilitators not knowing what was going on. Despite the presence of well-meaning clinical staff and preceptors, Case 18 saw herself and others getting 'lost' amongst the pace of the clinical setting. Case 19 who also worked as a PNA remarked as to the little feedback received during clinical placement while Case 20 found the transition between block and DEU disruptive to her learning. That each participant had a distinctive and challenging experience as a result of placement makes it clearer that confidence is a tenuous quality. Other studies (Baillie & Curzio 2009) have found that the confidence of students in relatively simple tasks such as assessing blood pressure was compromised simply by a lack of clinical placement experience. Meechan, Jones and Valler-Jones (2011) however suggest that supplementary clinical simulation was found to improve student's confidence and that most students were competent when challenged with a clinical examination. The finding of this and other studies emphasize the need for universities, who may have little direct influence over the placement setting, to consider how training in confidence development and resilience could supplement the challenges students face in their education.

5.6.1 Constructing learning

It is clear that clinical placement provides learning opportunities for students. It is also apparent that some students have an ability to identify learning opportunities from

those unique learning situations. What is not clear from literature however is the manner in which students are able to do this. For one participant it was as simple as;

> *Essentially it wasn't being spoon fed. The responsibility was on you to study and to ensure you had the knowledge; yeah adult learning ....you just had to suck it up and learn (Q1P4).*

Contemporary pedagogy concerned with 'constructing' a learning opportunity would typically require a learning objective; the acquisition of an attribute or personal quality; an associated assessment and the prospect for reflective practice (Allan & Smith 2010). Each assumption would be appropriate within a constructionist framework of education where the learner is assumed to be actively engaged in building learning networks and cognitive development through integration of previous experiences. The following excerpt has the characteristics of what might be seen in a social cognitive constructivist model;

> *a lot of hard work but definitely worth it I'd rather have the hard work over three years and gradually build up rather than jump in the deep end and find that you're not coping so I think that was a very good introduction ....yeah you could slowly build up your skills and learn …… there was a lot of things I had trouble learning as a student but now because I've had that level of training I feel that I'm quicker to learn new things while I feel that (Q1P10).*

For Liu and Matthews (2005) a description such as that above provides further emphasis between forms of constructivism such as cognitive constructivism (Piaget) and that of realist constructivism (Vygotsky). The cognitive constructivist approach advocates learning as an intrapersonal process within an environment that prompts or stimulates an internal learning process. Alternatively the social or realist constructivist community would place emphasis on the situation specific opportunities provided by a clinical placement in which participants are a part of the local culture and have opportunities for learning in the immediate environment (Liu & Matthews 2005).

> *to be exposed to a range of learning you can look at that lady you know she is diabetic you can see the ulcers you see what you can't fix when it gets to that point ....you look at a patient who's 18 and not taking their medication you can relate it back to that elderly lady with her wounds and you kind of know where it's going (Q4P5).*

An approach to constructing learning considering a Complexity theory approach and one in which Vygotsky is acknowledged as being an important contributor, may assume that a clinical placement experience is characterised by '...change, evolution adaptation and development for survival' where '...learning is an ongoing emergently choreographed dance between partners and agents' (Morrison 2008, p19, 26). This delightful imagery is reflected by the following participant;

> *Clinical placements they were challenging and like if you got into a comfort zone that was pretty much bit of a routine for certain placements and the same things happens for GNP .....finally you get comfortable and then you have to move and do it all over again and that in itself is tiring (Q4P4).*

The tiring nature of transition between placements would almost be regarded as a necessary component of a placement experience based on Complexity theory. While a tiring process, the reconstruction of learning and moving out of comfort zones would be consistent with a pedagogical approach informed by complexity. This consideration is examined more closely in the cross case report in Chapter 6.

Doane and Brown (2011) suggest that another essential aspect of the relationship between epistemological and ontological goals in nursing moves the emphasis from students knowing how to do, to knowing how to be. The setting in which this transformation occurs is crucial and both Chant et al. (2002) and Levett-Jones et al. (2009) argue clearly that the setting must be one that has context, is authentic and supportive. Benner (1984, p21) also cautions that experience and time are essential as

placing students into context rich environments where '…novices are taught context-free rules', may not provide any opportunity for the learner to move to a higher stage of learning. Consider the statement from Q4P5 above and there is a transformative process taking place as the participant demonstrates a capacity to apply a previous experience of an 18 year old patient to concepts of non-compliance, disease pathology and life span associated with diabetes. Not only is this transformative but it suggests the beginning of a more sophisticated pattern of cognitive development, a hint of intuition and the essence of a nurse who is developing attributes to accommodate challenges to her day to day function.

5.7   Avoiding dissonance

Seeking out alternative and positive cognitive networks and experiences has the effect of reducing dissonance associated with learning. Festinger's Theory of Cognitive Dissonance identifies that there are likely to be dissonant '...nonfitting' elements of cognitive change and that a person may be reasonably expected to attempt to reduce the dissonant situation in which they find themselves (Festinger 1957, p31). If placement experiences are dissonant or non-productive for learning, this could motivate student nurses to seek out additional clinical experience as nursing assistants. Festinger (1957) also suggests that a previous exposure to states of dissonance, leads to an apprehension of the situation happening again and may also results in an environment of poor learning. This emphasis on the first clinical placement experience has been examined by Leducq et al. (2012) as a critical aspect of the overall placement experience and by Xiao, Kelton and Paterson (2011) in relation to aged care. The opportunity for dissonant circumstances to interfere with the ideal combination of conditions within the final QCA should be considered for

those hosting or assessing objectives associated with placement. Recognising for the cases within that the combination of conditions; benefit (BENF), exposure to the care interventions (NSPOs) in the clinical setting and the hospital (HOSP), working as a nurse assistant (PANW) and receiving effective feedback (FEED) were associated with participants who provided more than the average of 7 nursing care interventions, is a beginning. For those students who did not assign a benefit to their placement experience it was possible that a form of dissonance was adversely affecting any one of the conditions. To illustrate Case 18 described that her experience of a paediatric placement left her feeling disassociated and removed from the placement.

> *Yeah so I don't know what happened there but I really didn't enjoy that placement and didn't learn anything at all luckily not to detrimental to my practice cause it was in third year first semester unfortunately that was the last placement you had to put in for your GNP so I was a bit worried (Q4P18)*

The suggestion from her description was that learning nothing at all was a result of not liking the placement, a similar claim of Case 10. Perhaps more concerning is that some months after the experience the graduate is still unsure why the placement was not helpful for her learning.

> *don't think was right all I ended up doing was ADL's which I already knew how to do cause the RN I was meant to be working with didn't want any students working with her (Q4P10)*

Student nurses within many Australian universities are often assigned their placements through centralised clinical allocation systems where they have little choice of the venue provided. Students, placement providers and universities could work towards rating placements and venues on the basis of a dissonance scale rather than current placement evaluations which are often based on a narrative summary. A dissonance scale would qualify the dissonant conditions that typify poor learning

environments and provide some form of benchmark to guide placement development. This could be useful for placement providers wishing to improve their exposure to prospective employees, could assist in the negotiation of payment for placement services and establish a further indicator of quality. If nothing else placement providers and organisers may welcome an opportunity to reflect on learning environments that establish or perpetuate patterns of dissonance.

One pattern of dissonance that can occur when students are confronted with the 'realism' of the clinical setting and the 'expectation' of the university was described by Case 5

> *You actually have to do them you've got to see other people doing things and a lot of nursing there's a thousand different ways to do things and until you've seen ten ways you don't develop your own style.*
>
> *That's an interesting comment*
>
> *So in uni you've got one person saying oh you can do this do this but some people will do this or do that or do that or do this and you kind of go 'what am I doing then ' like am I supposed to fix that then ... its essentially only that lecturers way of doing things and if you don't necessarily get along with that style of nursing then it limits what you've learnt'(Q4P5)*

This discussion has parallels to a number of implications for nursing education. As noted the impact of a poor learning environment precipitates stress and burnout among nursing students (Rudman & Gustavsson 2012). It is also suggested by Rudman and Gustavsson (2012) that the prevention of dissonance and burnout during the placement experience of a student may ultimately affect not only their decision to remain in nursing but the use of research in practice and the nurse's capacity for coping with change. In contrast to the participant's descriptions above other cases reported that the most significant influence on their clinical placement experience was

the reception of the clinical training staff. Case 14 enjoyed learning as a consequence of the positive reception from the hospital staff.

> *How would you describe your clinical placement experiences?*
>
> *Fantastic.*
>
> *Why?*
>
> *I think because it had a lot to do with the nursing staff which were on the ward a lot of them were quite open to us students in that we were getting more exposure so they were happy to see that the course was taking steps for student to get more placement before they come out as an RN's ummm and I found them really challenging but at the same time there was so much to learn there was always something new to stimulate your learning you never came to a point where you plateaued (Q4P14)*

The participants who described poor or dissonant clinical experiences also described fewer interventions for pressure area, falls and pneumonia. For example Case 17, described that some nursing staff expected students to work as 'slaves' during clinical placement, provided only two interventions. Case 20 with six interventions for was subject to racist treatment during her placement opportunities in third year while Case 1 with only five interventions described a lack of feedback from the clinical staff as a significant challenge of her placement experiences. While the role of dissonance in education has been discussed for some time in literature there have been no links to specific patient care interventions as described in this study. While the facets of dissonance are many, the significance of the affective domain is central to knowledge development and ultimately to capacity. It is worth reflecting on how some of the dissonant experiences of the cases described above may have affected the transition of the student from clinical experience to clinical performance as a registered nurse.

5.8 Responsibility

A significant finding from this study is how participants viewed responsibility as an influence on their learning and development. The emphasis here is not to the manner in which students accept responsibility for principles of adult learning or endeavour to construct their own learning experiences. Rather this theme that rose clearly from the transcripts is that the responsibility associated with the care of patients has a significant impact on the separation of the student's identity from an outsider to a member of the health care team and to their learning. Benner (2004, p191) described similar concerns, writing that the transition between student to graduate required arrival at a sense of professional and legal responsibility for patients, a '...striking change' that affects the experiential component of learning. The following excerpt between the researcher and Case 5 was a pointed example of how she saw her lack of placement experience affecting her own transition of responsibility from her student role to the registered nurses role supervising students.

> *You don't ... you actually have to make a decision or say I don't know and let someone else take over and it's not actually like when you an RN it's my decision or say I don't know, where as a student you don't actually have a patient load and being on the other side of the fence now*

> *You don't trust your students do you?*

> *No (laughs)*

> *Because ultimately they're the ones who have to sign, probably a bit naughty but going back to the old system of in training, hospital training it's not a bad thing to happen actually working within a hospital where they've got limited responsibility but responsibility nonetheless and there's a huge amount of work in that cause you can't get enough clinical you can't get enough experience between sitting through lectures (Q5P6)*

Despite Benner's influence in shaping the understanding of how nurses transition between the layers of experience and development, the broader discussion of

responsibility on learning has only been tackled in a limited fashion in nursing education research. Haleem et al. (2011) describe the introduction of an internship model between senior nurse and student to enable a better transition process at the completion of university training. The model identified some success in improving student's capacity for the organisation of care and critical thinking however the authors also acknowledge the logistical challenges represented by such a model. Unfortunately the paper did not tease out what responsibilities the student may have been accountable for. Hellstrm-Hyson, Mrtensson and Kristofferzon (2012) described a study in which the perception of students as participants in a 'student ward' led to a greater sense of responsibility for their learning as opposed to the more traditional model of shadowing a registered nurse. A report by Vivekananda-Schmidt, Crossley and Bax (2011) describes the concept of an assistantship for student doctors again identifying that students have few opportunities to take real responsibility for their actions while on clinical placement. Vivekananda-Schmidt, Crossley and Bax (2011) identify that the requirement for seeking out opportunities for student responsibility comes from the latest United Kingdom policy paper concerning the education of medical students, *Tomorrow's Doctors 2009*. The immediate and obvious legal, ethical and functional barriers to an implementation of a similar scheme for nursing students in Australia are substantial and would require careful consideration and especially insightful measures to gauge its worth.

The impact of responsibility and it's reality was for some cases the key component to a meaningful clinical placement experience. The word tree depicted at Figure 14 is a product of an NVivo 9 text query and is useful to visually identify the strings of words participants associated with responsibility.

Figure 14 - Word Tree - Responsibility
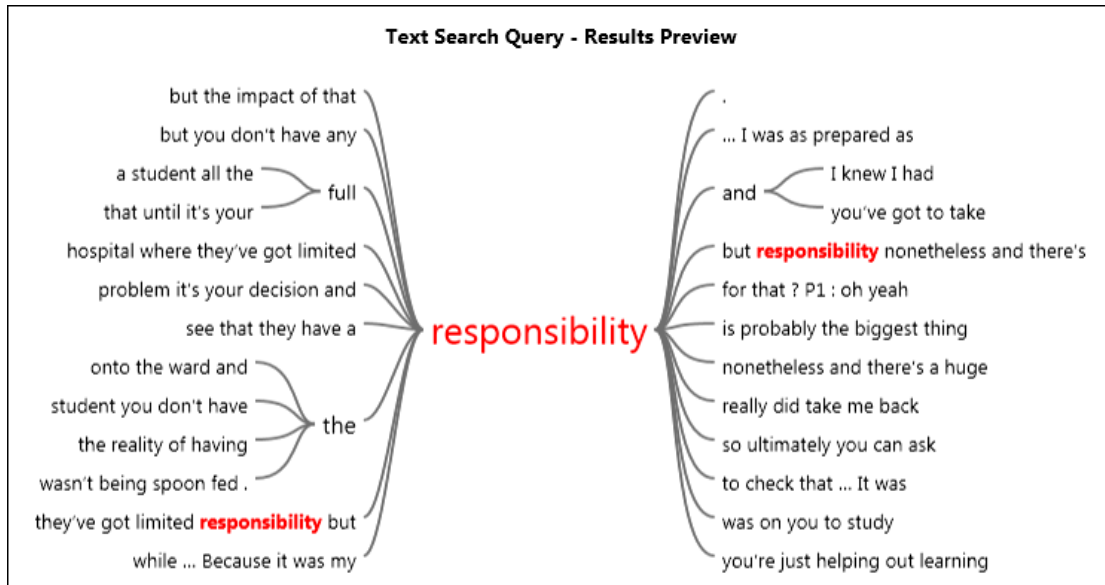
Descriptive terms such as 'reality', 'impact', 'huge' 'biggest' and 'your decision' are used by participants to situate how responsibility was perceived within the placement. It was also clear that participants are at times torn by what they see as a responsibility to contribute to the function of the ward setting as 'worker' but describe being disconnected from feeling responsibility for the actual work.

> *I found in my placement and I don't know if I was just confident in my abilities whether those two weeks kind of felt as if I was just free labour you could sort of say, not that I was made to feel like that but it was full time work so a lot of people in that hospital were a 0.8 they weren't a lot of people that were full time so as a student we were working fulltime hours all shifts (Q3P13)*

It is apparent that the perception of responsibility influences the affective dimension of the individual and their learning. What is less obvious is the consideration of group dynamics and the influence on learning especially as participants described the tension of being responsible and yet not responsible at the same time. Being part of the group to achieve a common goal imbues a sense of camaraderie and team work and are qualities that industry would hope to see in graduate nurses. There is a risk however that the division of responsibility and identity within the group situation may

become a barrier to the learning that arises from shared experiences. Again the separation of students from worker may be distinct from practical, legal and possibly ethical viewpoints however it may make less sense educationally. Consider the student nurse who is given a defined role or task within the health care team and one in which they are responsible for that action. The role or task may be relatively minor however ideally there would be an opportunity for the student to see how that role influences patient care. Writing such as this seems in the light of the previous epistemological goals and ontological vision for the role of higher education almost contradictory. Surely this is not a suggestion to return to an apprenticeship style of training? No, this is not being suggested however as disclosed in the participants transcripts, there are diverse opinions as to whether they are in placement to work or learn. It is important that nursing schools examine and consider how to integrate the way in which responsibility has a place in affective learning. Any concerns about a return to previous styles of nursing education would need to counter at least the argument to explore the phenomenon of responsibility further. Most certainly there is an opportunity to at least have clearer definitions of responsibility for students attending experiential learning. Cultural and affective learning requires an examination of either removing or conversely embracing the concept of 'work'. Grealish and Smale (2011) argue for a similar conceptualisation of how working influences learning, suggesting that social, cognitive and learning theories could hold the potential to improve the nature of experiential learning. As discussed below such concepts become complex and in the light of this study it is suggested that attempts to incorporate too many diverse theoretical bases into any one nursing curriculum may become unwieldy.

5.9 Relationships, placement patterns and knowledge development

5.9.1 Relationships

The role of the clinical facilitator, synonymous with clinical tutor or preceptor has been described by Löfmark et al. (2012) and Hartigan-Rogers et al. (2007) as essential to the success of students on clinical placement. Participants were asked to reflect on the nature of the relationship between themselves and their clinical facilitator or tutor. With clarification of the terms (refer glossary) participants were comfortable with the title of clinical facilitator to identify the person representing the university during their experiential learning. The range of responses in the thematic analysis indicated that the relationships between facilitator and student were quite diverse. Expressions such as 'friend', 'mentor', 'interrogator', 'support', 'easy going', 'equal', and 'professional' were used by various participants in their descriptions.

> *well with X, initially it was a probably a bit more social than anything just a lot of probably 50/50 in terms of discussions about clinical issues and 50 being social discussions and I think that worked well in terms of with making us feel more comfortable on the wards and developing a relationship (Q7P4)*

The comment by Case 4 that a relationship was developed from a base of social interaction to the point where they felt more comfortable, less dissonant, on the wards is significant. Establishing a pattern of interaction to build self-esteem and confidence is clearly a desirable goal however it is also one which is going to require time. Not all descriptions were as positive and for Case 8 it was a question of reflecting on the absence of a relationship.

> *Can you describe the nature of the interactions between yourself and your clinical facilitator during your clinical placements?*
>
> *Hard cause their hardly there never really had any time to get to know them and feel comfortable so that if you did get in to trouble or problems and when they did get there it was sort of at the point I'd managed to resolve it myself with the staff members there instead of going through them (Q7P8)*

Again in the iterative and reflective manner of case study it is noted that the contrast between Cases 4 and 8 was also pointed in relation to their clinical experience of falls, pneumonia and pressure area. Despite over 700 hours of acute clinical placement, Case 8 suggested she had no opportunity to provide pressure area, falls or pneumonia care for anyone despite having both aged care and surgical ward placements. Standard care plans in either setting would be expected to at least address an assessment of falls risk. In contrast Case 4 remarked that she had many occasions to care for all of the interventions across her placement duration of over 1300 hours. The role of the clinical preceptor to identify learning opportunities is significant and it may be that the different opportunities between the two cases are reflected in their descriptions of the presence or absence of an effective facilitator relationship. It is noted by AIHW (2011) that experiential learning depends on an environment where '…feedback on performance is rich' and a structured approach to reflective practice is provided.

When asked to identify the person they saw as responsible for their experiential learning, unfortunately no participant identified that university academic staff had a role in their education during placement. This finding is in contrast to the examination by Löfmark et al. (2012) of Norwegian students' ratings that not only were teachers (university staff) visible, they were considered better at providing supervision in the clinical setting than the clinical preceptor staff. Williamson et al. (2011) offer an important commentary from a United Kingdom study of the expectations of students from their clinical teaching support staff. These comments, generated from a study of students and stakeholders included vision; proactive rather than reactive support; solving barriers to achieving support and bridging the gap between education and clinic. To address these issues a Placement Development Team was seen as a way to

address the concerns of students, academia and industry. Felton, Sheppard and Stacey (2012) offer a similar solution in the introduction of group supervision models for students in mental health placement. Considering the distinction that students draw between academic and clinical staff in this case study, it may be useful to examine a similar structure in an Australian context. The key pronouncement from Williamson et al. (2011) is that clinical placement is multidimensional and requires multidimensional support systems.

5.9.2   Placement pattern and knowledge development

An important result from the thematic analysis was the theme of 'Clinical placement tension'. This theme encompassed a range of issues that participants regarded as compromising or diminishing the placement experience. Tension rose from having too much placement or too little, moving between too many venues or not moving enough, conflict between students and facilitators and in many descriptions, the financial burden of attending placement. For a number of participants it was clear that internal conflict or tension came from their identification as 'workers' who while contributing to care did not receive recompense. On any level conflict is very likely to affect the participant's integration and understanding of responsibility and affective learning, confidence, belongingness, dissonance and stress. The nature of the placement pattern also raised concerns for individual students with some struggling to move between different patterns for financial or educational reasons. Attending block placement compromised earning capacity for some while inconsistent placement patterns interrupted learning for others. Case 20 liked the DEU as she was able to keep her holidays however found less continuity in the retention of knowledge than the 'opposite' which was the consistent pattern of block placement. Despite these

concerns the consistency in knowledge development across all participants regardless of the placement pattern was indicated by the small range of difference in the skills and knowledge of participants across of all of the care interventions ($M = 19.92 \pm$ SD 1.01). The small standard deviation may also be reflective of the sensitivity of the questionnaire design.

For some students the relationships they were unable to develop not only affected their learning as discussed above but also the prospect of a reasonable appraisal. As a part of the system of placement, the clinical facilitator is a crucial element of the potential success of the student.

> *Facilitators not knowing what going on, facilitators not being part of the actual hospital .... facilitators who are not appropriate on any ward there's no avenue to go back... on any ward there's always someone you don't get along with and if that person happens to be your facilitator ...(your screwed) pretty much and you end up getting an appraisal that not reflective of who you are and it would be the same if you were on the ward you wouldn't walk up to the person you don't get along with and say could you do my appraisal you find someone you actually get along with (Q5P11)*

Case 12 saw her movement between placements as

> *The negatives of clinical placement I found was obviously you had to move around so often to get the benefit of being on as many wards as you could but obviously this it hard to fit in as part of the team or to be seen as more than a student(Q11P12)*

A tension exists between being seen as part of the team, as being 'more' than a student, a role which requires time in the placement venue, against the opportunity to experience more diversity in placement. However the perception by some students that variety is equated with benefit requires some introspection.

5.9.3 Working as a carer or assistant in nursing.

A condition that was included for consideration in the QCA was that of working as either a personal nurse assistant (PNA), a care worker or an assistant in nursing (AIN) during the period of training. Working as a PNA/AIN was common to Cases 2, 5, 10, 16, 17, 18, and 19 with most suggesting it was very important in being ready to begin practice as a registered nurse. One of the assumptions made prior to data collection was that it working in a hospital or aged care setting would contribute to the students' development and retention of additional skills as compared to those who did not. As the coding process and thematic analysis revealed a number of graduates indeed nominated that working as a PNA, was very helpful for both the transition to nursing and as a form of personal development.

> *I think the only reason I was prepared was because I worked as a PNA…and that again was pretty much where I learnt a lot of things I did get to see a lot of things even though I wasn't allowed to do a whole heap there were things I got to assist with and just see. Q5P2*

Despite the positive reflections on the value of working as a PNA, it appears that the role of the PNA was not always associated with a concomitant increase in the interventions for pressure area, falls or pneumonia. The descriptive statistics and the QCA suggest that the only participant who provided a higher level of care for her patients, with the PNA role as central to their development, was Case 18. This again hints at the complexity of establishing patterns of affect, behaviour, systems and experiences that correspond to specific outcomes.

5.10 The value of placement

The original aim of the study was to identify if a particular teaching model of nursing education and duration would be associated with student skill and knowledge

development. The case report has identified a number of themes that are discussed at length in literature, such as belongingness and relationships and some less described; responsibility, confidence and dissonance. The quantitative measures of skills and knowledge across the narrow band of the interventions suggests that while there are no significant differences between graduates from different models of placement, graduates who have had more clinical placement identify with a higher sense of preparation for commencing employment as a registered nurse. When asked to consider the value of placement in their preparation for work in the acute care sector the comparative analysis indicates that it is not one factor, rather a combination of conditions are associated with graduates who provided a greater number of nursing interventions to pressure area, falls and pneumonia. The effect of duration as a component of clinical placement education has a number of descriptions within the case study. Perhaps most obviously within the QCA description the Truth Table (Table 22) aligns cases 1, 12, 16, 17, 19 and 20 (those students with less than 1000 hours of clinical placement) alongside a [0] outcome condition. While it would appear however that there was some logical connection between the variables of less placement time and less care interventions, there are a number of conflicting cases. Case 12, for example, a graduate who completed more than 1000 hours of clinical placement yet provided fewer than seven interventions. This is despite Case 12 also having worked as a PNA where her experiential learning opportunities would have been more significant again. Similar findings exist for Cases 16, 17 and 19 who also sought out PNA work suggesting that while working as a PNA may contribute to a greater sense of preparation it may not translate to higher levels of patient care. Clearly the distinction between experiential learning with a specific purpose and work

which may or may not have an influence on learning outcomes requires further investigation.

In considering the role of clinical placement theoretical dimensions of experiential learning and the insights of constructivism and Complexity Theory, have been examined. The value of placement is to provide more than just an opportunity to practice skills; placement offers the opportunity for intrapersonal growth which is critical for the graduate nurse to survive in an increasingly demanding domain. Watson (2006) asks if higher education has a role in preparing nurses when in fact the question that could be asked, is higher education continuing to evolve in line with the complex environments and expectations of industry. Diverse curricula, a plethora of placement models and models of supervision and graduates who may not appreciate the language of competency suggest that higher education should continue to examine the way in which nurses are taught. To embed learning outcomes in a discrete placement experience, incorporating some at least some of the themes reported above, the conceptualisation of a minimum amount of placement hours will benefit from further research and review. It is reasonable to suggest that the assignment of an arbitrary length of clinical placement experience is an awkward discussion as the expectations of placement to provide the skills to nurse are becoming increasingly complex. This is well noted by Grealish and Smale (2011) who argue for the establishment of a national vision for the role of clinical experience in nursing curricula. If it is acknowledged that an increasingly complex health system requires a more prepared graduate, not only should the opportunity for greater placement time exist but a much more sophisticated structure should be established to support student development.

This study could have focussed on the finding that those participants with the longest placement experience of over 1500 hours also reported the highest level of benefit and preparation and on average provided the highest number of care interventions for pressure area, falls and pneumonia. This however would brush over a number of other themes that the participants describe as essential for their development. This focus would, inappropriately, exclude cases that challenge the link between duration of placement and the delivery of care. The conclusion drawn from the above is that while the requirement for a minimum number of placement hours within a nursing curriculum is understandable, universities and accreditation bodies may need to consider a shift from a minimum number of hours of clinical placement. Instead the number of hours a student spends in placement may be better defined by another set of minimum objectives and learning outcomes. These outcomes would be built around requirements such as exposure to a specific range of fundamentals of nursing care, such as pressure area and falls prevention. Students such as Case 8 would not be able to complete their university education without having an opportunity to experience nursing care for some of the key issues associated with care for an aging population. Evidence of intrapersonal growth through confidence and articulation of benefit and the formation of supportive relationships between students and tutors would also determine the duration of placement. For some students this may require 700 hours of placement, for others 1300 hours may be required. The rationale for this complex, contentious and logistically frightening statement is given below.

Outside of the duration of placement other components of placement pattern and model could also be considered such as narrowing the range of venues to enable the sense of attachment or belongingness and providing placement models which should

be either block, integrated or DEU but not a combination. If this is not possible some form of screening based on learning styles may be useful for identifying which students go to the most suited model of placement. Students should be encouraged to not only reflect on the placement experience but actively articulate what benefit the placement experience was to their learning as this will maximise the value of feedback from supervising staff. Strategies such as consistent clinical facilitator feedback should be further developed to enable the student to gain a sense of benefit and to reconcile dissonant experiences. Clearly a minimum time in placement provides some structure to the design of curricula and serves as a form of insurance against those institutions that may place less emphasis on developmental measures such as confidence. For all universities, the systems and logistics surrounding the role of clinical placement need to be examined for how the suite of conditions described above are incorporated into learning. As an example if the financial burden of attending placement contribute to a dissonant environment for students, with negative implications for learning, a bursary payment for graduates may be recovered in better educational outcomes, better prepared graduates, higher levels of patient care and greater retention of new graduate nurses. There are an increasing number of indicators described in literature and supported by the findings of this study, such as dissonance, responsibility, benefit, belongingness and most importantly the opportunity for exposure to a range of interventions sensitive to nursing that could provide for new, exciting and innovative curricula. This would be a bold vision for nursing education, challenging the way in which clinical placement drives student learning rather than the potential for student learning to drive the placement experience.

5.10.1 Case report conclusions

The following conclusions reflect the summary of the cases above and the consideration of care provision for a number of patient care issues.

There is a need to examine the nature of competence from academic, industry and student perspectives. The participant's uncertainty of the nature of competence, a mirror of recent academic literary debate, requires a greater level of engagement amongst all stakeholders.

The allocation of a particular duration of clinical placement needs to be based on the opportunities for students to achieve intrapersonal growth. The duration of placement has been considered a mechanism for students to achieve competency however inconsistent measures and an uncertainty of the sufficiency of competence as a goal are noted. It is also noted within that those graduates with the longest duration of placement provided on average, higher number of patient care interventions. If however longer duration is simply a mechanism to ensure a longer period of intrapersonal growth, realigning the emphasis of placement from time (duration) to outcome (growth) may be appropriate. A bottom up (emergent) approach to curriculum design and integration of placement would be consistent with Complexity theory.

Students benefit from access to vivid clinical learning experiences. The study participants who had a greater recall of clinical learning experiences either had a greater duration of placement or a level of feedback and interaction with their clinical facilitator. Those participants who could not describe significant clinical experiences

described less of the interventions to pressure area, falls and pneumonia prevention across their shift. Each clinical experience could be enhanced by a sense of responsibility and engagement from the person the student sees as most responsible for delivery of clinical education. If universities employ a range of approaches to student supervision and training, the emphasis needs to be on the student being able to clearly identify who that is.

Nursing education programs could consider the value of lectures and static content in teaching nurse care for a range of care interventions. Only one participant had any recollection of lectures associated with the care for patients regarding falls, pressure area or pneumonia. The fact that lectures were not a positive condition within the QCA (comparative analysis), suggests further study and review of where it is that students learn of nursing care interventions.

The opportunity to research and examine the theoretical basis for the design and provision of the clinical placement experience should be encouraged amongst designers of nursing curricula.

An emphasis should be sought on the creation of curricula that contain a combination of teaching and learning situations directed to enabling students to identify and recognise the benefit of placement, exposure to a range of fundamentals of care and feedback that encourages the development of confidence.

5.11 Conclusion

A case report has some similarities to a more traditional presentation of study findings or discussion. The differences however require a blend of the study findings into a

narrative where the reader forms a picture of the cases under review. The cases themselves have been considered against the boundaries imposed early in the study, the parameters being the care provided around pressure area, falls and pneumonia. In the examination of qualitative and quantitative data, which centred on the participants and the care they provided across a shift, a goal of analytical generalisation rather than statistical generalisation was sought. The complexity of the placement experience encompasses intrapersonal growth for the student, challenges the capacity of universities and clinical placement venues and questions the assignment of an arbitrary time frame for placement duration. That said the participants did provide a number of interventions to prevent patients falling, developing pneumonia or pressure areas. Indeed some of the participants were successful in the absence of the supports that might exemplify placement excellence, in a number of cases the participants were more developed, more whole, than the sum of their opportunities during placement, would suggest.

One of the central goals for this research was to examine if there was a way of identifying a particular range of placement hours to ensure a student nurse gained from their placement experiences. In one sense the study aims have been achieved by indicating some of the complex interactions and learning opportunities that are expected as a result of attending placement. Boud, Cohen and Walker (1993, p7) caution that experiential learning is, '...multifaceted, multilayered and so inextricably connected with other experiences that it is impossible to locate temporally or spatially'. This study has demonstrated that despite the inherent complexity of experiential learning there are combinations of conditions that indicate more effective learning outcomes for students. If educational institutions are faced with having to

achieve greater levels of student development with fewer opportunities for experiential learning, a sense of urgency must drive further investigation and confirmation of which conditions are of most benefit to clinical placement. This case report has been presented to stand alone as an examination of the influence of duration, clinical placement and a narrow range of care interventions. The anticipation of case study research however extends from this point to even further insights provided by a cross case comparison.

6   Chapter 6 - Cross Case Report

6.1   Introduction

As a comparative process the study began with a desire to understand the influence of clinical placement experience in the development of nursing graduates. Building on the individual case reports in the previous chapter, the cross case report identifies similarities and differences between different aspects of the students experience and their component of experiential learning. The cross case search for patterns is described by Eisenhardt (1989, p541) as a way to '...force investigators to go beyond initial impressions, especially through the use of structured and diverse lenses on the data'. The cross case conclusions drawn from this investigation rely on a pattern matching technique to test the original theoretical position proffered for this study (see Table 3). Theory testing which is a desirable and necessary component of case study research will establish an argument to suggest that Complexity theory may be useful in establishing new and innovative approaches to understanding the role of clinical placement in nursing education. This search will begin with a comparison of the different experiences of curricula as reported by the study participants.

6.1.1   Curriculum models

As graduates from one of three different universities in South Australia each graduate had in common a baccalaureate nursing program of three years duration. Despite however a common intended outcome, educating nurses to achieve the Nursing and Midwifery Board of Australia Competency Standards, teaching models, philosophy and structures of programs leading to registration are often quite distinct. A concerted attempt to source the detailed curriculum document from all three universities, to highlight the specific differences was unsuccessful, however it was possible to build a

comprehensive understanding of each from readily accessible online and hardcopy program information and of course the participants themselves. One of the key distinctions between each program was the manner in which clinical placement is used within each curriculum. Each graduate experienced a different pattern and timing of clinical placement such that their descriptions and reflections enable a comparison of sorts. It is noted however that case studies such as this risk being interpreted as emphasizing the negative aspects of one against the other, an outcome not intended or sought in light of the description below. As a form of relative study the goal of this case report is directed much more to the way in which aspects of curricula affect learning and by implication nurse education. So while differences have been suggested between the experiences of different participants the central focus of this study has been to highlight the need for all nursing academe to address real issues about the role of clinical placement in nursing education.

As previously noted the minimum amount of clinical placement time required of pre-entry nursing programs in Australia is mandated by the Australian Nursing and Midwifery Accreditation Council (ANMAC) as 800 hours (Standard 4, Criterion 6). The 800 hour duration is not however broken down further to require a specific amount of time in acute care venues, rather being a total across any number of experiential opportunities that may include community, aged care and mental health. Australian universities may however incorporate into the curricula a higher number of placement experience hours above the 800 hour minimum. It is acknowledged within the Standards that the variety and duration of placements will be variable and that the identification of a minimal time frame is '…no guarantee of effective learning' (ANMC 2009, p11). The Standards also suggest that the total number of experiential

hours should be adequate to enable graduates to meet the competency outcomes. Providing a standard length of time for a student to acquire the skills and knowledge to register as a competent safe professional registered nurse is makes a broad assumption of the learning and development needs of the individual. Similarly each graduate is likely to have a diverse range of placement experiences with some more constructive than others.

Table 26 - Curriculum models

Placement pattern	Cases	Average Placement duration -acute	Clinical supervision	Reflective practice
Block	1, 2, 5, 7, 8, 13	610 hours	Casual facilitation staff	At times
Block and dedicated education unit	16, 17, 18, 19, 20	918 hours	University employed clinical teaching staff and casual facilitation staff	At times
Integrated	4, 10, 11, 12, 14	1365 hours	University employed clinical teaching staff	At times

6.1.2   Block placement

The block placement model is characterised by a structure which requires students to attend clinical over a number of consecutive weeks, often with little requirement to attend university for lectures during placement. The duration of block placements ranged from four weeks in first year up to eight weeks in third year. Participants within this model saw those responsible for their clinical teaching as casual teaching staff and hospital staff. Some of the participants reported the use of reflective journals although this was inconsistently performed and regarded. The workload through the course was described by Case 1 as,

I think they expected us to know way too much, like they crammed a lot of information into the lectures and there was so much exams coming and you had to read through all the notes and everything there was just a lot to go through .... just a heavy load.(Q1P1)

6.1.3 Block and dedicated education unit

Some participants reported their placement experience as comprising both dedicated education units (DEUs) and block placements. The DEU is a clinical setting, typically a ward and a placement venue for students which suggests advantages such as consistent understanding of the student learning needs, clinical staff that are familiar with the scope of practice of the student cohort and possibly the staff of the university. One participant had a range of perspectives about the placement pattern of both block and DEU.

Were you in DEU or block?

I got both.

What was better one for you?

Actually got like different, good and bad for both.

Tell me about DEU.

I think DEU don't have to sacrifice your holidays.

Keep your holidays?

Block placement can happen in your holidays, I think you be less tiring like you not getting too tired cause it's like 2 days per week.

Ok so less tired in DEU, what was a bad thing about DEU?

You don't get the continuous phase perhaps like you will be used to when you get to work and for me I might forget what I had done the week before.

Sure, what about block, what was the good and bad things about block?

You got less time to study if you got examination on the block was between or before the examination dates, you got like five days a week , quite tiring, it's

kind of the opposite of DEU actually yeah but I get the continuous, what do you call, the refreshing everyday (Q11P20)

For Case 20 the education goal of 'refreshing everyday', revisiting learning and knowledge development was a concept that implies the impact of attending block placement provided for continuity of learning. Among the participants the concern regarding placement was less about attending either the DEU or block but having to attend a combination of both across the duration of the program. Participants did not suggest if the pre-placement briefing for each setting was different.

6.1.4   Integrated placement

Participants who attended the integrated model of placement also described the longest clinical placement requirement with a commitment of over 1500 hours across three years. The integrated placement pattern was described as an a model which required students to attend university two days of the week while attending clinical placement across the other three days. This model of placement is described by the participants as

I think strengths, definitely the amount of clinical placement ....not necessarily a weakness but maybe being based in the same hospital could be seen as a weakness if you wanted to go somewhere else (Q3P11)

The reference of Case 11 to the same hospital describes a placement arrangement known as a 'home hospital' where students were allocated to one particular hospital for the significant proportion of their three year program. While the students were required to attend placement outside of the hospital for different specialities, such as aged care, each student returned to the same venue for the majority of their acute care placement experience. Similar to the principles of the DEU, the rationale for this

approach was to enhance the acculturation of students and to provide consistency. Students within the integrated model also described having the same clinical tutor across the three years of their program. The supportive nature of the relationship with the clinical tutor was a consistent theme among the participants from the integrated placement approach.

The descriptions of the role of clinical placement from each participant have both common and diverse themes. While at time subtle the distinctions between the participants accounts of the role of clinical placement is respectively directed to different emphases of being work ready, compliance and integration. The challenge within this study has been to look beyond some of the subtle variations that may colour different perceptions of curricula to consider the theoretical implications of experiential learning.

6.2   Theory Testing

Eisenhardt (1989 p536) notes that the '...a priori specification of constructs can also help to shape the initial design of theory building research'. The use of a priori positions, were used to frame an approach to searching for themes in the participants transcripts. The stages of the thematic analysis, the outcomes (or indeed lack thereof) of the quantitative analysis and the QCA are important as individual elements of analysis. When considered together (Table 27) as is appropriate for case study, they become more important again.

Table 27 - Research Findings Summary

Thematic analysis	Correlation/ ANOVA	QCA
• Competence and confidence takes time • Assessment and feedback is lacking • Clinical placement tension • Students can construct their own learning experiences • Cultural affects • Relationships between tutors and students develop as knowledge develops • Responsibility is real • Placement pattern and knowledge development	• There is a positive correaltion between placement duration and a higher sense of preparation to begin nursing practice. • There is no statistically significant relationship between longer placement duration and interventions associated with falls, pneumonia or pressure area.	• A combination of conditions within clinical placement which include; • Exposure to the care intervention, • Students attributing a benefit to placement and • Effective feedback • Lead to higher levels of nursing interventions for pressure area, falls and pneumonia.

Key to the development of the wider theoretical implications of this study are the counsel of Yin (2009) and Eisenhardt (1989), especially the latter who cleverly brings together an approach to the process of theory building from case study research. This approach includes three tactics such as choosing one dimension to examine differences within the group, selecting cases to compare and contrast and inspection through a process of dividing the data sources. The division of data requires a team of researchers to maximise the unique observations of a team, rather than an individual and as such was not used in this study. As described below a number of cases were selected to compare and help build the theoretical position within.

The initial theoretical propositions (Table 3) that were constructed a priori to the collection of data posited that increased clinical placement time would increase graduates nurses skills and knowledge and consequently their ability to provide nursing care. This represented a raw though not unreasonable attempt at generating a

theory based on a range of literature and the researcher's clinical and academic background in nursing education. It is also a logical proposition in many ways and one directed to the call of McKinley et al. (2002) regarding the uncertainty of the logical link between learning and nursing practice. The cases and the subsequent data collection tools were purposively selected and designed to record a narrow window in time of care given to patients. The data itself was both qualitative and quantitative with each centred on the nursing practice for falls, pneumonia and pressure area. Berg-Schlosser et al. (2009) note that the goal of research is to move beyond a description of observations, rather the goal is to look more deeply for connections that take the understanding of an issue further forward. In using techniques such as comparative analysis the goal of '...modest generalization' is one which the researcher should aspire to (Berg-Schlosser et al. 2009, p11).

6.2.1   Pattern match to a theoretical position

At this stage of a case study a key task is the search for patterns between the cases and to look for cases that support or refute the initial theoretical pattern described. Eisenhardt (1989) describes that prior to cross case comparison, a descriptive write up (Table 25) of each case and the study data enable the researcher to become intimately familiar with the cases. This table and the insights from the study analysis contribute to the identification of more complex patterns associated with the outcomes of clinical placement. Essentially there is an opportunity to compare the predicted pattern with the more detailed empirical pattern suggested by the case study analysis.

The pattern matching process described below follows closely the example provided by de Vaus (2001), where a table is constructed to show the range of patterns possible

as a result of the relationship between the dependent and independent variables of the study. It is important to note that the terms dependent and independent variable are used in case study analysis to describe a theoretical generalisation, not a statistical one (de Vaus 2001). The goal of this process was to address the initial predicted pattern (Table 3), described in more detail by Donnelly and Wiechula (2012). As the first predicted pattern was rudimentary with little empirical data, a newer more sophisticated set of patterns can be suggested on the basis of the case study findings. The first stage in this process is to more clearly identify the independent and dependent variables. The independent variables are those conditions which have a presumed effect (a theoretical position) on the dependent variables. The first independent variable is the duration of placement; the second reflects the importance of relationships, feedback and dissonance as a result of inconsistent clinical supervision. The dependent variables are identified as the nursing practice provided by graduate nurses, the level of preparation as a result of attending university, the level of tension experienced during placement, the construction of knowledge and the feedback provided to students. Using the dependent variables from the findings of the case study provides a logical framework for a cross case comparison and provides a greater degree of confidence in the prediction of patterns. It is important to note that the pattern matching technique (Table 28) described below is the first stage of comparing different combinations of predicted patterns; it is not at this stage of the process, directed to individual or cross case descriptions.

Table 28 - Pattern matching of case study variables

			Independent variables					
			Long duration of clinical placement			Inconsistent clinical supervision		
	Values of dependent variables		Low	Med	High	Low	Med	High
Dependent variables	Nursing practice	A	1	2	3	1	2	3
	Preparation	B	1	2	3	1	2	3
	Tension	C	1	2	3	1	2	3
	Constructing knowledge	D	1	2	3	1	2	3
	Feedback	E	1	2	3	1	2	3

In summary, Table 28, created in a similar fashion to a Truth table, predicts that a long duration of clinical placement will result in a pattern where the amount of nursing practice is higher and the preparation felt by the student is higher. Longer placement duration is however also predicted to produce higher levels of tension due to financial pressures associated with other study demands. The duration of placement contains opportunities to positively or negatively influence the opportunities for constructing knowledge and feedback. The second independent variable, an inconsistent level of clinical supervision and support, is less likely to be associated with preparation for practice, increase levels of tension and anxiety and may decrease opportunities for students to construct their own levels of knowledge. de Vaus (2001) describes a shorthand approach to the notation of predicted patterns (as distinct from the final QCA process) which makes it easier to then consider the cases at hand. For example the predicted pattern of A_3, B_3, C_3, D_2 and E_2 can be considered against a range of cases characterised by either a longer or shorter duration of placement. The

influence of inconsistent tutor supervision or support can be represented by the pattern coding A_2, B_1, C_3, D_1 and E_1. Establishing a set of theoretical patterns is in keeping with a comprehensive case study which requires examination of rival propositions and cases which may challenge the findings. The cases below are useful to challenge the predicted patterns.

Case 5

As a mature aged student Case 5 brought a range of life experiences to her study of nursing, arguably she had a suite of intrapersonal skills and insights that gave her license to comment on the younger students,

> *'frustrating that people with maturity aren't given the credit for that and perhaps the people who lack maturity and are straight out of high school aren't given enough for them' (Q1P5).*

With the least amount of clinical placement in the acute setting, 420 hours, Case 5 acknowledged a lack of time management and ranked herself as clearly unprepared for employment as a registered nurse. The lack of credible facilitation by non-hospital staff was noted by herself as a significant weakness in her development. Despite these concerns Case 5 did provide a range of nursing interventions to her patients during her shift. If the duration of placement was not a significant factor in her ability to deliver a range of care interventions (a predicted pattern), was then another factor, her maturity, enough of an attribute to compensate? Possibly, however it is suggested a more relevant insight to her capacity for development was her suggestion,

> *'...there's a thousand ways to do things and until you've seen ten ways you don't develop your own style' (Q3P5).*

In this quote Case 5 is articulating a maturity of learning or cognition where she is assimilating the examples around her before critiquing one suitable for **her** level of skill and knowledge. If, as she described, the placement duration was too short, facilitation was poor and feedback was considered ineffective, the driver for her learning is more likely to have been an internal or intrapersonal quality. It is possible to see threads of complexity in her development and progress where she represents a product, a sum greater than the parts. Case 5 suggested,

> *'it's essentially only that lecturers way of doing things and if you don't necessarily get along with that style of nursing then it limits what you've learnt' (Q3P5).*

As a learner, Case 5 felt she could interpret learning and teaching styles and disclosed that she had a capacity to interpret critically the nursing care being provided around her. It is worth considering how someone without her capacity for affective learning may have coped with a similar set of experiences.

Case 17

Case 17 represents an interesting rival position to the predicted patterns with placement duration of over 800 hours and yet describing only two interventions for falls, pressure area and pneumonia. Despite the significant number of placement hours, Case 17 could not recall any significant instances of caring for anyone with falls, pressure area or pneumonia during her placement. Although she was generally positive regarding the placement experiences she did have, similar to a number of other participants, Case 17 had worked as a personal nurse assistant (PNA) throughout her third year of university. Indeed considering the placement duration, good feedback, and additional experiential opportunities as a PNA, a contrast to the

lack of opportunities for Case 5 is apparent. While it would appear that the external drivers of her learning experience were effective, delving further into the questionnaire data reveals that some elements were missing. For example Case 17 identified that she did not see a facilitator at all during first year, did not have a placement in the study hospital and described that labs were not useful in her training. If some of the external drivers of learning during her university experience were not as effective they could have been and she did not have the same capacity for learning as Case 5, this may have accounted for her relative lack of nursing practice towards falls, pressure area and pneumonia. The unfortunate impression left with Case 17 was that during her clinical placement experiences, some of the nurses supervising her during placement,

> *'expect you to be a slave' (Q1P17).*

Case 18

Continuing the search for patterns to challenge the theoretical positions is to ask why Case 18 delivered a higher than average number of nursing interventions. Case 18 suggested that her 900 hours of clinical placement was inadequate and sought out employment as a PNA, as the only way to understand the implications of taking a patient load. Case 18 felt at times 'lost' in placement and unsupported during one of her eight week blocks. A paediatric placement was noted to be a poor learning environment populated with rude clinical staff. Other than these two experiences however Case 18 suggested her other placement experiences with clinical facilitation were generally good and that while she didn't see the value of a reflective journal as a university requirement she maintained one for herself. Again the specific influence of her clinical placement and experiential learning on her nursing practice is difficult to

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label with any certainty, with her case representative of how a variety of influences contribute to the development of the student. The sense of preparation and responsibility gained by the PNA role may have delivered not only the level of preparedness to begin employment as a registered nurse but also the opportunity to observe nursing care related to common interventions for falls, pressure area and pneumonia prevention.

> *you just don't know what it's like have your own patient load for real, there's so much you don't know even now, still chasing your tail a little bit (Q5P18)*

The cases above have elements about them that can be considered both complimentary and critical to the theoretical patterns. Clearly there are some graduates who have an ability to compensate for gaps in the learning structures around them when those structures may not be satisfactory for their development.

In the cross case comparison to simply suggest that a larger number of clinical placement hours provide greater skills and knowledge has been shown to address only one aspect of the issue. What is more apparent is that there is the opportunity presented within a longer duration of clinical placement to enable some participants to develop confidence and have greater opportunities to care for patients with pneumonia, falls and pressure area. Those graduates that clearly placed significance on the value of placement were more likely to report a greater level of nursing interventions directed towards indicators of care such as falls prevention and pressure area care. At the same time if the influence of a consistent tutor is to provide feedback and identify learning opportunities concerning patient interventions, a series of links, threads and patterns starts to emerge. de Vaus (2001) describes this process as a first stage of analytic induction where the researcher moves from individual cases to a

combination of cases looking for a causal explanation. At this point the advice of de Vaus (2001, p263) is that the process of analytic induction can proceed further if it is possible to '...arrive at generalisations that apply to *all* cases'. It is clear that while there is some commonality between numbers of the participants, this does not extend to *all,* challenging some aspects of the predictive pattern. In considering the challenges to clearly aligning a comprehensive pattern to the role that clinical placement has in the development of students, an alternative theoretical perspective which is a further requirement of the analytic inductive process, is to consider what alternative theories may inform a better understanding of experiential learning.

6.2.2   The 'fit' of Complexity Theory

This study began with a review and description of experiential learning and described the influence of constructivist theorists such as Piaget and Vygotsky in nursing education. This approach provided a 'safe' theoretical base, particularly for a novice researcher, as the central tenets of constructionism have held a significant place in the broader discussion and direction of education within many disciplines for a number of years. Indeed it would have been tempting to align this study with the more associated theoretical orientation that constructivism provides. The implications of the study findings, the pattern matching process and wider reading however, draw one to the implication that within nursing education, clinical placement and experiential learning is a much more complex phenomenon. Davis and Summara (2006) and Donnelly & Wiechula (2012) describe a number of qualities that emerge from a consideration of Complexity theory, each of which will be related to the case study within.

In describing Complexity theory the qualities of 'self-organized' and 'bottom-up emergent' and 'short-range relationships', point toward complex systems and

phenomena that may initially be autonomous (Davis & Summara 2006, p5). The autonomy that is associated with complex system describes how the independent elements of a system, for example students, facilitators, experiences, come together and merge into an interrelated structure. Essentially Complexity theory encourages recognition and elaboration of how the elements of a '…dynamic and adaptive' system may relate to one another (Davis & Summara 2006, p5). Such qualities are clearly aligned to the domain of clinical experiential learning. The consequence of this influence is to conceive of something that is greater than the sum of the individual parts and to examine how meaning is exchanged between '...close neighbors' (Davis & Summara 2006, p5). The neighbours that represent students and facilitators, the placement objectives where the sum of learning is required to be more than the discrete learning episode and often autonomous learning expected during an experiential episode, are clearly examples of complexity. The following quote is a good example of how neighbours are expected to exchange meaning to achieve a goal that is greater than the sum parts.

> *We basically for each ANMC competency we had to design an objective that would help us achieve that competency which doesn't sound as complicated as it should have been but the expectation, I don't know whether it was … the clinical facilitator from the hospital who was employed by (omitted) expectations, were enormous (Q9P13)*

While Davis and Summara (2006, p6) identify that '…teacher-learner relationships', such as that between tutor and student, are an example of complex phenomena they are candid to identify that Complexity theory should not be regarded as an all insightful *metadiscourse*. In this regard the authors suggest that the place of constructivism has been misrepresented in debate regarding education because '…constructivist discourses are theories of learning and they should not be construed

as theories of teaching' (Davis & Summara 2006, p115). Davis and Summara (2006) do not however dismiss outright the contribution of constructionism or constructivist approaches and rightly so. The primacy attributed by Dewey to the role of experience in learning has and should remain a comfortable principle for those engaged in a practice profession such as nursing. Students may not reflect on the primacy espoused by Dewey during placement but in their own way are champions of the principle.

> *I found them (placements) really positive. I don't know, you're always learning everything all the time whatever ward you go to there's always something that you haven't seen before or something that you haven't done. There's nowhere I have been that I haven't learnt anything from or that hasn't been a positive learning experience (Q4P12)*

Cohen, Manion and Morrison (2011, p29) summarise that Complexity theory places an emphasis on '…networks, linkages, holism, feedback, relationships and interactivity in context'. How is it, that students learning similar content and working towards the same professional competency standards can have such distinct outcomes considering the differences in their clinical placement experiences? Donnelly and Wiechula (2012) argue that the clinical placement with its networks, relationships and interactivity is a setting that represents the dynamic and interactive systems typical of complex systems. It remains an interesting question as to how both educationalist and clinical teaching staff regard the complexity of clinical placement. Benner et al. (2009, p95) describe that effective nurse educators can guide students '…toward a sense of salience' where an approach to questioning pre and post placement experience can help the students to make sense of their learning. This is an important attitude because it does not attempt to control the complexity of the placement experience; rather this approach enables students to be more ready to learn from what it is that they do see. Clearly there can be no assumption that significant learning will

occur through some form of osmosis and that simply placing students in the 'experience' will translate to scholarship. Some further characteristics of complex systems that Clancy, Effken and Pesut (2008) describe as self-organisation, emergence, nonlinearity, chaos and turbulence also mirror the clinical placement experience described by the participants. Each characteristic is consistent with the case study findings. Self-organisation indicates that the actions of autonomous agents (students) who start to interact with complex systems come to be '...interlinked and co-dependent' (Davis & Summara 2006, p5). Those participants who maintained the same clinical tutor throughout their program described a link between themselves and the representatives of the system, the tutors. As students *emerge* from the complexity of placements, that may or may not be suitable learning sites, they have the potential to learn more than the situation at hand offers. *Nonlinearity*, an unequal stimulus and response effect, is present in those cases where discrepancy exists between similar placement durations and different educational outcomes. *Chaos and turbulence* from which complexity emerges asks educators to appreciate the dissonance of new learning environments, the transition between being responsible and not responsible and how poorly timed or indeed absent feedback will contribute to poor learning outcomes. If clinical education is not able to control the 'chaos' of the experience, energy should be directed to appreciating the complexity of it.

The importance of considering the role of complex systems and experiential learning is to conceptualise how an understanding of both can inform smarter curriculum design and ideally more effective use of clinical placement. While there are significant studies and papers examining specific aspects of experiential learning there are few that examine how the overall placement experience contributes to the overall

learning of nursing students. The place of confidence and the construct of knowledge are aspects of ontology and epistemology suggested by this study. In respect of epistemology, nurse educators often have discrete measures of 'competence' such as skills checklists and examinations of nursing knowledge. There are also measures of critical thinking and self-esteem and even some approaches to measuring confidence, a somewhat more elusive and esoteric concept particularly in respect of the internal transfer of knowledge. The evidence above has suggested that the deposit (and effective learning) of a nursing student into a complex system requires adaptiveness on the part of the student. If this property or attribute is not present in students how will they survive in a complex system? How do they acquire knowledge and skills to meet learning outcomes that are greater in scope than the opportunity afforded by a four week placement in one specific ward setting? Considering the case descriptions above there are times when placements despite being poor learning experiences may still inform a greater component of internal intrapersonal development and growth.

6.2.3   Reconstructing clinical placement experience using complexity

Perhaps one of the first issues to inform nursing curriculum and the student experience could be a frank discussion that the learning environment is complex and unlike anything they have experienced before. The preparation of students, the design and construction of new assessment, evaluation and teaching techniques within the clinical environment may be an outcome of embedding Complexity theory.

Students would be prepared for placement experiences with skills to adapt to situations, recognise dissonance and be prepared to accommodate and accept the dynamic nature of the learning environment around them. Complimentary to this

suggestion is the concept of formation proposed by (Benner et al. 2009, p177) who describes that to become a nurse, students develop '…knowledge, skilled capacities and insights into the notions of the good that are central to nursing practice'. Novel curricula and clinical placement models informed by complexity would place greater emphasis on the way in which students are prepared for placement so that meanings and intents can be incorporated into their learning.

The design and construction of assessments using Complexity theory would acknowledge a renewed emphasis on feedback which Mason (2008b,p45) identifies as having '..an immensely powerful effect on learning'. The cases above report inconsistent and unstructured mechanisms for feedback throughout their placement experience. In recognition that placement is a complex issue, the role of feedback becomes even more important as students are unlikely to navigate through a placement without support and guidance. The example is offered of a student who completes a falls assessment score sheet on placement, a task that may be a limited learning opportunity. The presence however of a skilled educator brings so much more to the assessment by encouraging the student to look past the proforma to the person it concerns. Teasing out the assessment to embrace a wider more complex perspective recognises the role that assessment can play in learning.

Evaluation of clinical placement is perhaps the most challenging and yet rewarding opportunity for considering Complexity theory in nursing education. Currently evaluations of clinical placement might focus on one or two aspects of the experience and can be directed at students or venues in the form of questionnaires or surveys. The concern when an isolated perspective is taken is that the evaluation is by default

reductionist and by implication dismisses what is complex. Using this logic it could be argued that that no one evaluation approach would be suitable and that a multiple perspective of evaluation is required. This suggestion embraces two important facets of Complexity theory. The first facet to consider is that a complex system continues to evolve until a new or unexpected stimulus, property or event causes it to grow in a particular direction (Mason, 2008a). The evolution of simulation technology in nursing education could be considered a recent stimulus that has had an influence on the preparation of students for clinical placement. Certainly from the participant's unprompted descriptions of simulation it was an issue they found important to relate to their reflections of university training. Secondly Mason (2008b) describes a principle associated with complex systems, *lock in*, which relates to how complex systems maintain a forward moving momentum and consequently, development. Complex systems or institutions that have insight to their structures, through the use of evaluation, and are able to be adaptive and are more likely to build on their inherent strengths. Conversely institutions that lose perspective by neglecting evaluation for example may lose momentum and risk not moving forward or being able to respond to new challenges.

This study has argued that a range of conditions impact and influence the development of nursing students. While universities may address many of these conditions in a variety of curricula, further integration of Complexity theory into programs requires a challenge to be issued to educators. As a non-linear concept the allocation of a minimum number of hours for students to acquire a range of skills, knowledge and attributes is an understandable though arbitrary response to managing a complex resource. This case study has suggested that while important the duration

of placement is only one component of experiential learning. It may be that providing consistent skilled educators to provide feedback, assess confidence and assist students to steer their way through clinical placement and maximising experiential learning opportunities may be a more effective foundation for learning than assigning an minimum quota of hours. New insights to the essence of clinical placement and its role in preparing nursing students are most welcome in a time of significant pressure on clinical venues.

6.3 Policy implications

6.3.1 Constructing a conceptual model for clinical placement

One of the challenges for designers of innovative nursing curricula in Australia is noted by Grealish and Smale (2011, p51) as a '...lack of consistency in curriculum design' especially following the transfer of primary responsibility for nursing education from hospital to tertiary education. As a member of a team of academic staff that are responsible for curriculum design and review, the researcher has found that the role of didactic, classroom teaching and pedagogy on the 'uni' side is often well supported with literature, text books, training courses and insights from other disciplines. It is suggested however that the component of experiential learning within the same literature often receives far less theoretical underpinning. The case study findings above have been brought together into a conceptual framework to guide the integration of clinical placement within nursing curricula. Conceptual models are described by Bernard and Ryan (2010, p121) as '...simplifications of complicated real things'. A three stage process to the development of a conceptual model includes the identification of key concepts, finding a way to link key constructs and subjecting the model to testing (Bernard & Ryan 2010). The following conceptual model (Figure 15)

is the culmination of each aspect of the thematic analysis, the qualitative comparative analysis and existing literature.

Figure 15 - Conceptual Model - A mechanism of clinical education
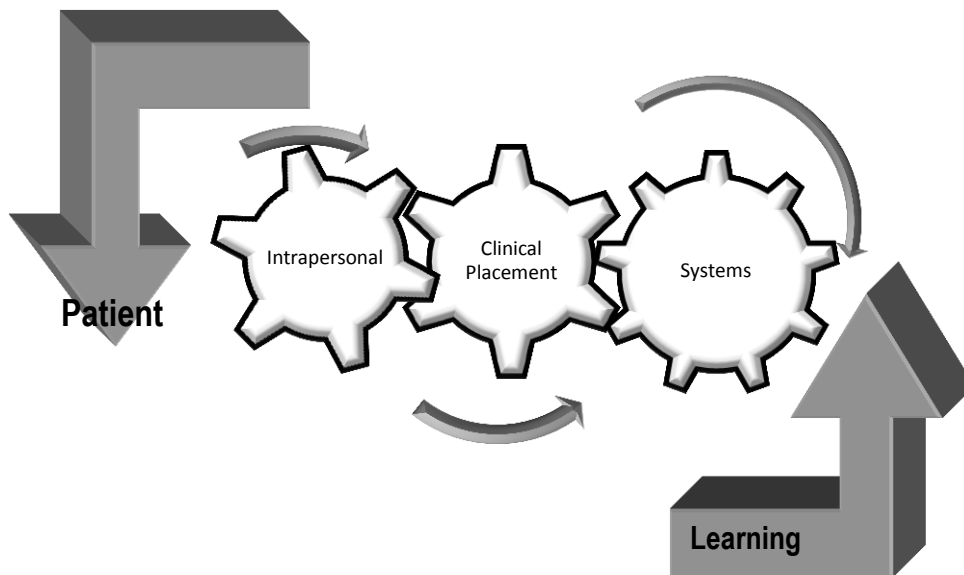
What became apparent throughout the study was that the participants who provided a high number of interventions had a range of personal qualities or opportunities that suggested they benefitted from their clinical placement experiences. These qualities or opportunities can be considered drivers of learning and it is suggested they fall into one of three themes represented by the cogs above. The cogs which drive the mechanism towards learning and patient care include intrapersonal learning, the clinical placement and the setting or system in which the learning takes place.

The Intrapersonal dimension (cog) of learning to become a nurse includes the opportunities to develop confidence and if possible assume a level of real responsibility for patients. Students need to recognise the benefit of their placement

experience and if unable to achieve this, need to have expert guidance to recognise what learning is emerging from their experience.

The clinical placement cog centrally situated which could also be labelled 'interaction with the patient' is ideally one characterised by reflective practice, opportunity, time and exposure. It is suggested that someone from outside of nursing education would find it surprising that a graduate of a three year baccalaureate nursing program, did not have any opportunity during their education to perform a wound dressing, arguably a core nursing skill. The expectation of graduates to provide a level of care to a range of fundamental or basic nursing care issues must be complemented by opportunities within the clinical placement experience. The experiences of participants within this study suggest there are some fundamental care interventions that are not experienced or even observed by students on placement.

The final cog of the mechanism, the System, requires insightful and consistent clinical supervision, consistent placement opportunities and models and enough capacity to vary placement duration for students to achieve their learning goals. The System is inclusive of all the university, clinical settings and regulatory authorities that determine the structures around clinical placement. The System has great potential to reduce the dissonance caused by the tension and financial hardship of attending placement. A simple bursary to assist with attending clinical placement may not only improve student learning but may be paid for many times over by a reduction in the high attrition rate common to the nursing profession. The System needs to develop and provide consistent clinical education for staff that provide students with support, time and opportunities to develop knowledge.

In a conceptual model the links between the concepts are often represented by lines however the mechanistic model above reinforces the need for each component to articulate smoothly. When each cog works efficiently, the movement is towards a satisfying and useful clinical placement and a better prepared university graduate. The case study findings however suggest that when one or two cogs are not turning the remaining gear needs to work harder again. Consider Case 13 who felt unprepared through the lack of clinical placement and reported negative experiences associated with her clinical supervision. To drive the learning mechanism, her capacity to observe and critique the nursing practices she saw on placement suggests an intrapersonal quality that enabled her to overcome the shortfall of the systems issues around her. It is possible that most of the sources of dissonance in experiential learning arise when the mechanics of the student placement model turn poorly or not at all.

To test the integrity of the conceptual model suggested above a number of cases have been selected to challenge some of the assumptions put forward. This examination provides for what Patton (2002) describes as a form of analytic induction or a way of examining preconceived hypotheses. This is a final test of the applicability of the conceptual model. The selection of the cases to test the conceptual model was based on those with a particular richness in their narrative about their clinical placement experience and a combination of positive and negative QCA outcomes.

Case 1

When asked to describe her experience of university, Case 1 suggested that it was,

> *not that good, I think they should bring back hospital based training'(Q1P1).*

Case 1 identified that she was unprepared for commencing work as a registered nurse and despite having some opportunities to care for patients during her clinical placement described only five interventions for pressure area, falls and pneumonia. Considering each element of the conceptual model, Case 1 nominated her own intrapersonal challenges, described a system that did not provide for her enough duration of placement or provide enough feedback to her development and progress. One positive included her experience of excellent hospital staff who taught her while on placement. Case 1 is representative of a student caught in the gears of the learning processes around her. The implications of this bind may well have impacted on her development and ability to provide a level of patient care as a new registered nurse. Indeed there is an underlying sadness and poignancy to her reflection of commencing work as a registered nurse,

> *I'm just learning everything as I go along pretty much though the staff members here are really helpful here though…. .there's just quite a lot I don't know but I guess that why I ask questions*

Case 4

For Case 4, each cog of the conceptual model can be related to her placement experiences. Nominating placement as the most significant aspect of her progression to being a registered nurse, hers was also one of the longest placement durations of over 1300 hours across three years. Case 4 offered detailed reflection on her capability as a commencing registered nurse. Her personal insights to the nurse she wanted to be, recognition of good skills and even her arrival at a comfort zone during

her final year of university contrasted against her hesitation in accepting the responsibility of being a registered nurse. Her most significant concern about the program of study itself was the disruption she felt at having a change from her initial clinical tutor. The loss of a consistent and supportive relationship throughout the developmental aspect of her learning reinforces the importance of a relationship that positively influences learning.

Case 10

With the equal highest amount of interventions of eleven, Case 10 represents the smoothest articulation of each cog of the conceptual model. Her intrapersonal insights and her exposure to a range of experiences in the clinical placement are well described,

> *In first year, my first placement there was a lady she was very old, 98 or something, who got a pressure ulcer on her foot and its wasn't there when she got in she got it in hospital. I remember very clearly there was a lot of drama around that and people said she should never have got that didn't have regular pressure area care, she wasn't turned enough, she didn't have a nimbus mattress. I remember that, kind of taught me to think about all that kind of stuff, think about the dressing that needs to be done think about how important to record positions changes (Q6P10)*

Other benefits identified by Case 10 included a gradual build-up of skills as a result of consistent and supported clinical placement and constant access to the same clinical tutor across the three years of her program who she described as more of a friend or colleague, rather than someone telling her what to do. While the image of cogs turning in unison is a somewhat crude metaphor it is a vision that brings together the findings of this study in a way that links with some logic, the components of clinical placement. The result may be to reflect on all the facets of the placement experience to ensure nursing education maximises the student experience.

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6.4 Conclusion

A cross case report is a way to examine what patterns may be found between various groups of cases. A cross case examination of the participants considered a number of issues using a pattern matching technique. The advantage of a pattern matching technique is to quickly allow pattern matching between a theorised proposition and an empirical one. It is important that as part of the pattern matching process challenges in the form of alternative cases are considered. For example it was clear that some cases did not rely on the duration of placement as the sole condition to indicate the number of interventions provided by graduate nurses. Interplay of different conditions needs to be able to account for those cases that sit outside of a particular pattern. These cases represent the complexity of the experiential outcomes expected of clinical placement. On the basis of this finding an argument has been made for re-visioning the role of placement within a framework of Complexity theory. The adoption of an alternative theoretical position has also provided for a conceptual model to be put forward that may be useful for those institutions and organisations that influence not only the allocation of placement but a number of other important conditions.

7 Chapter 7 - Conclusion

It is reasonable to suggest that the role of clinical placement in Australia is under the greatest degree of scrutiny since the advent of tertiary education for nursing. The recent establishment and subsequent disbandment of Health Workforce Australia, a federal government agency with a primary role in the clinical placement training of the next generation of health care professionals, has sharpened this focus. Similarly the introduction of national regulatory and accreditation frameworks for the nursing profession in Australia have indicated a renewed emphasis and critique on the design and implementation of curricula. The timing of research examining the relationship between clinical placement and learning outcomes and patient care is timely and necessary. Nursing education is currently caught between demands of compliance and vision. The health care institutions of the day demand graduates able to provide care of the here and now, to be competent with skills and knowledge and to ensure no further harm or suffering comes to those in their care. The broader ontological vision of universities are to ensure a graduate who forms attributes such as problem solving, critical thinking, clinical reasoning and autonomy, attributes that may not be as apparent in the 'simple' act of preventing a fall. This study has presented research that indicates while compliance and vision may be difficult to define with certainty, as concepts they should not be considered exclusive of each other. The role of clinical placement often considered a vital component in the education of student nurses has been subject of a number of studies. Few studies however have examined the combination of conditions that contribute to the effective learning of students and patient care arguably because of the complex variables involved. The use of a case study methodology in this study is unique in addressing the relationship between the

development of skills and knowledge of students and their experience of clinical placement. Using a number of common nursing care interventions, pressure area, falls and pneumonia a case was constructed to establish what conditions might influence the acquisition of student nurses skills and knowledge. Each study participant completed surveys and interviews to illustrate their skills, knowledge and experiences of placement during their university education. This examination, to consider the influence on student learning and nursing practice has been directed to a theoretical level of generalisation, not statistical. Generalising from the cases within, the unique contributions of this study to the domain of nursing education, are summarized as follows.

The duration of clinical placement is an important influence on students developing confidence and having a sense of preparation for nursing practice in an acute care setting. The duration of placement however is not the sole factor in the development of graduates skills and knowledge. Rather a combination of conditions such as consistent clinical tutor support, enabling students to identify the benefits of placement and providing effective feedback, contribute to the development of a graduate nurse.

The application of qualitative comparative analysis (QCA) to an aspect of nursing education and clinical placement has not been described previously in any nursing literature. The potential for QCA to address many of the small N studies required to further the understanding of clinical placement, is timely and necessary.

The identification of different conditions that contribute to higher levels of students development highlights the multidimensional nature of clinical education. A theoretical framework that articulates with this nature and one which may stimulate newer models of curricula is Complexity Theory. This study has identified that the interplay of conditions concerning clinical placement are emergent and chaotic. There is an opportunity to develop models of nursing curricula that accommodate, rather than control for, this complexity.

The demand for a clearer understanding of the role of clinical placement and nursing education is pressing. Pinchera (2012) describes alarming attrition rates from nursing by new nursing graduates in the United States of between 60 and 75% within the first two years of commencing employment. Pinchera (2012) also suggests that the level of attrition has changed little in the last twenty years. Gaynor et al. (2007) warn that a paucity of evidence exists to describe the demographics of the future Australian nursing workforce. The community's response to similar losses of new doctors, two years out from graduation would likely be far more vocal. The United Kingdom experience is that the annual cost for providing placement experience for students in health oriented professions is considerable at £4 billion (Williamson et al. 2011). Designers of future nursing curricula will need to consider not only the educational goals of clinical placement but also the financial implications of costs associated with particular models of education.

It is clear that the pace of change in the technological and cultural expectations of health care requires a graduate that will be not only work ready but future proof, able to accommodate the inevitability of change. This study has presented a snapshot in

time of attitude, capacity and competence and shown that there are some conditions that contribute to a pattern of student development. The key term here is 'patterns' where the role of nursing education research examines the processes that lead to positive learning outcomes. Simultaneously the insights afforded by Complexity Theory may contribute to innovative curriculum design and a greater understanding of what exactly is the role of experiential learning in nursing. While Davis and Sumara (2006, p135) are perhaps too harsh in their commentary '…For a teaching species in a complex world, it is ridiculous to conceive of education in terms of a top-down, ends driven structures', they are circumspect that changes in the visioning of contemporary curricula are timely. The allocation of a minimum number of placement hours as opposed to the allocation of a minimum set of learning outcomes is one example of how to drive learning from a bottom up perspective.

7.1.1   The value of case study

This study was developed as a response to a topic that for many years has defied typical approaches and research designs. Case study is not an easy or typical research methodology as the researcher walks a balance between the creativity and rigour of process and design while maintaining a perspective that is both intimate and distant. Case study is however appropriate for small N designs where the goal of analytic or modest generalisation is to bring some insight to situations where the logical links between phenomena may resist description. This study has examined the suitability of case study methodology to address a complex issue with many variables. Case study has distinct advantages for such research especially in the intimacy possible between researcher and participants. This study has throughout placed a great degree of transparency especially through the analysis of the cases at hand to arrive at a modest though insightful level of generalisation. The graduate nurses as the participants of the

study are able to and do provide a level of care for the patients within their care. However the skills and knowledge of care interventions provided by graduates from differing clinical placement experiences are variable. While the variation is slight between some participants in other cases it is significant. The implications for patients who are missing a range of nursing interventions that may reduce their risk of harm in an acute care setting, is likely to have significant implications for adverse events and funding costs. While an emphasis on a narrow range of clinical interventions provided by graduates may be perceived by some as a contracted reflection of graduate ability, it is suggested that the outward expression of what it is to *be* a nurse are the actions which determine the health and safety of patients. Indeed one of the advantages of case study methodology is in the flexibility to examine both nursing practice and then peel away at the detail within. It is clear from the cases presented that graduates value dearly the clinical placement opportunities they receive however some are more adept to generating learning from their opportunities than others.

The findings of this and other studies have advanced the evidence to the point where curriculum designers could implement a number of conditions to maximise the value of placement. The provision of seminars to develop confidence may improve the level of preparation of new graduates. A renewed emphasis on reflection so that students understand and can articulate what benefit they have gained from a clinical placement will be useful. A more consistent supervisory framework can be developed to maximise the benefit of supportive relationships and effective feedback and to reduce those elements that contribute to dissonant learning environments. The role of simulation in nursing education will be important in this regard however as Hall (2009) warns this is unlikely to be the panacea for future challenges. A consistent

clinical tutor relationship within placement opportunities could contribute to a sense of belongingness which Levett-Jones et al. (2007) identify as necessary for effective learning. If universities and students are expected to gain more from limited experiential opportunities these considerations need to be reconciled and much more attention needs to be devoted to the combinations of conditions that reflect the multidimensional nature of experiential learning. The conceptual model within may be helpful to those considering the redesign of nursing curricula.

7.1.2 The suitability of QCA for nursing research

Rihoux and Ragin (2009, xviii) note that QCA is an example of a technique that allows '… systematic cross-case comparisons, while at the same time giving justice to within-case complexity'. This study is unique in that despite a search of all associated education, research and nursing databases, QCA has not been reported as a small -*N* analysis technique for examining the role of clinical placement in nursing education. In fact QCA has very little exposure in any aspect of nursing research or literature. This is despite the promise of an analysis technique that encourages intimacy with data, accommodates qualitative and quantitative data and articulates neatly with case study analysis. The significant insight to the combinations of conditions described herein, are excellent material for further examination of nursing education. It is clear that while complex questions in nursing often defy typical analysis, further comparative studies using QCA may contribute to a more rigorous defence or assessment of curricula models than previously possible.

7.1.3 Limitations of the study

One of the limitations of this study may be the lack of participant observation, described as an option for data collection within case study research (Yin 2009). The decision to not pursue this aspect of data collection was however made with careful consideration. Patton (2002, p267) who describes a number of variations to guide the conduct of observational research warns that '...the degree of program involvement to the experienced may not be the way things actually turn out'. As a researcher responsible for teaching some of the study participants, it was clear from the very first research design that a particular emphasis on transparency of data collection and analysis would need to be maintained. It was essential to remove any risk of interpreting the participant's interventions for patients, as an artefact of previous impressions and assumptions. As the emphasis was on the provision of nursing interventions and not towards an assessment of the quality of those interventions, the objectivity offered by the patient documentation was thought to be a way to reduce this risk. For a number of reasons, recording the clinical care provided by junior nursing staff raises other concerns. Among these the role of the more experienced nurse researcher to intervene if care becomes compromised while ethically correct may have compromised data collection. The impact on the patient who learns that their nurse is under observation may also affect the therapeutic nature of their relationship. The challenges to the confidence of the graduate nurse as the focus of a research study and the difficulties of being close enough to record observations of a new independent graduate are significant.

A further possible limitation to the study is the emphasis on acute care nursing practice. While it is acknowledged that not all graduates transition to an acute care

hospital setting, a recent study of graduate and registered nurses in Australia identified that 81.1% work within an acute hospital setting (Huntington et al. 2012). That said nursing care directed to falls, pressure area and pneumonia are of significant importance to the aged care sector and to community nursing in general, suggesting skills and knowledge of each could still be considered essential. It would be an interesting contrast to this study to repeat a similar investigation of the skills and knowledge of those graduates who transition to aged care, community or mental health nursing. While the participants descriptions of their university experience are a rich and dynamic source of data further studies may benefit from a more formal examination of the various curricula under which they study.

7.1.4   Dissemination of findings

The time between data collection, analysis and write up of the findings has enabled the researcher to present at a number of conferences about the process behind case study methodology and QCA (Appendix 7). The response to each presentation has been very positive and reassuringly significant interest from others involved in nursing education, has contributed a sense of timeliness. The submission and acceptance of two publications to international journals as a result of this study, Nurse Education Today (Appendix 8) and Nurse Researcher (Appendix 9) has provided an opportunity to disseminate findings and discussion to a global readership.

7.1.5   Recommendations for further studies

This study has suggested a number of differences between graduates and their abilities to provide a range of care interventions sensitive to nursing practice. There should be no reason to avoid studies, questions or scrutiny regarding the link between education

and nursing care based on concerns of might be considered reductionist research. Rather the very complexity of the issue should serve as a significant attractant to researchers armed with alternative methodologies and techniques for analysis.

It would be an interesting and useful case study that considered the use of the Structured Observation and Assessment of Practice (SOAP) model as a data collection tool (Levett-Jones et al. 2011). Having a consistent and validated approach to the observation of nursing practice would be consistent with the goal of this study to consider alternative measures of the effectiveness of nursing education. While the SOAP tool would need to be adapted for application from student to graduate or registered nurse, the value of such insights could be substantial. A similar tool, Assessment in Clinical Education, developed in Sweden (Ulfvarson & Oxelmark 2011) could also be useful to gauge the quality of nursing care interventions provided by new graduates. As well as contributing to innovations in nursing education and curriculum design, the recent development of tools to assess the nursing care provided by students and new graduates should encourage greater awareness of safety as graduates shore up their skills and knowledge. The arrival of new graduate interns in July each year into the United States medical system has been thought to contribute to the 'July Phenomenon' (Phillips & Barker 2010) where a sudden increase in patient harm occurs as interns adjust to the reality of work. There have been no studies examining a similar phenomenon associated with the arrival of new graduate nurses to the Australian ward setting.

This study has engaged in the search for the logical links between education and nursing practice, a question that has continued to elude description let alone

examination over a period of many years. The application of a distinctive methodology in case study and the iterative nature of analysis methods such as QCA have re-examined the relationships between clinical placement experience, duration and nursing practice. A detailed examination of a small number of cases has enabled a moderate generalisation of a theoretical position that the duration of placement is important to the outcomes of students learning. It is important to qualify this claim however by identifying that longer placement duration is often a vehicle to deliver other essential aspects of effective placement. The complexity of placement is represented by the appreciation that the goals and the mechanism of experiential learning are multidimensional. Having a range of mechanisms to drive learning and more importantly to assist with the design of curricula and the integration of a finite resource will be important to the future of nursing education. There should be no doubt that the provision of placement without a concomitant understanding of the complexity of the placement structure, relationships and conditions will likely result in ineffective use of an increasingly scarce resource. It is perhaps appropriate to conclude this study with a final observation of complexity by Davis and Summara (2006,p4) who succinctly and elegantly propose, '...the universe changes when a thought changes'.

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Appendices

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     Simplifying assumptions [1] outcome no R

     Simplifying assumptions [1] outcome with R

     Simplifying assumptions [0] outcome no R

     Simplifying assumptions [0] outcome with R

Appendix 7 - Conference Presentations associated with study

Appendix 8 - Journal article (title page only) - *Nurse Education Today* 'Case study methodology and clinical placement; a complex affair (Vol 32, No 8 p 873-877)

Appendix 9 - Journal article *Nurse Researcher* permission to include title page not approved by publisher

Appendix 1 - Logic Grid PhD -Donnelly

A	B	C	D	E	F	G
Nursing	Education	Clinical Placement	Nurse sensitive outcomes	Experiential	Pedagogy	Case Study methodology [tiab]
Nursing [mh]	Education Nursing*	Preceptorship/methods*		Learning experiential*	Teaching / methods*	Nursing research methods*
Nursing [tiab]		Students nursing*		Kolb's theory	Models / education	
Nurse*[tiab]		Clinical competence*				
		Clinical skills				
		Clinical practicum				
		Fieldwork experiences				

PuBMed search 6/08/2010

Nursing AND Education AND Clinical Placement •

MeSH terms

Clinical Competence*

- Education, Nursing, Baccalaureate/methods*
- Nursing Staff*
- Preceptorship/methods*
- Students, Nursing*
- Teaching Materials*

Nursing AND Education AND patient outcomes

- Education, Nursing*
- Health Knowledge, Attitudes, Practice*
- Humans
- Intervention Studies
- Interviews as Topic
- Nurse's Role*
- Nursing Care
- Questionnaires
- Risk Factors

Nursing AND Education AND Experiential

- Empathy*
- Focus Groups
- Holistic Nursing/education*
- Middle Aged
- Program Evaluation
- Spirituality*
- Voluntary Workers*

Nursing AND clinical placement AND pedagogy

- Communication
- Education, Nursing/methods*
- Faculty, Nursing
- Feedback, Psychological
- Interprofessional Relations
- Needs Assessment

- Students, Nursing/psychology
- Teaching/methods*

Nursing AND nurse sensitive outcomes AND clinical placement

Nil found

Nursing AND nurse sensitive outcomes
- Hospital Mortality
- Inpatients/statistics & numerical data*
- Nursing Staff, Hospital/statistics & numerical data*
- Nursing Staff, Hospital/supply & distribution
- Outcome Assessment (Health Care)
- Postoperative Complications/nursing
- Quality Indicators, Health Care/statistics & numerical data
- Quality of Health Care*/statistics & numerical data
- Regression Analysis

Nursing and Pedagogy

Career Choice
- Curriculum
- Education, Nursing, Baccalaureate/organization & administration*
- Humans
- Licensure, Nursing
- Models, Educational
- Models, Nursing
- Psychiatric Nursing/education*
- Psychiatric Nursing/trends
- Remedial Teaching
- Student Dropouts/education
- Student Dropouts/statistics & numerical data

Nursing AND case study methodology

Data Collection/methods

Education, Nursing, Baccalaureate

Nursing Research/education

Nursing Research/methods*

Organizational Case Studies/methods*

Preceptorship

Qualitative Research

Research Design

Teaching/methods

Appendix 2 - Data Collection Forms A - D

FORM A

Interview date   Case number

Please circle all responses:

1. What was the total amount of clinical placement time you spent as a student during your training? (In weeks)
1-6   7 – 12   13 – 20   21 – 27   28 – 33   >34

2. What was the total amount of clinical placement time you spent in the acute care hospital setting? (in weeks)
1-6   7 – 12   13 – 20   21 – 27   28 – 33   >34

3. Overall how beneficial was your clinical placement experience to your learning?
1   2   3   4   5   6
Very beneficial   Not beneficial

4. On completing university how prepared were you for work in the acute care clinical setting as a registered nurse?
1   2   3   4   5   6
Well prepared   totally unprepared

5. Do you recall lectures or tutorials in your course that described nurse sensitive patient outcomes?
1   2   3   4   5   6
Vivid recall   no recall

Interview date		Case number	

---

6.   During your clinical placement experience did you have an opportunity to care for patients who had a pressure area?

1	2	3	4	5	6
Many times			occasionally		never

---

7.   During your clinical placement experience did you have an opportunity to care for patients who had a urinary tract infections?

1	2	3	4	5	6
Many times			occasionally		never

---

8.   During your clinical placement experience did you have an opportunity to care for patients who had suffered a fall?

1	2	3	4	5	6
Many times			occasionally		never

---

9.   During your clinical placement experience did you have an opportunity to care for patients with pneumonia?

1	2	3	4	5	6
Many times			occasionally		never

---

10.   Were the preceptors within your acute care clinical placement?

Permanent facilitators from the university ☐

Casual teaching staff employed by the university ☐

Hospital staff ☐ Academic staff ☐

Other ☐ Combination of different preceptors ☐

No preceptors were provided ☐

FORM B

Interview date

Case number

The following questions will be asked of all graduates. The verbal responses will be recorded onto audio tape (with permission):

1. How would you describe your experience of studying at university?

Interview notes:

2. Did you have a clinical placement within the hospital you are currently employed in? How important was this for your transition to working in this institution?

Interview notes:

3. What do you believe were the strengths and weaknesses of your program of study?

Interview notes:

4. How would you describe your clinical placement experiences?

Interview notes:

5. How prepared were you for work in the acute care clinical setting as a result of your university education?

Interview notes:

6. Can you describe an instance during your clinical placement where you cared for a patient with a pressure sore, pneumonia or had suffered a fall?

Interview notes:

7. Can you describe the nature of the interactions between yourself and your clinical facilitator during your clinical placements? Were you required to produce reflective journals or similar to support facilitator interactions?

Interview notes:

8. How would you define clinical competence?

Interview notes:

9. During your university training how were you assessed for clinical competence?

Interview notes:

10. What level and type of feedback did you receive during and after your clinical placements?

Interview notes:

11. What do you believe were the strengths and weaknesses of your clinical placement during your study?

Interview notes:

12. What institutional or ward education have you received since starting work in this institution?

Interview notes:

FORM C

Interview Date ☐☐☐☐☐☐☐☐   Case number ☐☐☐☐☐☐☐☐

Data Collection - NSPO's

Consider the following questions in relation to <u>falls</u>

1.   How would you rate the risk of a patient suffering a fall within an acute hospital setting?

1   2   3   4   5   6

Easily avoided   difficult to avoid

2.   From the following list please rank the issues you believe contribute to the risk of a fall.

<u>Medications</u>

1   2   3   4   5   6

Not important   very important

<u>Previous history of falls in hospital</u>

1   2   3   4   5   6

Not important   very important

<u>Elimination (toileting) patterns</u>

1   2   3   4   5   6

Not important   very important

<u>Mobility</u>

1   2   3   4   5   6

Not important   very important

<u>Use of lifting devices</u>

1   2   3   4   5   6

Not important   very important

Case number

3.   What specific interventions have you provided for patients today that have reduced their risk of a fall?

4.   In relation to the management of a patient at risk of fall please rate your skills against the following criteria

Recognition of patients at risk of fall

1	2	3	4	5	6

Unskilled   Proficient

Use of hospital falls assessment forms

1	2	3	4	5	6

Unskilled   Proficient

Describing risk factors for falls

1	2	3	4	5	6

Unskilled   Proficient

Implementation and knowledge of fall prevention measures

1	2	3	4	5	6

No knowledge   Expert knowledge

Application or use of hip protectors

1	2	3	4	5	6

Unskilled   Proficient

5.   At what times when mobilising a patient do you believe patients are most at risk of fall?

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FORM C

Interview Date [ ]   Case number [ ]

Data Collection - NSPO's

Consider the following questions in relation to <u>pressure area care</u>

1.   Pressure ulcers are difficult to avoid during hospitalization?

1   2   3   4   5   6

Easily avoided   difficult to avoid

2.   From the following list rank the impact you believe each may have on the development of a pressure ulcer.

<u>Nutrition</u>

1   2   3   4   5   6

Not important   very important

<u>Anaemia</u>

1   2   3   4   5   6

Not important   very important

<u>Friction and shearing forces</u>

1   2   3   4   5   6

Not important   very important

<u>Incontinence</u>

1   2   3   4   5   6

Not important   very important

<u>Upper respiratory tract infection</u>

1   2   3   4   5   6

Not important   very important

313

Interview Date [   ]   Case number [   ]

3.   What specific interventions have you provided for patients today that have reduced their risk of a pressure ulcer?

4.   In relation to the direct management of pressure ulcers please rate your skills against the following criteria

Recognition of stages of pressure ulcer development

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

Use of pressure ulcer risk assessment scales

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

Dressing of pressure ulcers

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

Use of pressure relieving devices such as mattresses

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

5.   In relation to the indirect management of pressure ulcers please rate your skills against the following criteria.

Coordination or liaison with other members of the multidisciplinary team to address pressure area care.

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

FORM C

Interview Date ☐☐☐☐☐☐☐☐☐☐☐ Case number ☐☐☐☐☐☐☐☐☐

Data Collection - NSPO's

Consider the following questions in relation to hospital acquired <u>pneumonia</u>

1.   Pneumonia is difficult to avoid during hospitalization?

1   2   3   4   5   6

Easily avoided   difficult to avoid

2.   What specific interventions have you provided for patients today that have reduced their risk of developing pneumonia?

3.   From the following list circle the impact you believe each may have on the development of hospital acquired pneumonia.

<u>Nutrition</u>

1   2   3   4   5   6

Not important   very important

<u>Conscious state</u>

1   2   3   4   5   6

Not important   very important

<u>Enteral feeding</u>

1   2   3   4   5   6

Not important   very important

<u>Dysphagia</u>

1   2   3   4   5   6

Not important   very important

<u>Deep vein thrombosis</u>

1   2   3   4   5   6

Not important   very important

<u>Opiate administration</u>

1   2   3   4   5   6

315

Not important   very important

Interview Date   Case number

4.   In relation to the management of a patient with pneumonia please rate your skills against the following criteria

Recognition of patients at risk of pneumonia

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

Preventing nosocomial transmission of pneumonia

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

Auscultation of chest sounds

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

Teaching coughing and breathing exercises

| 1 | 2 | 3 | 4 | 5 | 6 |

Unskilled   Proficient

5.   Of the skills identified above, please rate from 1 (most important) to 4 (least important) which would you rate as most useful for preventing hospital acquired pneumonias

Recognition of patients at risk of pneumonia

Preventing nosocomial transmission of pneumonia

Auscultation of chest sounds

Teaching coughing and breathing exercises.

FORM D

Interview Date [   ]   Case number [   ]

1.   Graduate has documented information regarding NSPO's within case notes and other ward documentation as required

Always	Most often	Often	At times	No entry	Not applicable

2.   Documentary evidence of patient assessment regarding NSPO's

Always	Most often	Often	At times	No entry	Not applicable

3.   Documentary evidence of existing NSPO's is clearly identified

Always	Most often	Often	At times	No entry	Not applicable

4.   Graduate has documented care or management of pressure area

Always	Most often	Often	At times	No entry	Not applicable

5.   Graduate has documented pressure area risk score

Always	Most often	Often	At times	No entry	Not applicable

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6.   Graduate has documented care or management of pneumonia

Always	Most often	Often	At times	No entry	Not applicable

7.   Graduate has completed documentation regarding falls risk or management

Always	Most often	Often	At times	No entry	Not applicable

8.   Graduate has completed computer care plans to reflect care for NSPO's

Always	Most often	Often	At times	No entry	Not applicable

9.   Graduate has competed documentation around NSPO's in accord with hospital guidelines

Always	Most often	Often	At times	No entry	Not applicable

10.   Graduate has completed documentation in accordance with nbsa guidelines

Always	Most often	Often	At times	No entry	Not applicable

Appendix 3 - Participant information sheet

Hello,

This study concerns the nature of nursing education and the way in which different models of nursing curriculum prepare nurses for practice. Despite the shift of nurse training to the tertiary sector over twenty years ago, there remains debate about the manner in which nurses are taught to provide care at the bedside. Recently a number of indicators, known as nurse sensitive patient outcomes, have been established and can be related directly to nursing care. As a recent graduate of an Australian university, I am very keen to discuss with you, your interpretation of these indicators.

If you agree to participate, I will visit you at a prearranged date and time at your workplace, essentially at the end of a clinical shift (most likely an early shift). I will ask you to complete a small exercise that concerns the nurse sensitive patient outcomes and the care you provided for a patient or group of patients on that shift. Following this exercise I would like to interview you regarding your opinion of the nursing course you completed at university, especially in consideration of the clinical component of your course. I believe both components of this process will take a total of 30 – 60 minutes.

With your permission I would like to audio record this interview. As the primary researcher I am the only person who will have access to the audio recording. To conduct the exercise and the interview, a private room free of interruptions, will be sought from the hospital.

You will not be identified in any way within the study, data, discussion or any subsequent reports. It is important that you answer questions freely and with anonymity.

As a recent graduate of an Australian nursing course you have unique insights into the way knowledge provided within a university is transferred through you to the clinical setting. Your feedback is important as there are very few studies describing successful models of nursing curricula. This study is being conducted with graduates from a number of different Australian universities so you can be assured your contributions will become part of a larger picture of Australian nurse education.

For more information on this study please feel free to contact:

Frank Donnelly – PhD Candidate – Ph (W) 08 8303 3639

frank.donnelly@adelaide.edu.au

Dr Rick Wiechula – Principal Supervisor Ph (W) 08 303 4878

Appendix 4 - Consent Form

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

STANDARD CONSENT FORM

FOR PEOPLE WHO ARE PARTICIPANTS IN A RESEARCH PROJECT

I, ……………………………………………………………… *(please print name)*

1. consent to take part in the research project entitled: **How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and nursing practice**

2. I acknowledge that I have read the attached Information Sheet entitled: **How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and nursing practice?**

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

4. Although I understand that the purpose of this research project is to improve the quality of nursing care, it has also been explained that my involvement may not be of any benefit to me.

5. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.

6. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

7. I understand that I am free to withdraw from the project at any time.

8. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.

……………………………………………………………………………………...

(signature)   *(date)*

WITNESS

I have described to   …………………………………………………..*(name of subject)*

the nature of the research to be carried out. In my opinion she/he understood the explanation.

Status in Project**:** …………………………………………………………………….

Name: …………………………………………………………………….…

…………………………………………………………………………………..

(signature)   *(date)*

Appendix 5 - Participants responses to case study report

Participant 1

'The thesis was very concise and straight to the point. It is evident that the importance of practical hands on placements, make a big difference as opposed to uni lectures that students forget about any way. It was clear that students learnt more from physical experience and a good environment. It was also evident that there needs to be more of an emphasis on the basics of nursing such as pressure ulcers, falls risk and prevention and common infections acquired from the hospital setting. The emphasis on working as a PNA whilst study is evidence that nurses learn more from being exposed to real life situations. If you need more information let me know'

Participant 5

Dear Frank, sorry for delay in reply. Life seems to get in the way of best laid plans.

The fact that what I have read is chapter 5 makes me curious as to the other chapters, I fully support your attempts and focus to adapt the education of nursing students to continue preparing nurses for commencing their careers in a safe and effective manner. The difference in the amount of hours in a clinical setting astounded me. I would have thought that the more exposure the person has to clinical challenges the stronger the skills would be. It surprises me that uni`s don`t share this focus. From my experience and from absorbing information from those around me, the difference in exposure from one student nurse to the next is at times dangerous as students, or undergraduates, are sometimes exposed to critical care units such as Intensive Care or Emergency, however in other situations they are exposed to nursing homes and medical wards. Consistency in training nurses would be of great benefit.

As a nurse that had no exposure to really sick patients my knowledge and confidence in nursing these patients was limited and it has taken me many years to develop these post my diploma. I can see the difficulty in trying to define the abilities/attributes taught to students and to show the significance of such training in the clinical setting post study. I would definitely encourage further studies into best training practise and even a follow up study on the same nurses as to where they have gained these skills from throughout their career to perform the tasks outlined in your study. I believe the outcome of that study would be fascinating. It is hard to get an understanding of what senior staff think students need to know in comparison with what junior staff see as relevant for students. The goal posts are forever changing. Skills such as bed making and opening a sterile dressing pack (which were addressed at uni) lacked relevance in comparison to interpreting ecgs, blood analysis, deteriorating patients

I am rambling a bit and have plenty to say in support of more clinical based training in cooperation with hospitals is vital to ensure good nurses in the future. I will say that I applaud your work in this field and agree that more consistency is required as a starting point in nurse education so that students are coming out of universities on an even footing and so that practising nurses know how they were supposed to support the students, instead of it being some kind of chess game.

Goodnluck I'll sign off from here.

Appendix 6 - TOSMANA Reports

Settings:

Minimizing Value 1

including: no R

Data:

CASE	BENF	NSPO	PANW	FEED	HOSP	OUTC
1	0	1	0	0	1	0
2,10	1	1	1	1	1	1
5	1	1	1	0	1	0
8,11,13,14	1	1	0	0	1	1
16	1	0	1	0	1	0
17	1	0	1	1	0	0
18	1	0	1	0	0	1
19	1	1	1	0	0	0
20	1	0	0	1	1	0

Results:

Results: (all)

BENF{1} * PANW{1} * FEED{0} +	NSPO{1} * PANW{0} * FEED{0} * HOSP{1} +	BENF{1} * NSPO{1} * PANW{1} * HOSP{1}
(18)	(8,11,13,14)	(2,10)

Simplifying Assumptions BENF{0}NSPO{1}PANW{0}FEED{0}HOSP{1} +
BENF{1}NSPO{0}PANW{1}FEED{0}HOSP{1} +
BENF{1}NSPO{1}PANW{1}FEED{0}HOSP{0} +
BENF{1}NSPO{1}PANW{1}FEED{0}HOSP{1}
Number of Simplifying Assumptions: 4

BENF{1} * PANW{1} * FEED{0} +	BENF{1} * NSPO{1} * PANW{1} * HOSP{1} +	BENF{1} * NSPO{1} * FEED{0} * HOSP{1}
(18)	(2,10)	(8,11,13,14)

Simplifying Assumptions BENF{1}NSPO{0}PANW{1}FEED{0}HOSP{1} +
BENF{1}NSPO{1}PANW{1}FEED{0}HOSP{0} +
BENF{1}NSPO{1}PANW{1}FEED{0}HOSP{1}
Number of Simplifying Assumptions: 3

Settings:

  Minimizing Value 1

  including: with   R

Data:

CASE	BENF	NSPO	PANW	FEED	HOSP	OUTC
1	0	1	0	0	1	0
2,10	1	1	1	1	1	1
5	1	1	1	0	1	0
8,11,13,14	1	1	0	0	1	1
16	1	0	1	0	1	0
17	1	0	1	1	0	0
18	1	0	1	0	0	1
19	1	1	1	0	0	0
20	1	0	0	1	1	0

Results: (all)

NSPO{1}FEED{1} +	BENF{1}NSPO{1}PANW{0} +	NSPO{0}FEED{0}HOSP{0}
(2,10)	(8,11,13,14)	(18)

Simplifying Assumptions

BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{0} +
BENF{0}NSPO{0}PANW{1}FEED{0}HOSP{0} +
BENF{0}NSPO{1}PANW{0}FEED{1}HOSP{0} +
BENF{0}NSPO{1}PANW{0}FEED{1}HOSP{1} +
BENF{0}NSPO{1}PANW{1}FEED{1}HOSP{0} +
BENF{0}NSPO{1}PANW{1}FEED{1}HOSP{1} +
BENF{1}NSPO{0}PANW{0}FEED{0}HOSP{0} +
BENF{1}NSPO{1}PANW{0}FEED{0}HOSP{0} +
BENF{1}NSPO{1}PANW{0}FEED{1}HOSP{0} +
BENF{1}NSPO{1}PANW{0}FEED{1}HOSP{1} +
BENF{1}NSPO{1}PANW{1}FEED{1}HOSP{0}
Number of Simplifying Assumptions: 11

NSPO{1}FEED{1} +	BENF{1}PANW{0}FEED{0} +	NSPO{0}FEED{0}HOSP{0}
(2,10)	(8,11,13,14)	(18)

Simplifying Assumptions

BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{0} +
BENF{0}NSPO{0}PANW{1}FEED{0}HOSP{0} +
BENF{0}NSPO{1}PANW{0}FEED{1}HOSP{0} +
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BENF{0}NSPO{1}PANW{1}FEED{1}HOSP{1} +
BENF{1}NSPO{0}PANW{0}FEED{0}HOSP{0} +
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BENF{1}NSPO{1}PANW{0}FEED{1}HOSP{1} +
BENF{1}NSPO{1}PANW{1}FEED{1}HOSP{0}
Number of Simplifying Assumptions: 12

Settings:

  Minimizing Value 0

  including: no R

Data:

CASE	BENF	NSPO	PANW	FEED	HOSP	OUTC
1	0	1	0	0	1	0
2,10	1	1	1	1	1	1
5	1	1	1	0	1	0
8,11,13,14	1	1	0	0	1	1
16	1	0	1	0	1	0
17	1	0	1	1	0	0
18	1	0	1	0	0	1
19	1	1	1	0	0	0
20	1	0	0	1	1	0

Results:

Results: (all)

BENF{1} * PANW{1} * FEED{0} * HOSP{1} +	BENF{1} * NSPO{1} * PANW{1} * FEED{0} +	BENF{0} * NSPO{1} * PANW{0} * FEED{0} * HOSP{1} +	BENF{1} * NSPO{0} * PANW{1} * FEED{1} * HOSP{0} +	BENF{1} * NSPO{0} * PANW{0} * FEED{1} * HOSP{1}
(5+16)	(5+19)	(1)	(17)	(20)

Simplifying Assumptions

Number of Simplifying Assumptions: 0

  Minimizing Value 0

  including: with   R

Data:

CASE	BENF	NSPO	PANW	FEED	HOSP	OUTC
1	0	1	0	0	1	0
2,10	1	1	1	1	1	1
5	1	1	1	0	1	0
8,11,13,14	1	1	0	0	1	1
16	1	0	1	0	1	0
17	1	0	1	1	0	0
18	1	0	1	0	0	1
19	1	1	1	0	0	0
20	1	0	0	1	1	0

Results: (all)

BENF{0} +	NSPO{0}FEED{1} +	NSPO{0}HOSP{1} +	NSPO{1}PANW{1}FEED{0} }
(1)	(17+20)	(16+20)	(5+19)

Simplifying Assumptions BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{0} +
BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{1} +
BENF{0}NSPO{0}PANW{0}FEED{1}HOSP{0} +
BENF{0}NSPO{0}PANW{0}FEED{1}HOSP{1} +
BENF{0}NSPO{0}PANW{1}FEED{0}HOSP{0} +
BENF{0}NSPO{0}PANW{1}FEED{0}HOSP{1} +
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BENF{1}NSPO{0}PANW{0}FEED{1}HOSP{0} +
BENF{1}NSPO{0}PANW{1}FEED{1}HOSP{1}
Number of Simplifying Assumptions: 18

BENF{0} +	NSPO{0}FEED{1} +	NSPO{1}HOSP{0} +	PANW{1}FEED{0}HOSP{1} }
(1)	(17+20)	(19)	(5+16)

Simplifying Assumptions BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{0} +
BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{1} +
BENF{0}NSPO{0}PANW{0}FEED{1}HOSP{0} +
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BENF{1}NSPO{1}PANW{0}FEED{1}HOSP{0} +
BENF{1}NSPO{1}PANW{1}FEED{1}HOSP{0}
Number of Simplifying Assumptions: 20

BENF{0} +	NSPO{0}HOSP{1} +	FEED{1}HOSP{0} +	NSPO{1}PANW{1}FEED{0} }
(1)	(16+20)	(17)	(5+19)

Simplifying Assumptions BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{0} +
BENF{0}NSPO{0}PANW{0}FEED{0}HOSP{1} +
BENF{0}NSPO{0}PANW{0}FEED{1}HOSP{0} +
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BENF{1}NSPO{1}PANW{0}FEED{1}HOSP{0} +
BENF{1}NSPO{1}PANW{1}FEED{1}HOSP{0}
Number of Simplifying Assumptions: 20

Appendix 7 - Conference presentations during candidature

South Australian Nurses and Midwives Research Symposium

Oral presentation: Qualitative comparative analysis

May 2012, Adelaide - National Wine Centre

Faculty of Health Sciences Research Symposium

Poster presentation: Data Analysis for Case Study

Oct 2011, Adelaide -National Wine Centre

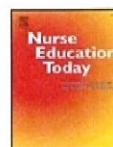**Nurse Education Today / Nurse Education in Practice (NETNEP) 3rd International Conference**

Poster presentation: How, What and Why: Case study methodology

April 2010, Sydney -Hilton

School of Nursing Research Symposia

- Parallels in curriculum evaluation and research - 2008

- Case study research - 2008

- Thematic analysis in case study research - 2011

Appendix 8 - Journal Article - Nurse Education Today 2012 Vol 32, no 8 (title page)

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Clinical placement and case study methodology: A complex affair

Frank Donnelly *, Rick Wiechula [1]

School of Nursing, The University of Adelaide, South Australia 5005

SUMMARY

Clinical placement is a valuable component of nursing education, helping students to authenticate, integrate and develop a range of nursing skills and knowledge. The diversity of nursing curricula throughout the world and the many models of clinical placement make this a difficult subject to research using typical qualitative and quantitative research methodologies. The potential for case study methodology to address the complexity of learning in the clinical environment is significant. This paper argues that Complexity Theory provides an interpretive paradigm that articulates well with case study methodology. This paper also provides an example of the development of a theoretical proposition based on pattern matching. Pattern matching is an approach to data analysis that encourages a consideration of predicted patterns with those that are empirically based.

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Introduction

Clinical placement is an integral component of nurse education in many nursing curricula throughout the world. Variations in duration, format, clinical placement model, level of clinical supervision and learning objectives suggest that curriculum designers and clinical venues are yet to find an optimum model of education. Increasingly, threats to the availability of clinical venues, changes to government policies and the 'panacea' of technological innovations such as simulation to address these issues (Hall, 2009) suggest further examination of the role of clinical placement in nursing education. Investigating the complexity of nursing education and clinical placement is however a subject that resists typical research methodologies. This paper examines the potential for case study methodology and complexity theory to inform our understanding of the role of clinical placement in nursing curricula. Case study methodology has been described by Gangeness and Yurkovich (2006) as suiting the researcher who values holism and context and a willingness to engage with the study participant. Unlike Creswell (2007) and Gangeness and Yurkovich (2006) however who nominate critical theory and critical feminism as epistemological frameworks for case study methodology, an argument will be made for the use of complexity theory as an alternative theoretical base more suited to the study of clinical placement. Finally a theoretical framework informed by complexity theory and linked to the analytic method of pattern matching is offered for the consideration of nurse educators

who wish a deeper understanding of the nexus between clinical placement and epistemology.

Clinical Placement

Clinical placement, clinical practice experience or clinical practicum are terms used to describe the placement of a student within a clinical venue such as a hospital, aged care facility or other non-university location to support an aspect of experiential learning. As discrete episodes of experiential learning the timing, duration, venue and setting used for each clinical placement may be highly variable however on each occasion a learning opportunity is expected. The goals of clinical placement are summarized by Mannix et al. (2006) as providing students with;

> opportunities for authenticating their knowledge, integrating theoretical and applied knowledge, developing and refining skills, familiarizing themselves with the nursing workplace and developing the problem solving and time management skills essential for registered nurses.

The significance of this statement is to emphasize that complex epistemological goals such as authenticating and integrating knowledge and developing problem solving and critical thinking skills are in themselves pedagogical hurdles that require careful support and planning. Generally regarded by nurse educators as a vital element of nursing education, the clinical setting provides not only context for a number of learning outcomes but often provides the student nurse with their first opportunity to interact with patients. Stockhausen (2005, p 8) describes that student nurses '...enter the clinical environment endowed as a learner but engaged in the practice of the profession'. While the description of engagement in

* Corresponding author. Tel.: +61 8 83033639; fax: +61 8 83033594.
  E-mail addresses: frank.donnelly@adelaide.edu.au (F. Donnelly),
rick.wiechula@adelaide.edu.au (R. Wiechula).
[1] Tel.: +61 8 83034878; fax: +61 8 83033594.

Appendix 9 - Journal Article - Nurse Researcher 2013, Vol 20 no 6 (removed)

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Appendix 10 – Raw data

Knowledge - Pressure area care

Part ID	Nutrition	Anaemia	Friction	Incontinence.	Knowledge Total (/24)	URTI
1	5	5	6	6	22	3
2	5	5	6	5	21	4
7	5	5	6	6	22	5
8	6	5	6	6	23	4
13	5	5	6	6	22	4
5	6	6	6	6	24	4
16	5	4	5	6	20	3
17	5	5	5	4	19	3
18	6	4	6	6	22	2
19	5	5	6	6	22	4
20	4	5	6	5	20	4
4	5	4	6	4	19	4
10	5	4	6	6	20	3
11	6	5	6	6	20	1
12	4	5	6	6	21	3
14	6	5	6	6	23	5
M	5.2	4.8	5.9	5.6	21.3	3.5
SD	0.7	0.5	0.3	0.7	1.5	1.0

Skills - Pressure area care

Part ID	Recognition	Assessment	Dressing	Mattress	Coordination	Skill Total (/30)
1	6	6	5	6	5	28
2	5	5	5	6	5	26
7	4	6	4	6	5	25
8	3	5	1	6	4	19
13	4	5	5	4	3	21
5	6	6	6	6	6	30
16	4	5	5	5	1	20
17	3	4	3	5	4	19
18	4	6	4	5	4	23
19	2	4	3	5	3	17
20	5	6	4	4	5	24
4	4	4	6	5	6	25
10	5	5	5	5	4	24
11	4	6	4	6	6	26
12	5	6	5	6	5	27
14	6	5	6	5	4	26
M	4.4	5.3	4.4	5.3	4.3	23.8

SD	1.1	0.8	1.3	0.7	1.3	3.6

Knowledge - Falls care

Part ID	Medication	Previous history	Elimination	Mobility	Knowledge Total /24	Lifter
1	4	6	5	6	21	5
2	6	6	5	6	23	4
7	6	2	6	6	20	6
8	5	5	4	6	20	3
13	4	6	5	6	21	3
5	5	5	5	5	20	2
16	5	6	2	6	19	5
17	3	6	3	6	18	5
18	4	6	4	6	20	5
19	6	5	5	6	22	2
20	5	4	3	6	18	4
4	4	6	4	6	20	2
10	2	4	5	6	17	5
11	5	5	5	6	21	5
12	5	6	6	6	23	5
14	4	6	5	6	21	6
M	4.6	5.3	4.5	5.9	20.3	4.2
SD	1.1	1.1	1.1	0.3	1.7	1.4

Skills - Falls care

Part ID	Recognition	Assessment forms	Describing risk factors	Implement falls prevention	Use of hip protectors	Skill total /30
1	5	6	6	5	6	28
2	5	5	5	5	1	21
7	5	6	5	5	6	27
8	4	3	4	2	3	16
13	5	6	5	5	1	22
5	5	5	4	5	6	25
16	4	5	3	3	1	16
17	5	3	5	4	5	22
18	5	4	4	2	3	18
19	5	6	4	4	5	24
20	5	6	5	5	1	22
4	5	6	5	4	6	26
10	5	5	3	4	3	20
11	4	4	5	4	2	19
12	5	6	5	5	6	27
14	5	5	5	5	2	22
M	4.8	5.1	4.6	4.2	3.5	22.2
SD	0.4	1.1	0.8	1.0	2.1	3.8

Knowledge - Pneumonia care

Part ID	Nutrition	Conscious state	Enteral feeding	Dysphagia	Opiate	Knowledge total /30	DVT
1	2	5	1	6	2	16	1
2	5	6	5	5	4	25	4
7	5	6	5	6	6	28	6
8	6	6	6	6	6	30	3
13	4	6	4	5	6	25	5
5	5	5	5	5	5	25	5
16	4	6	5	6	4	25	3
17	5	6	5	6	4	26	4
18	4	6	4	6	5	25	3
19	5	5	3	6	5	24	4
20	5	5	4	6	6	26	4
4	3	6	4	6	4	23	4
10	4	6	5	6	5	26	4
11	4	6	4	6	6	26	4
12	4	6	6	5	4	25	5
14	3	6	6	6	5	26	4
M	4.3	5.8	4.5	5.8	4.8	25.0	3.9
SD	1	0.4	1.3	0.4	1.1	2.9	1.1

Skills - Pneumonia care

Part ID	Recognition	Nosocomial	Auscultation	Teaching	Skill total /24
1	4	3	2	6	15
2	4	5	4	5	18
7	4	4	2	4	14
8	2	3	2	5	12
13	5	4	3	4	16
5	5	5	3	5	18
16	2	2	2	5	11
17	4	3	4	5	16
18	4	4	3	5	16
19	3	4	3	6	16
20	4	5	3	6	18
4	5	5	3	6	19
10	5	4	5	6	20
11	2	3	4	6	15
12	4	3	4	5	16
14	5	6	4	5	20
M	3.9	3.9	3.2	5.3	16.3
SD	1.1	1.1	0.9	0.7	2.6

Appendix 11 – Correlation and ANOVA

Correlation -Hours of placement Vs Skills

Correlations		Hours of placement	Pressure Area Skill	Fall Skill	Pneumonia Skill
Hours of placement	Pearson Correlation	1	.087	-.188	.322
	Sig. (2-tailed)		.750	.485	.224
	N	16	16	16	16
Pressure Area Skill	Pearson Correlation	.087	1	.460	.390
	Sig. (2-tailed)	.750		.073	.136
	N	16	16	16	16
Fall Skill	Pearson Correlation	-.188	.460	1	.330
	Sig. (2-tailed)	.485	.073		.212
	N	16	16	16	16
Pneumonia Skill	Pearson Correlation	.322	.390	.330	1
	Sig. (2-tailed)	.224	.136	.212	
	N	16	16	16	16

Correlation - Hours of placement Vs Knowledge

Correlations		Hours of placement	Pressure Area Knowledge	Fall Knowledge	Pneumonia Knowledge
Hours of placement	Pearson Correlation	1	-.570[*]	-.044	.052
	Sig. (2-tailed)		.021	.871	.847
	N	16	16	16	16
Pressure Area Knowledge	Pearson Correlation	-.570[*]	1	.317	.058
	Sig. (2-tailed)	.021		.231	.830
	N	16	16	16	16
Fall Knowledge	Pearson Correlation	-.044	.317	1	-.205
	Sig. (2-tailed)	.871	.231		.445
	N	16	16	16	16
Pneumonia Knowledge	Pearson Correlation	.052	.058	-.205	1
	Sig. (2-tailed)	.847	.830	.445	
	N	16	16	16	16
*. Correlation is significant at the 0.05 level (2-tailed).					

ANOVA Skills - Descriptives summary

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
						Lower Bound	Upper Bound		
Pressure area - Skill	Uni A	6	24.83	4.167	1.701	20.46	29.21	19	30
	Uni B	5	20.60	2.881	1.288	17.02	24.18	17	24
	Uni C	5	25.20	1.643	.735	23.16	27.24	23	27
	Total	16	23.63	3.631	.908	21.69	25.56	17	30
Fall - Skill	Uni A	6	23.17	4.446	1.815	18.50	27.83	16	28
	Uni B	5	20.40	3.286	1.470	16.32	24.48	16	24
	Uni C	5	22.80	3.564	1.594	18.38	27.22	19	27
	Total	16	22.19	3.799	.950	20.16	24.21	16	28
Pneumonia Skill	Uni A	6	15.50	2.345	.957	13.04	17.96	12	18
	Uni B	5	15.40	2.608	1.166	12.16	18.64	11	18
	Uni C	5	18.00	2.345	1.049	15.09	20.91	15	20
	Total	16	16.25	2.569	.642	14.88	17.62	11	20

ANOVA - Knowledge - Descriptives summary

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
						Lower Bound	Upper Bound		
Pressure area- Knowledge	Uni A	6	22.33	1.033	.422	21.25	23.42	21	24
	Uni B	5	20.60	1.342	.600	18.93	22.27	19	22
	Uni C	5	20.60	1.517	.678	18.72	22.48	19	23
	Total	16	21.25	1.483	.371	20.46	22.04	19	24
Fall - Knowledge	Uni A	6	20.33	1.633	.667	18.62	22.05	18	23
	Uni B	5	19.40	1.817	.812	17.14	21.66	17	22
	Uni C	5	20.40	2.191	.980	17.68	23.12	17	23
	Total	16	20.06	1.806	.452	19.10	21.02	17	23
Pneumonia- Knowledge	Uni A	6	24.83	4.792	1.956	19.80	29.86	16	30
	Uni B	5	25.20	.837	.374	24.16	26.24	24	26
	Uni C	5	25.20	1.304	.583	23.58	26.82	23	26
	Total	16	25.06	2.886	.722	23.52	26.60	16	30