Contextualising Capability:

How Capability is identified and recognised in Registered Nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care.

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Statements and Declarations

Declaration of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any tertiary institution, and to my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the text of the thesis.

Patricia Irene Bromley

31st January 2018

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The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government's Office of the Gene Technology Regulator and the rulings of the Safety, Social Science Ethics and Institutional Biosafety Committees of the University.

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[1] This is not an error. In 2016, the Australian College of Nursing recognised the inaugural NSW College of Neonatal Nurses established in 1992. Therefore, this was the 24th Annual conference held by the College.

Abstract

This thesis explores Capability in Registered Nurses undertaking a Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia. It contextualises Capability of the PG Cert NIC student and identifies how expert neonatal nurses recognise Capability in Neonatal Intensive Care clinical practice.

In the 1990s, nursing regulatory authorities embraced the clinical competence framework to ensure that nurses graduating from higher education institutions (HEI) had achieved the minimum standards for safe clinical practice. In order to measure achievement of these minimum standards, assessment of clinical practice was simplified. Essentially reduced to a tick box of tasks or skills (competencies) to achieve proficiency, and assessing performance of such competencies in the workplace. As a means of evaluating nurses in practice, this is problematic. The literature suggests competency-based evaluation tools present a reductionist approach and being simplistic and prescriptive, are limited to assessing the acquisition of knowledge and skills, and fail to empower people to reach their full potential.

Contemporary discourse in higher education proposes 21st Century Graduates will be entering a dynamic workforce that requires more that minimum performance standards and a skill set beyond competency. The nursing profession has long recognised that good clinical practice is more than just meeting minimum performance standards. A broader concept that of Capability, includes competence but is more forward looking, recognising potential.

Although there is some research into Capability in nursing, there is nothing specific to nurses in Neonatal Intensive Care. This research clarifies Capability in the neonatal context and identifies how Capability is recognised in students undertaking the PG Cert NIC in Australia.

The study took place between March 2013 and January 2017. It used grounded theory (GT) with a mixed method approach to explore the concept of Capability within the context of the PG Cert NIC. It mapped, in three stages, the developing concept of Capability in the PG Cert NIC student, to clarify what is actually being appraised. Stage 1 of this study used Nominal Group Technique (NGT) to obtain a consensus among the neonatal nurse educators in Australia on the discipline specific Graduate Attributes for neonatal nurses. Stage 2 used eDelphi, to achieve a consensus from a panel of expert Neonatal Intensive Care nurses, on the Capability Requisites for students enrolled in the PG Cert NIC. Stage 3 used semi-

structured interviews with expert practicing neonatal nurses, to determine the evidence the PG Cert NIC student presents which is taken to indicate Capability in clinical practice.

Prior to this study, Capability in the PG Cert NIC nurse had not been explored. A clear finding from this research confirmed that Capability in the PG Cert NIC nursing students includes and moves beyond competence. It established that the mentors of students undertaking the PG Cert NIC, appraise Capability in clinical practice, and interpret Capability through verbal and non-verbal communication cues taken from the PG Cert NIC student.

This research has resulted in the development of nationally agreed Graduate Attributes for the Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia. It has provided a clear definition of the Capable Neonatal Nurse and culminated in a PG Cert NIC Capability Framework, and a visual representation of Capability through the development of the PG Cert NIC Capability Wheel. These outcomes will assist the neonatal clinician to nurture capability in practice, as well as support neonatal education in the development of a Capability curriculum for PG Cert NIC. The development of a theoretical concept of Capability in students of PG Cert NIC will go some way towards making it amenable to assessment in the future.

Chapter 1: Introduction

Identifying and recognising Capability in Registered Nurses undertaking a Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC)

Introduction to the Chapter

This chapter provides an introduction to this Doctoral thesis with publications. It presents the context in which this study was situated and the impetus for the research. It demonstrates how the research question evolved from assessing competence to that of contextualising Capability in Postgraduate Certificate Neonatal Intensive Care (PG Cert NIC) nursing students. It also outlines the structure of the thesis and explains the reason for publishing the results as I progressed through the study.

Context for this Study

What is a Neonatal Intensive Care Nurse?

Neonatal Intensive Care Nursing is a specialist area of nursing. The qualified Neonatal Nurse is a Registered Nurse and/or Midwife with specialist qualifications who work with critically unwell premature or full term newborn infants.

There is a positive correlation between advanced nursing qualification and improved patient outcomes (Aiken et al., 2014). Hamilton, Redshaw and Tarn-Mordi (2007) found a direct link between the survival for premature neonates and the number of qualified neonatal nurses, supporting standards for the provision of specialist neonatal nursing education and qualification. The Australian College of Neonatal Nurses (ACNN) Position Statement in the Provision of Neonatal Nursing Education considers that "appropriate preparation of specialist neonatal nurse is vital provision of quality care…" (ACNN, p.1). There is an expectation therefore, that a nurse with a PG Cert NIC requires Capabilities at a more complex level than that of a general Registered Nurse.

The neonatal period is the first 28 days of life; neo meaning new and natal meaning birth. The national professional body for neonatal nurses, the Australian College of Neonatal Nursing (ACNN) (2017) states:

> Neonatal nurses work in a variety of areas and their role encompasses clinical, educational, managerial and research aspects. The role also integrates with other

roles relating to maternal and child health and is practiced in a variety of settings. Work areas include, but are not limited to, neonatal special care unit/nursery (SCN), sometimes called special care baby unit (SCBU), neonatal intensive care unit (NICU), or nursery (NICN), postnatal ward, emergency retrieval unit, or in the community.

In Australia, to become a qualified in Neonatal Intensive Care (NIC) nurse, the Registered Nurse/Midwife must undertake further postgraduate study while working within a specialist neonatal intensive care unit.

Neonatal studies in Australia

In the 1970s and 1980s the education of specialist neonatal nurses in Australia took place within the clinical practice area. Registered Nurses wishing to further their qualifications undertook a certificate course delivered in-house within the specialist clinical area at specialist tertiary hospitals. At the time, this form of workplace learning was common practice for the nursing profession.

During the 1990s education for specialist neonatal intensive care nursing moved away from the hospital setting and into the higher education institutions (HEI) in partnership with the clinical healthcare sector. NIC nursing education was delivered collaboratively between the neonatal intensive care clinical practice area, which employed the nurse as a student, providing educational support in practice, and the HEI, which delivered the theory aspect supported by face-to-face lectures.

In 2008, the then School of Nursing and Midwifery at the University of Tasmania, introduced the first fully online delivery of the PG Cert NIC in Australia. I was employed as the academic lecturer to develop and deliver this on-line course.

Impetus for the research

During its inception, colleagues in clinical practice frequently asked me, 'how do you know the PG Cert NIC student is able to do things in the clinical practice area?' This pertinent question from my critical friends, was one for which I did not have an immediate answer. I have been a Registered Nurse for 35 years, 32 years working within the field of neonatal nursing. As an experienced clinical practitioner and neonatal nurse educator, I can appreciate evaluating performance in practice is not straightforward even in a traditional, face-to-face, environment, and therefore not just a problem unique to the online environment. However, in an online environment, how do you know the learner is able to perform with ability or

appropriately in clinical practice? How do you know the nurse is clinically capable? In truth, a student's clinical practice can only be *implied* through their ability to write about the application of knowledge to their clinical practice.

In the online environment, I needed to have a *virtual eye* on students' clinical practice, and I was unsure how to go about this. This was, as Rittel and Webber (1973) describe, a 'wicked problem', with no clear solution, and was the catalyst for me to commence my Doctoral studies in 2012.

Assessing practice is more complex than competence

In order to develop an objective method to assess clinical competence, that is both valid and reliable, there is a need to be able to measure clinical competence, and this requires an understanding of the concept of competence.

There is research related to the presence of competence in individual skills and abilities in neonatal intensive care nursing, such as the ability to assess pain in the neonate (Foster et al., 2013), ethical decision-making (Monterosso et al., 2005) and palliative care for the dying neonate (Chan & Arthur, 2009). There is also research into parents' perceptions of neonatal nursing competence. Cescutti-Butler and Galvin (2003) identified that parents' views of competence in neonatal intensive care nurses were embedded in their being cared for, or their baby being cared for, and in the sharing of responsibility (relational competence), rather than the possession of knowledge and specific skills (technical competence). To date, however, there has not been sufficient research into the concept of competence in neonatal intensive care nursing practice to enable the development of a satisfactory measuring tool for assessment purposes.

From competence to Capability

The literature around this topic explores 'competence', and 'being competent' in specific tasks or skills, but there is limited discussion on how the student evidences competence. These questions provoked a persistent dissonance I had with the term *competence* in relation to clinical practice. Further reading around the concept of competence in the nursing education and research literature confirmed this discord, claiming that the manner in which competence is perceived was ambiguous, which contributed to the vague and confusing assessment processes.

My research introduced me to John Stephenson and Michael Yorke's concept of *Capability* and the development of capable graduates (Stephenson & Yorke, 2012). This holistic concept describing something more than just competence resonated well with me and I was immediately attracted to the concept of capable neonatal nursing graduates rather than competent graduates. The online Oxford Dictionary defines capability as "the power or ability to do something" ("Capability", 2018). Stephenson and Yorke's (2012) appropriation of the term capability is informed by this definition. This prompted a move away from the narrow perspective of competence to a more inclusive concept of capability.

In this thesis, I argue that capability is a more specific and valuable intention of what is desirable in neonatal graduates and therefore, it is capability that should be developed for the evaluation of PG Cert NIC students. In as much, recognising Stephenson and Yorke's (2012) concept of capability as a broader concept than one of mere competence. Whereby capability embraces competence as an integration of knowledge, skills, personal qualities, and understanding, and appreciating potential through using these qualities not just in familiar and highly focused specialist contexts but in response to new and changing circumstances.

I am taking Stephenson and Yorke's (2012) definition as a starting point in my research, from which I will provide a definition of capability as it relates to the PG Cert NIC. From this point and throughout this thesis, I now identify this type of Capability with a capital letter 'C', where it specifically refers to the specialist clinical area of Neonatal Intensive Care nursing. In all other contexts capability will be identified with a lower case letter 'c'.

Statement of the problem

To date there has been no research into the concept of Capability in NIC nursing practice to enable the development of a satisfactory understanding or measure of Capability. The operationalisation of Capability in this context required a theoretical framework to construct such a concept. It is important to establish the concept of Capability in order to graduate NIC nurses equipped with Capability that is recognised and transferable through all neonatal clinical contexts that require such specialist qualification in Australia and worldwide.

In pursuit of clarification of Capability in the PG Cert NIC graduate from the discipline

My 35 years of professional experience as a Registered Nurse has demonstrated to me that, overall, nurses are knowledgeable, honest and reliable, have extraordinary time

management skills, are great problem solvers, pay attention to detail, and are great leaders and team players. These are the very qualities, specific to Stephenson and Yorke's concept of Capability, that enable the Registered Nurse to take effective and appropriate action, work effectively with others, and to continue to learn from their experiences, in complex and changing work contexts (Stephenson & Yorke, 2012).

In order to clarify the concept of Capability, as it relates to the PG Cert NIC student, it was necessary to provide some definition around Capability as it is envisioned by the discipline of neonatal nursing.

Aim and scope

The aim of this study was to operationalise the concept of Capability within the neonatal intensive care clinical practice; to develop the theoretical concept of Capability in students of PG Cert NIC with a view to making it amenable to assessment in the future.

Evaluating Capability is complex and multidimensional and there is evidence to suggest that those with more professional experience in assessment are able to evaluate these nuanced behaviours and provide a more holistic assessment than less experienced assessors (Donaldson & Gray, 2012; Govaerts, Schuwirth, Van der Vleuten, & Muijtjens, 2011). This study drew from the opinions of experienced expert neonatal intensive care nurses to explore Capability in the PG Cert NIC nurse in clinical practice. This included the relationship between the discipline specific Capability Requisites and the Graduate Attributes.

Stage 1: Identifying the Graduate Attributes

PG Cert NIC Graduate Attributes are statements of discipline specific learning outcomes. When I started this research project, there was no consensus in Australia among Neonatal Intensive Care education providers as to the expected graduate attributes. There were no nationally agreed criteria for PG Cert NIC Graduate Attributes. Without clarification of Graduate Attributes, without an end point, it is difficult to know at what level a postgraduate student in neonatal intensive care nursing is expected to perform.

The first stage of this research, therefore, was to identify generic Graduate Attributes for neonatal nurses emerging from specialist studies in neonatal intensive care. In order to do this, I sought to determine, from the experts in neonatal education what their expectations were of the graduate of a neonatal intensive care course in Australia, or more precisely, what were the discipline specific Graduate Attributes (GAs).

Developing the Graduate Attributes was an important first step toward developing the concept of Capability. The construction of Graduate Attribute statements enabled the identification of the specific requirements in order to achieve such graduate outcomes. With such clarification of the PG Cert NIC Graduate Attributes, it was then possible to work with these specific requirements to develop further the concept of Capability in the PG Cert NIC nursing student in practice.

Stage 2: Identifying the requirements for the development of Capability

Once the PG Cert NIC Graduate Attributes were clarified, I sought to understand how these GAs related to the development of the Capable NIC Graduate. It became apparent there was no clear understanding of expectation in the progression of students throughout the 12-month PG Cert NIC nursing, and the contribution to the development of Capability.

Therefore, the second stage of this study aimed to establish a consensus from the discipline of the requirements for Capability as the student progressed through their studies. For this, I sought the opinions of experts in neonatal nursing, by asking clinicians who supported the PG Cert NIC nurses in practice, what was required of these students in order for them to develop the PG Cert NIC GAs and hence become Capable graduates. I wanted to discern, from these experts, what the discipline expected the PG Cert NIC student to know or understand, or do, what skills, what *qualities* the PG Cert NIC student needed in order to become a Capable Graduate. Furthermore, when the discipline expected these *qualities* to develop during the PG Cert NIC student's 12-month syllabus.

Stage 3: Identifying how Capability is recognised in NIC clinical practice

When I had this information, I felt I was getting closer to constructing the concept of Capability in the PG Cert NIC student. However, how Capability is *observed* in practice was still not well defined. Hence, for the final stage of this research, I again approached the experts in clinical practice to elucidate how they recognised developing Capability in the PG Cert NIC student. I aimed to identify the evidence a PG Cert NIC student *demonstrates* as Capability in their clinical practice.

In summary, in order to contextualise Capability in the PG Cert NIC student, I first had to clarify the discipline specific Graduate Attributes of nurses graduating from neonatal intensive care courses in Australia. I then sought to determine the requirements expected of students of the neonatal intensive care to develop Capability, or Capability Requisites. Finally, I focused on how Capability is observed in NIC students in clinical practice. I explored

what the students demonstrate in clinical practice that provides evidence that they are developing Capability, in order to be a Capable graduate of neonatal intensive care nursing.

Research question and research sub-questions

In order to contextualise Capability in the PG Cert NIC student, the overarching research question was "How do we identify and recognise Capability in Registered Nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care?" In order to answer this pivotal question, three essential research sub-questions provided the foundations on which to build the concept of Capability in the PG Cert NIC student.

As there was no nationally recognised discipline specific Graduate Attributes for the PG Cert NIC in Australia, it was difficult to gauge what discipline specific attributes the PG Cert NIC graduate should exit the course with. Consequently, the first research sub-question needed to explore the expected outcomes of a student graduating from the PG Cert NIC. Therefore, the first research sub-question to answer was "What should the Generic Graduate Attributes be for neonatal nurses within the Australian context?"

Once the end point was established, the study then explored how the NIC student reached this end point. This was explored with specific reference to the development of Capability during their studies, in order to become a Capable graduate of the PG Cert NIC course. The second research sub-question was, "What are the experts' views of Capability Requisites of students enrolled in postgraduate neonatal intensive care courses?"

Ultimately, it was essential to understand how Capability was observed or recognised in the PG Cert NIC student, and this led to the final research sub-question, "What is the evidence experienced Neonatal Intensive Care nurses use to recognise Capability in students enrolled in postgraduate neonatal intensive care courses?"

Significance of this study

Prior to this research, there was no clear consensus in neonatal clinical practice as to what was expected of graduates from neonatal intensive care courses in Australia. This research has led to the development of nationally agreed, recognisable and transferable, discipline specific Graduate Attributes, which are now available to be utilised by all neonatal intensive care units and HEI for neonatal studies in Australia.

Furthermore, establishing the concept of Capability in PG Cert NIC students and identifying what students demonstrate as evidence of Capability in clinical practice, will go some way towards developing curricula to facilitate and nurture Capability in the student in order to graduate Capable neonatal nurses.

By defining and recognising Capability in neonatal intensive care nursing students, the findings from this research will contribute to the solution of the practical problem of evaluating Capability within neonatal intensive care clinical practice settings. The outcomes of this study are not limited to neonatal nursing in Australia, they are relevant to other nursing postgraduate and undergraduate studies, both nationally and internationally.

Furthermore, the concept of developing Capable graduates is not specific to nursing. Stephenson and Yorke (2012) intended Capability should be nurtured in all graduates. It is therefore possible that the findings from this research will be applied to other disciplines.

Thesis by Publication

The findings from this research were published throughout the course of the study. The manuscripts have been peer reviewed and published in 'The Journal of Neonatal Nursing' (United Kingdom). This is an internationally recognised journal with a specific audience of neonatal nurses. As the study progressed, the importance of sharing the findings in order to apply to practice, publication became apparent, as it allowed for dissemination of the understandings directly into practice. I also presented my findings at each annual Australian College of Neonatal Nursing Conference from 2014-2016, for the same reason.

Thesis structure

This Doctoral thesis with publications is comprised of seven Chapters (including four published papers presented in Chapter Sections 2.1, 4.2, 5.2, and 6.2).

Chapter 2 presents a critical review of the literature. I provide background to the issues and current practice. This is a multi-national, cross-disciplinary review drawing on literature from physiotherapy, and other critical care nursing areas both in Australia and internationally. Section 2.1 presents the published paper "Clinical competence of neonatal intensive care nursing students: How do we evaluate the application of knowledge in students of postgraduate certificate in neonatal intensive care nursing?" This literature review was published in 2014, and at that time of writing, I had not become aware of the concept of Capability and as such, this was not addressed in the published paper. Section 2.2 contains a

further review of the literature focussed on the concept of Capability. This section discusses why Capability is a more holistic concept than competence, and how facilitating the development of Capability in graduates should be a driving factor in higher education.

Chapter 3 deals with the methodological issues and the research design providing the philosophical foundation, theoretical and procedural description of the instruments used in the study to collect, present, and analyse the data.

In Chapters 4, 5, and 6, I present information about the specific method and data generated, along with the findings to the three research sub-questions.

Chapter 4: PG Cert NIC Graduate Attributes relates to research sub-question 1: What should the Generic Graduate Attributes be for neonatal nurses within the Australian context? Section 4.1 presents the background to Nominal Group Technique and Section 4.2 presents the published paper "Using Nominal Group Technique (NGT) to reach consensus on Graduate Attributes for nurses undertaking Postgraduate Certification in Neonatal Intensive Care in Australia". Section 4.3 discusses study rigour of NGT used in this stage of the research.

Chapter 5: PG Cert NIC Capability Framework, relates to research sub-question 2: What are the experts' views of Capability Requisites of students enrolled in postgraduate neonatal intensive care courses. Section 5.1 presents the background to Delphi and eDelphi technique and Section 5.2 presents the published paper "Using eDelphi to identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing". Section 5.3 discusses study rigour of eDelphi used in this stage of the research.

Chapter 6: PG Cert NIC Capability relates to research sub-question 3: What is the evidence experienced Neonatal Intensive Care nurses use to recognise Capability in students enrolled in postgraduate neonatal intensive care courses? Section 6.1 explains the particulars of the methodology underpinning Stage 3 and Section 6.2 presents the published paper "Capability: How is it recognised in student nurses undertaking postgraduate studies in neonatal intensive care?" Section 6.3 Section 6.3 discusses further findings from Stage 3 not included in Section 6.2.

Chapter 7 contains the discussion and conclusions from the study. It provides an examination of key findings, identifying appropriate concepts to integrate into processes for evaluating Capability in students in neonatal intensive care nursing. Based on these findings, implications and recommendations are drawn which inform the evaluation of Capability in

clinical practice. This final chapter also provides a reflective evaluation of the study suggesting further research directions.

Chapter Summary

This Chapter has introduced the research topic and provided a guide to the structure of this thesis. It has provided an overview of the research, its aims and research questions. It has explained how I began my research exploring the assessment of competence, then realising that the concept of *competence* was vague and provided a limited perspective. This led to the focus on Capability. The following chapter, Chapter 2 presents the published literature review and the follow-up literature review exploring in turn the concepts of competence and Capability.

Chapter 2: Review of the Literature

How do we assess the application of knowledge and understanding to clinical practice in students of postgraduate neonatal intensive care nursing?

Introduction to the Chapter

This Chapter presents a Narrative or Traditional Literature Review of the existing literature that has attempted to address the assessment of clinical practice. The process of reviewing the literature was iterative, as the research and my immersion in the literature progressed, the focus of the literature reviewed changed from competence to Capability. This concept led me to review the literature that informed and supported the research, a process that "primarily reviews *for*, rather than *of*, research (Maxwell 2006, p.28, emphasis in original). This method of reviewing the literature perfectly suited the purpose of informing the study design and framing my results. The iterative nature of the literature review led me to present it in two parts: Section 2.1: Clinical Competence and Section 2.2: From Competence to Capability.

The first part, Section 2.1 is presented as a published paper. It provides an initial review of the literature, published in 2014, exploring methods of assessing nursing practice in relation to competence. The intention for this review was to establish how competence is evaluated in neonatal nursing through an exploration of the established methods of assessment used in nursing in general, and how these methods are applied to the neonatal specialty area. The discussion exposes the weaknesses in these forms of assessment and questions their validity and reliability. Conclusions are drawn about the confusion in the terminology of competence, with competencies, and competent, which influences the assessment process.

Part two in this chapter, Section 2.2, includes the follow-up review of the literature. As the research and my immersion in the literature progressed, I developed a greater understanding of the history of competence in nursing, which in turn introduced me to the concept of Capability in university graduates and in nursing graduates. The focus of this study then became Capability. Section 2.2 is specifically related, therefore, to graduate Capability and the correlation with nursing practice and education. It discusses the origins of competence and clinical competence, comparing this with Capability as a means of developing Capable NIC nursing graduates. Capability, as defined in contemporary literature,

justifies the argument for the development a Capability Framework for the PG Cert NIC graduate, and adopting Capability instead of competence, as the object of appraisal of clinical practice.

2.1: Clinical Competence - Journal Article

This paper published in the Journal of Neonatal Nursing should be read as a prelude to Section 2.2 'From Competence to Capability' the review of the literature undertaken subsequently.

Publication details

This paper was submitted to the Journal of Neonatal Nursing and subsequently published as:

Bromley, P. (2014). Clinical competence of neonatal intensive care nursing students: How do we evaluate the application of knowledge in students of postgraduate certificate in neonatal intensive care nursing? *Journal of Neonatal Nursing. 20*(4), 140-146.

At this point, it would be beneficial to read the accompanying article pertinent to this stage of the study. This article describes the first stage of the research exploring methods of assessing and evaluating clinical practice in nursing.

This section of chapter 2 has been removed for copyright or proprietary reasons.

2.2: From Competence to Capability

Background to this review of the literature

The paper provided in Section 2.1 of this chapter, incorporated a literature review which focused on competence; it identified a lack of clarity around the terminology, competence, competent, competency, and competencies, clarifying that "competency 'is', whereas competencies are the skills to be assessed and, if successful in demonstrating these competencies, the nurse can be deemed competent" (Bromley, 2014a, p. 141). The review explained that this ambiguity has produced a number of inconsistencies in assessment methods of nurses' clinical practice (Bromley, 2014a; Watson, Stimpson, Topping & Porock., 2002). Flinkman et al. (2017, p. 1036) agree that "there continues to be no consensus on the definition of competence" and that it is a "highly abstract phenomenon… complicated to assess and measure".

Since this publication, I continued to review the literature and as the theories and themes on Capability began to emerge, and my thinking shifted from competence to the concept of Capability. The process of further reviewing the literature enabled a comparison of the findings from the original review with findings from the latter stages of the research (Brink, van der Walt, & van Rensberg, 2006). For this reason, I have included a follow up review of the literature, one which explores the origins of competence and clinical competence as it relates to the nursing profession, comparing this with Capability as a means of developing Capable NIC nursing graduates.

Competence and vocational training

Historically, competency-based national frameworks of vocational qualifications were developed from industry standards as indicators to ensure minimum performance requirements were met (O'Connell, Gardner, & Coyer, 2014; Stephenson & Yorke, 2012). Subsequently clinical competence was conceived around the manual job market, where rather than a high level of intelligence, only skill proficiency was considered necessary, and workers were trained to perform such skills (Watson, et al., 2002).

During the 1990s, nursing education progressed from hospital-based (or vocational) training, to university-based degree programs. In order to ensure minimum standards were met in clinical practice, the concepts of nursing competency standards and clinical competence were developed. These were embraced by the nursing profession; nursing regulatory

authorities measured practice and licensure against them; nursing curricula was designed around them; and nursing students were assessed against them (O'Connell, et al., 2014). As Ebrall (2007) has stated, "[p]ragmatically, registration boards and other licensing authorities can only measure the suitability of a person to enter the profession at the point of entry to the profession". However, as has been identified in Section 2.1 (Bromley, 2014a), competence and competencies have been an ongoing means of evaluating nurses in practice, and assessing competence has often been problematic.

Why competence is no longer applicable

Over the past 30 years, and particularly the past 10 years, it has been recognised that competence has limitations for assessing nursing practice (Sasso, Bagnasco, & Watson, 2016). In order to standardise practice, competence has been simplified by the use of competencies, which are often reduced to a tick box of skills in which to achieve proficiency, primarily used in assessing performance of tasks in the workplace. The use of competencies as tools for evaluating practice present a reductionist approach to the assessment (Girot, 2000), have become simplistic and prescriptive (O'Connell, et al., 2014), and limit competence to the acquisition of knowledge and skills, failing to empower people to reach their full potential (Hase & Davis, 1999). Ebrall (2007, p. 62) declared that "competencies are now seen as a relatively blunt educational tool within the university setting with limited application" to contemporary practice, and that tomorrow's graduate requires a "skill set that that goes beyond competency to facilitate best practice no matter the environment of the graduate".

From competence to Capability

The concept of graduate capability has gained strength in the higher education sector and more lately, in nursing practice and education (Coetzee, 2014; Scott, Chang, & Grebennikov, 2010). So much so, that the Australian nursing regulatory authority, the Nursing and Midwifery Board of Australia (NMBA), has recently acknowledged Capability in nursing practice, rather than competence. In June 2016 the "National Competencies for the Registered Nurse" (Nursing and Midwifery Board of Australia, 2006) were superseded by the "Registered Nurse Standards for Practice", where Standard 3 states the Registered Nurse Maintains Capability for Practice (Nursing and Midwifery Board of Australia, 2016). However, the NMBA Standards for Practice do not define Capability, and there has been limited follow up in the education and practice sectors to clarify Capability for nurses. Similarly, there is no

concept of Capability in neonatal nursing in Australia. This context frames the purpose for this research project.

What is Capability?

Stephenson and Yorke (2012) first introduced the concept of *capability and quality in higher education* in the 1990s. To summarise, they declared:

> Capability is a broader concept than that of competence... Capability embraces competence but is also forward looking, concerned with the realization of potential... Capability is an integration of knowledge, skills, personal qualities and understanding used appropriately and effectively – not just in familiar and highly focused specialist contexts but in response to new and changing circumstance... to take actions in uncertainty and to see initial failure as a basis of learning how to do better (Stephenson & Yorke, 2012, pp. 2-5).

Dependent Capability

Stephenson and Yorke (2012) identified two types of capability, dependent and independent. For much of the time, most of us work in familiar environments, using familiar solutions to solve familiar problems which may, or may not, require a degree of technical aptitude and knowledge. They called this 'Position Y' (Figure 2.1). This familiarity has shaped didactic teaching styles, which encourage dependent capability by providing a '*this is what you need to know*' approach to education. Students are furnished with information on the kinds of problems they will face in the work context, along with details of known effective solutions. Essentially dependent capability is developed through passing on peoples' experiences, knowledge and solutions to problems. This would be excellent, if all the graduate ever needed was to function in position Y.
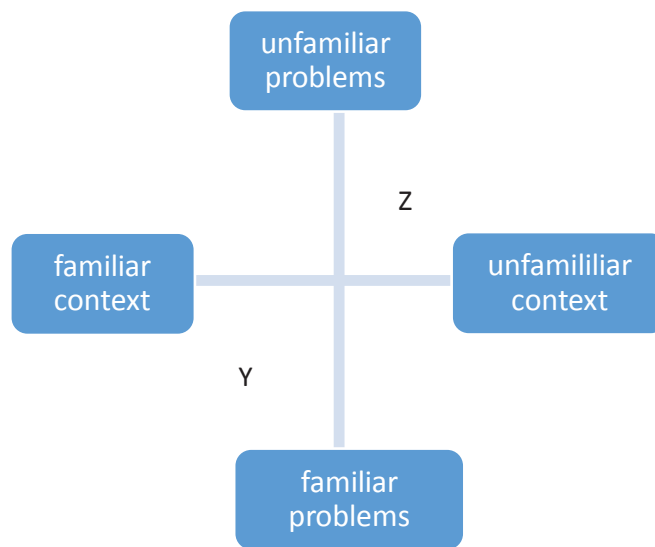
Figure 2.1. Plotting capability.

Independent Capability

However, Stephenson and Yorke (2012) declared contemporary graduates are required to function in less familiar contexts, devising unfamiliar solutions to unfamiliar problems. They referred to this situation as Position Z (Figure 2.1), noting that "the slavish application of solutions perfected for familiar problems may have disastrous effects in Position Z" (Stephenson & Yorke, 2012, p. 5). They described Position Z as a learning situation where new problems require the development of new solutions and furthermore, a situation where there is no guarantee that the proposed solutions will work. In order to function in this position, new graduates need "confidence in themselves and in their judgements, to take actions in uncertainty, and to see initial failure as a basis of learning how to do better" (Stephenson & Yorke, 2012, p. 5).

Defining Capability

Stephenson and Yorke (2012, p. 2) define Capable people as being able to:

> Integrate knowledge, skills, personal qualities and understanding, used appropriately and effectively, in familiar contexts as well as responding to new and changing circumstances. And that Capable people are able to; take effective and appropriate action, explain what they are about, live and work effectively with others, and to continue to learn from their experiences as individuals and in association with others, in a diverse and changing society.

Many contemporary definitions of Capability have evolved from Stephenson and Yorke's (2012) ideas initially published in 1998.

In their report on the future need for K-12 education in Australia, Torii and O'Connell (2017, p. 3) advised that a renewed focus on capabilities is required in order to bridge the vocational and academic divide. They argue "capabilities (also referred to as non-cognitive skills, enterprise skills, 21st Century skills) include: critical thinking, problem solving, creativity, curiosity, interpersonal and communication skills, self-regulation, grit, entrepreneurial skills, teamwork and craftsmanship".

In their study of Capability in newly graduated nurses, Scott, et al. (2010, pp. 27-28) suggested that Capability "involves a mixture of emotional and cognitive intelligence including the ability to determine when and when not to deploy these competences". O'Connell, et al. (2014) explored Capability in the context of nurses of advanced practice (Nurse Practitioners) and described Capable people as being "creative, have a high degree of self-efficacy, know how to learn, can take appropriate and effective action to formulate and solve problems, can apply competencies in unfamiliar and familiar situations, and work well with others" (2014, p. 2731). Brewer, Flavell, Harris, Davis, and Bathgate (2014, p. 30) claimed that working within a multidisciplinary healthcare team demands capabilities which "extend well beyond discipline knowledge and understanding. [It includes] communication, reflective skills, team function, conflict resolution and client-centred care" and that graduates require "a sophisticated, integrated set of capabilities that encompass more than discipline specific knowledge, skills and understandings". Further, Carryer, Gardner, Dunn, and Gardner (2007) suggested that Nurse Practitioners require a capability framework to guide their practice.

Capability, therefore, is considered within an holistic framework of which competence is just one aspect (O'Connell, et al., 2014; Sasso, et al., 2016). Capability is forward looking, it is about being creative, problem-solving in familiar and unfamiliar contexts, being an effective communicator, and having confidence in one's decision-making. It recognises the process of problem-solving is a learning experience.

The Capable graduate

Scott and his counterparts (2010) categorised the Capabilities of successful nursing graduates into the four main domains of; *personal capabilities*, *interpersonal capabilities*,

cognitive abilities and, *generic skills and knowledge*. These domains are comparable to the components of Stephenson and Yorke's (2012) concepts of Capability.

Similarly, Coetzee's (2014, p. 888) research into the concept of 'graduateness' in students of economic and management sciences, described Capability as "the quality of personal growth and intellectual development of the graduates… and the relevance of the skills and attributes they bring to the workplace". She identified eight 'core skills' that constitute graduateness, which are embedded in the three domains of; *scholarship* (problem-solving and decision-making skills, analytical thinking skills, enterprising skills), *global and moral citizenship* (ethical and responsible behaviour, presenting and applying information skills, interactive skills), and *lifelong learning* (goal-directed behaviour and continuous learning orientation). Although her research was specific to one specialty area, her conclusions align very closely with the concepts of Capability proposed by both Stephenson and Yorke (2012) and Scott et al. (2010).

The key concepts regarding capability from these three positions, are compared in Table 2.1. This table not only shows an alignment between Stephenson and Yorke's (2012) original concept of Capability, and those of Scott et al. (2010), and Coetzee (2014), but it also highlights the specifics of Capability, which help to clarify the concepts of Capability that are common in these research studies. Although these concepts have been identified in the literature for a number of years, they have not been well embedded into nursing education and neonatal nursing education in particular. This is partly due to the continued dependence on evaluating competence in practice.

Table 2.1

A comparison of Stephenson and Yorke's concept of capability, Scott's et al. Capabilities of successful graduates and Coetzee's concept of graduateness

Stephenson and Yorke's concept of Capability	Scott et al. Capabilities of successful graduates (2010)	Coeztee's concept of Graduateness (2014)	
		Domain	**Core Skill**
Take effective and appropriate action	Cognitive capabilities: For example, being able to set and justify priorities	Scholarship	Problem solving skills
			Consider the complexities of the larger cultural, [specialist area] reality
			To be creative and proactive in problem solving, offering new ideas and insights
			Ability to make clear decisions
			Analytical thinking skills
			Higher order critical or reflective thinking – giving accurate explanations, making rational judgments
			breaking information into parts to see relationships and patterns – drawing insightful conclusions
			Enterprise skills
			Being venturesome and applying critical thinking, taking initiative.
			Being able to recognize and adept at dealing with organizational or team politics, have sound financial awareness when controlling budgets

Stephenson and Yorke's concept of Capability	Scott et al. Capabilities of successful graduates (2010)	Coeztee's concept of Graduateness (2014)	
		Domain	
Explain what they are about	Personal capabilities: For example, being willing to face and learn from my errors and listen openly to feedback, understand my personal strengths & limitations	Global and moral citizenship	Ethical and responsible behaviour Accepting full responsibility for decisions and actions Upholding the ethics and values of one's profession Willing to take the lead in providing direction to others, motivating, empowering. Understanding the importance and consequences of ethical and socially responsible behaviour Presenting and applying information skills Present (verbally or written) one's knowledge, facts, ideas, opinions Avoiding jargon or complicated language when presenting ideas Commit information to memory quickly, and offer solutions for making a positive difference by considering a wide range of alternatives. To stay focused and show enthusiasm and clarity.
Live and work effectively with others	Interpersonal capabilities: For example, being able to work with senior staff without being intimidated		Interactive skills Effective and efficient use of language and technology when communicating and interacting with people from diverse cultures, backgrounds and authority levels. Building social networks. A good command of English Ability to work with experts from other fields
Continue to learn from their experiences as individuals and in association with others, in a diverse and changing society.	Generic skills and knowledge: For example, being able to organise my work and manage time	Lifelong learning	Goal-directed behaviour Setting realistic goals, developing plans and taking actions to achieve one's goals Accomplish tasks and meeting deadlines. Access information needed to solve problems or make decisions Surf the internet to find new information Continuous learning orientation Having a cognitive meta-awareness and openness towards their own learning Proactively engage in the process of acquiring new knowledge, skills and abilities throughout their lives and career in reaction to and anticipation of changing technology and performance criteria Reflecting on ones work to develop higher level critical thinking skills

Moving from competence to Capability in NIC Graduates

Ebrall (2007, p. 63) argued that a clinician who is empowered to think, interpret and adapt is a far "superior product to one who simply demonstrates competency". It is the role of institutions of higher education, therefore, to provide opportunities to develop such graduates, who are able to work in familiar and unfamiliar contexts, and rapidly changing occupational worlds (Coetzee, 2014).

A career in nursing, and in neonatal nursing in particular, is complex and often fast paced with changing work environments. The contemporary neonatal nurse is required to respond to circumstances, which they may not have previously encountered. The neonatal environment encompasses both the high tech intensive care setting and the provision of care in less developed countries with minimal resources. Technology and new models of care (McKechnie, 2016) drive change, therefore, neonatal nursing requires Capable graduates. Education needs to provide them with well-developed clinical reasoning skills in order to work confidently in familiar and unfamiliar contexts. To use experience and analytical thinking to find solutions to new or unfamiliar problems. It needs to prepare the student to be personally effective within the circumstances of their lives and work. To pursue excellence in the development, acquisition and application of knowledge and skills.

A Capability Framework to guide the curriculum

O'Connell, et al. (2014, p. 2728) claimed that "to ensure healthcare delivery keeps pace with the increased demand and continually changing contexts there is a need to embrace capability as a framework". Capabilities need to be developed in a coherent and structured way (Spencer, Riddle, & Knewstubb, 2012). In Australia, nursing curricula continues to focus on competence and as such does not embrace a Capability framework in either undergraduate or postgraduate nursing studies.

Just as there is a need for discipline specific Graduate Attributes, capability frameworks need to be discipline specific in the postgraduate context, in order to capture the nuances of the specialty area. More explicitly, for neonatal education to 'keep pace' and cultivate the Capable NIC graduate, a framework specific to Capability in NIC nursing is required. The framework needs to clarify what is meant by Capability in NIC nursing, how Capability is developed throughout the PG Cert NIC course and appraised in NIC students.

Ebrall (2007) has argued for a Capability Curriculum to drive change in this direction, suggesting it will narrow if not close the theory/practice gap. For nursing education in

general, and neonatal education in particular, it is time to move beyond the reductionist approach of competencies to the more holistic concept of Capability. Further research is required to embed Capability into the general nursing curriculum. Spencer, et al. (2012) explained that graduate Capabilities are specific to the disciplinary context and teaching such disciplinary Capabilities should be intertwined with the disciplinary content.

Such a framework for NIC nursing does not exist in Australia or internationally. The Royal College of Nursing in the United Kingdom has a "Career, education and competence framework for neonatal nursing in the UK"(Royal College of Nursing, 2015), however, this is not an educational tool. It maps the career progression through seven levels, from the health care support worker/nursery nurse with National Vocational Qualifications (NVQ) (levels 2, 3, and 4), through the Registered Nurse/Midwife (levels 5), to post registration qualifications, equivalent in Australia to postgraduate certificate, diploma, honours (level 6) and masters (levels 7 and 8). At each level there are 'core competencies for neonatal practice'. These are comprehensive lists of activities expected of the health care support worker or nurse at that level. Although comprehensive, this document's focus is competence and as such is easily reduced to a list of tasks to be undertaken and assessed. Consequently, it does not foster the development Capability. In Australia, for the neonatal curriculum to focus on developing Capability in professional practice, the starting point is the development of a PG Cert NIC Capability Framework.

There does appear to be a hierarchy to developing Capability. This hierarchy is demonstrated in Figure 2.1. Capability is beyond the level of competence (Spencer, et al., 2012), and discipline specific Graduate Attributes. However, it is essential to have such competence and Graduate Attributes on which to build, to develop an understanding of the requirements for discipline specific graduate Capability.
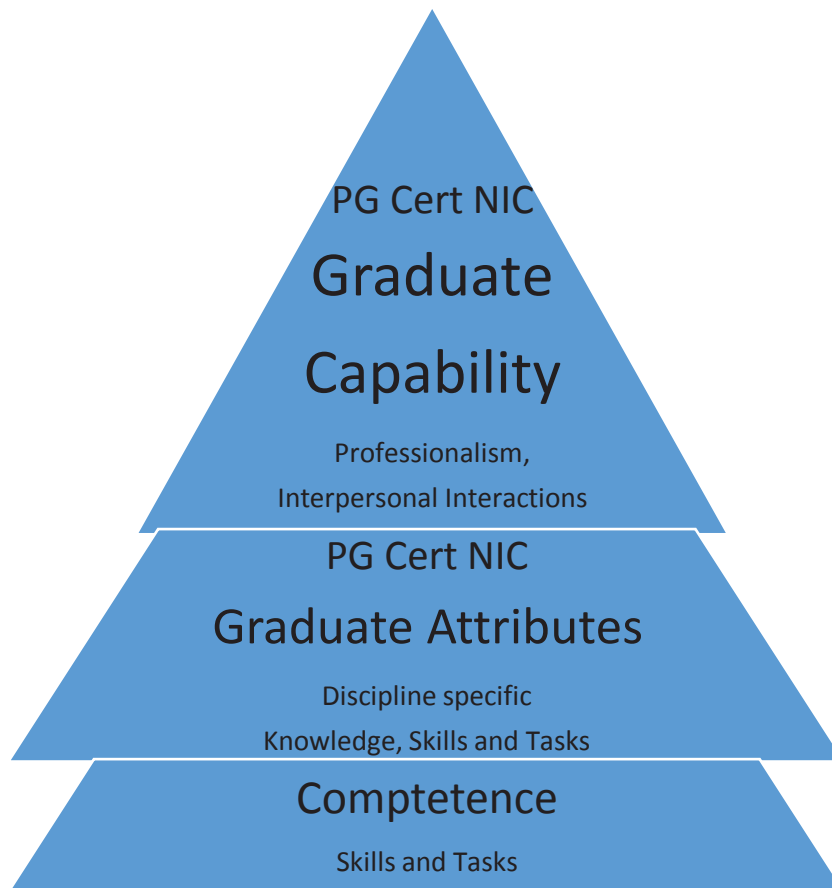
Figure 2.2. Hierarchy to Capability (PG Cert NIC) (copyright Patricia Bromley 2017)

Specialist nursing areas need to consider what is unique to that specialty that identifies Capability in that specialty in order to model or design the curriculum around these specifics.

The research surrounding Capability and the concept of 'graduateness' have been developed from the perspective of undergraduate study. My study adds to this body of research, by seeking to understand Capability from the perspective of the postgraduate neonatal nurse, using the conceptualisation of Capability of Stephenson and Yorke (2012), Coetzee (2014) and Scott, et al. (2010) to support this endeavour.

Chapter Summary

The two sections in this chapter have presented a review of the literature in relation to competence and the more useful concept of Capability both generally, and specifically within nursing and NIC nursing. I have argued for a move away from competence to the more holistic view of Capability in NIC nursing, justifying my arguments based on the inadequacy

of a competency approach in contemporary complex nursing practice. I have also identified the need to define Capability in relation to nursing and in particular NIC nursing. I have validated the importance of contextualising Capability in NIC nursing through the development of a Capability Framework that could be used to support the development of a Capability curriculum.

The chapter has explained how and why the focus of my research changed from competence to Capability in NIC nursing. As a result of this improved understanding, the overarching research question changed to incorporate appropriate language, now stated as 'How do we identify and recognise Capability in Registered Nurses undertaking postgraduate certificate in neonatal Intensive Care'. As Capability has not been explored in this context before, this research is breaking new ground. The following chapter, Chapter 3, explains the methodology used in order to explore this new concept of Capability in the PG Cert NIC nursing student in Australia.

Chapter 3: Methodology

Introduction to the Chapter

This chapter provides the rationale and justification for the use of grounded theory (GT) with a predominately qualitative mixed method approach to this research project. The discussion will appraise the qualitative aspects of the inductive research approach, rigour, ethical considerations and recruitment, and outline data generation and analysis.

This research employed a multi method approach to each stage of the research and this chapter, provides an overview of the methods. It will introduce each stage of the research and corresponding method. However, it will not explore each stage or each method in detail. Features of each stage and the method used in each stage, will be discussed within the following three chapters (Chapters 4, 5 and 6), when each research question, associated method and results are examined individually.

Background to Research Approach

The literature review has focused the research on Capability and the overarching research question 'How do we identify and recognise Capability in Registered Nurses undertaking postgraduate certificate in neonatal Intensive Care. Three essential research sub-questions were:

1. What should be the discipline specific Graduate Attributes for neonatal nurses within the Australian context?
2. What are the experts' views of Capability Requisites of students enrolled in postgraduate neonatal intensive care courses.
3. What is the evidence experienced Neonatal Intensive Care nurses use to recognise Capability in students enrolled in postgraduate neonatal intensive care courses?

Each question required a different approach and analytical technique, hence, the research was designed to incorporate a number of theoretical perspectives as analytical instruments; an approach Patton (1990 cited in Hansen, 2006, p. 17) describes as 'methodological appropriateness'.

The methodological journey of grounded theory ~~using a mixed method approach~~

The research was exploratory (Hansen, 2006), in that it investigated a new concept and sought to unearth new insights on the understandings of Capability in NIC nurses. Grounded theory (GT), suits such an exploratory study as it is an inductive approach to research that attempts to generate a theory from the analysis of emerging data (Babbie, 2011). Grounded theory is constructive, and according to Charmaz (2014) combines both positivist and interpretive theories, where a number of elements can define a pragmatic approach to the research method.

It was important to take such pragmatic approach as I was researching an area within which I worked and I was determined to capture the views of the profession. Pragmatists recognise there are many different ways of interpreting the world, there may be multiple realities and no single point of view can ever give the entire picture (Charmaz, 2014). With this in mind, I began to interrogate various methods to capture these potentially different interpretations. My exploration led me to the methodological approach described here.

This research utilised seminal works of key scholars in each of the methods employed throughout this study. For guidance and instruction on both Nominal Group Technique and the Delphi process I drew from the seminal works of Delbecq, Van de Ven, and Gustafson (1986) "Group Techniques for Program Planning: a guide to nominal group and Delphi processes", and Keeney, Hasson, and McKenna (2011) "The Delphi Technique in Nursing and Health Research". The works of Anselm Strauss and Juliet Corbin (Straus & Corbin, 1998) "Basics of qualitative research: Techniques and procedures for developing grounded theory" and, more recently, Kathy Charmaz's concept of "Constructing Grounded Theory" (Charmaz, 2014) have guided me through the grounded theory process.

Grounded theory

Inductive research

The methodological approach in this research was exploratory in order to contextualise the concept of Capability through the perspectives and views of the NIC profession. Grounded theory is ideal for this type of research as it places great emphasis on the voice of the participants (Babbie, 2011; Hansen, 2006). It also uses inductive principles where a theory is generated from unfolding data as described by Straus and Corbin (1998) in their seminal work "Basics of qualitative research: Techniques and procedures for developing grounded

theory". The approach is both qualitative and quantitative; data are analysed by quantitatively interpreting qualitative studies, through systematic coding to achieve valid and reliable interpretations (Babbie, 2011). Straus and Corbin (1998, p. 13) have stated that it is a balance between "science and art", the science is the rigor of analysing the data, and the art is the creativity in the ability to make comparisons, to consider alternative meanings of phenomena, to identify, develop and relate concepts in a manner that builds the theory. Grounded theory provides a framework on which to make interpretations from accumulated data (Babbie, 2011; Brink, et al., 2006).

One of the main features of grounded theory is that data collection and analysis occur simultaneously. The researcher keeps an open mind using an intuitive process to interpret new data (Brink, et al., 2006; Straus & Corbin, 1998) and meanings are developed through alternating processes of data collection and analysis (Straus & Corbin, 1998). Charmaz (2014, pp. 231-232) has suggested that "grounded theory as a *theory* contains both positivist and interpretive elements because it relies on empirical observations and depends on the researchers' constructions of them".

I selected a mixed method approach, using both qualitative and quantitative strategies, because it was appropriate for the three main areas to be explored. Qualitative and quantitative research are complimentary paradigms where "each adds something essential to the ultimate findings, even to the final theory" (Straus & Corbin 1998, p. 28). My research was exploratory, designed to *hear the voice* of neonatal nurses. I believed it was imperative the ideas and concepts emerged from the collective understandings of the profession in order to be accepted by the profession. Focus groups, or guided small group discussions, often used in exploratory research (Babbie, 2011), was deemed to be the best way to elicit these understandings. This research, therefore, used the qualitative and quantitative evaluative methods of Nominal Group Technique, Delphi Technique, and interviews to explore, analyse and collate expert opinion.

Symbolic interactionism and the dramaturgical approach

Symbolic interactionism and the dramaturgical approach both interrogate the nuances of communication (Charmaz, 2014, p. 263). Both were appropriate frameworks in my approach to the final research sub-question to identify how Capability is recognised in clinical practice. The symbolic interactionist paradigm is concerned with the interactions between groups; where people behave and interact based on how they interpret or give meaning to symbols in their lives, such as style of dress or verbal and non-verbal expressions (Baker, Wuest, &

Stern, 1992). Working from this perspective, I was able to appreciate that people place meanings on language and other symbolic systems in a particular context, and that people react in response to how they view the situation (Streubert & Carpenter, 2003, p. 110).

The dramaturgical approach incorporates interpretations of non-verbal communications into the interpretative process. Dramaturgical analysis focuses on the meanings that emerge through action during communication. This analytical framework investigates the meaning of non-verbal behaviour, "such as how we talk, what our facial expressions and body movements suggest [making] some empirical aspect visible that might not otherwise be brought into view" (Charmaz, 2014, p. 274). In dramaturgical analysis, as the researcher, I was interested in the interpretation the participants made of the clinical interactions rather than my interpretations of the interactions.

Objectivity and sensitivity

Straus and Corbin (1998, p. 35) define objectivity and sensitivity in research as:

- Objectivity is the ability to achieve a certain degree of distance from the research materials and to represent them fairly; the ability to listen to the words of the respondents and give them a voice independent of that of the researcher.
- Sensitivity is the ability to respond to the subtle nuances of, and cues to, meanings in the data.

It is important for the researcher to remain sensitive to the issues but remain objective when data collection and analysis occur simultaneously, causing the researcher to be "shaped by the data just as the data are shaped by the researcher" (Straus & Corbin, 1998, p. 42). This research intentionally gave voice to the participants, hearing what the participants had to say and representing them as accurately as possible, was the best way to maintain objectivity (Straus & Corbin, 1998, p. 43). The results from each method were generated iteratively and in this way, the research was shaped by the data. Importantly, the findings from each stage were published in the Journal of Neonatal Nurses, and presented at the Australian College of Neonatal Nurses (ACNN) annual conferences. It was quite possible, therefore, that potential participants, being made aware of the developing concepts, could be influenced and shaped by the emerging ideas.

In grounded theory the researcher recognises they have dual roles in the investigation, as a physical presence and a more subtle presence, which impact on both the researcher and the

participants, and makes it impossible to be completely value-free (Charmaz, 2014; Straus & Corbin, 1998). As a neonatal nurse educator investigating neonatal nurse education, I acknowledged that I was researching the world in which I had worked in for over 30 years and was deeply embedded within the discipline, and there was a potential for bias (Charmaz, 2013). I also recognised that I am a "social being who also creates and recreates social processes. Therefore, previous experiences are data, no effort is made to put aside ideas or assumptions about the situation being studied" (Baker, et al., 1992, p. 1357). Nevertheless, in order to avoid overt bias it was essential for me as the researcher to maintain an analytical distance, while drawing on my past professional experiences and theoretical knowledge, in order to critically analyse the data (Streubert & Carpenter, 2003).

In qualitative research, "we cannot completely divorce ourselves from who we are and what we know" (Straus & Corbin, 1998, p. 47), knowledge, and experiences inform us on new problems and issues. As Straus and Corbin (1998) suggest, when researching the world in which I worked for over 30 years, I am familiar with cue collecting to make meaning from neonatal behaviour in my professional experience. Neonatal nurses constantly take cues from neonates to interpret and make decisions about care. For example, neonates are non-verbal and so the only way to evaluate if the neonate is in pain is through visual cues such as facial expression, body position, and deviations in heart rate, blood pressure, and blood oxygenation (Ballantyne, Stevens, McAllister, Dionne, & Jack, 1999). During the interviews, the participants described a process of cue collecting; through interpreting the students' behaviours, both verbal and non-verbal, which enabled them to make judgements on the PG Cert NIC students emerging Capability. I recognised this cue collecting behaviour in the participants as conceptually similar to the cue collecting neonatal nurses use in the therapeutic interactions with their patients (Stein-Parbury, 2009).

Inductive in nature, this research had no preconceived ideas to prove or disprove (Mills, Bonner, & Francis, 2006). I continue to assert that the interpretations are from the perspectives and the voice of the participants (Straus & Corbin, 1998) and the issues important to the participants have emerged from the data (Mills, et al., 2006). Throughout this research I have interwoven the literature as another "voice contributing to the theoretical reconstruction" (Mills, et al., 2006, p. 29).

Flexibility of the research question and process

In grounded theory, the data are emerging, and so it is beneficial to initially "frame the research question in a manner that will provide the flexibility to explore the phenomenon in

depth" (Straus & Corbin, 1998, p. 40). The research question identifies the phenomenon to be studied and the investigator is able to refine the research question(s), as data are generated and analysed. Importantly "a truly accurate research question is impossible to ask before any grounded theory study" (Hutchinson, in Streubert & Carpenter, 2003, p. 112). In this study, my initial research question was quite broad exploring methods of assessing competence in clinical practice. However, as the research progressed, the focus narrowed and a theory emerged around Capability in PG Cert NIC students. The overarching research question was then defined and modified to 'How Capability is identified and recognised in Registered Nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care?'

In grounded theory, the design of the research emerges throughout the research process (Straus & Corbin, 1998, p. 33). The initial literature review identified that there were no nationally agreed discipline specific outcomes or Graduate Attributes (GAs) for a PG Cert NIC in Australia. Consequently, the first stage in this research was to develop the PG Cert NIC Graduate Attributes. Identification of the PG Cert NIC Graduate Attributes led to Stage 2 of this research project to identify what is required, for the students, to achieve these GAs. This process not only identified the Capability Requisites (CRs) required to achieve the GAs but also provided guidance as to the appropriate stage in the 12-month course at which students were expected to achieve these CR. From here I was able to complete the final stage of the research project, which was to contextualise Capability in practice; to develop an understanding how students demonstrate Capability in practice.

Method

Steps in the research process

The research addressed the three research sub-questions, which emerged and were clarified as the research progressed, in three separate stages:

- Stage 1 addressed the first research sub-question, which was to identify the discipline specific Graduate Attributes for neonatal nurses within the Australian context.
    - To obtain consensus among the Neonatal Nurse Educators in Australia on the Graduate Attributes, I elected to use Nominal Group Technique (NGT). This technique involved a small face-to-face focus group discussion to prioritize ideas from participants and reach consensus. This approach

enabled the development of nationally agreed Graduate Attributes for neonatal nurses.

- Stage 2 addressed the second research sub-question, which aimed to explore the views of experienced neonatal nurses in order to identify what is required to develop these attributes, and at what stage in the course they are expected to develop. This stage focussed, therefore, on the Capability requirements of students enrolled in a postgraduate neonatal intensive care course.

    o To determine the Capability requirements of students enrolled in and graduating from postgraduate neonatal intensive care, I chose to use the Delphi Technique. In Delphi, a consensus of agreement is achieved among experts on certain issues and is "based on the assumption that group opinion is more valid than individual opinion" (Keeney, et al., 2011, p. 3).

- Stage 3 addressed the third research sub-question, which was to clarify how qualified Neonatal Intensive Care nurses recognise Capability in students enrolled in Postgraduate Certificate in Neonatal Intensive Care.

    o To explore this question, I chose to undertake semi-structured interviews with experienced neonatal nurse mentors in the practice.

These three stages are represented visually in Figure 3.1.

STAGE 3: How is Capability recognised in students enrolled in postgraduate neonatal intensive care courses?
- Interviews
- PG Cert NIC Graduate Capability Wheel with Gears of Capability

STAGE 2: What is required to develop these attributes and when are they expected to develop?
- eDelphi
- PG Cert NIC Graduate Capability Framework with Capability Requisites

STAGE 1: What are the expected outcomes for students graduating from PG Cert NIC?
- NGT
- PG Cert NIC Graduate Attributes

Figure 3.1. Outline of the three Stages of the research

Each of these stages will be discussed separately in subsequent chapters.

Method trials

In order to conduct focus groups, the facilitator must understand the process, have the self-confidence to lead the group through the process and be legitimate or, accepted as the leader directing the group. For the inexperienced, such as myself, conducting a method trial facilitates the development of such confidence (Delbecq, et al., 1986, p. 80). Because I had not conducted or been involved in any focus group activities in the past, I elected to undertake method trials for both the NGT and the Delphi. This allowed me to become familiar with the processes and to tease out technical issues related to both the NGT and the eDelphi prior to data generation. For both trials, I sought voluntary participation from work colleagues. These method trials did not generate any to the data for this specific research and as such their results are not discussed in this thesis.

Study rigour: Trustworthiness

The rigour of this study is addressed in accordance with the principles introduced by Lincoln and Guba (1985), and supported by Rodham, Fox, and Doran (2015); Sinkovics, Penz, and Ghauri (2008). Lincoln and Guba (1985) recognise that it is the *trustworthiness* of the research process which establishes rigour, where the *credibility, transferability, dependability* and *confirmability* of the study are key components.

Credibility

Credibility refers to the *truth* of the findings. Credibility is twofold; firstly it refers to undertaking the study in a way that recognises the "probability of the findings will be found credible" and secondly such that the findings are approved by the "constructors of the multiple realities being studied" (Lincoln & Guba, 1985, p. 296). There are a number of ways in which this might be achieved through triangulation and member-checking.

Triangulation, can be defined as "the application and combination of several research methodologies in the study of the same phenomenon… to overcome the weaknesses or biases of a single method (Denzin, 1997, p. 318). Triangulation allows the analysis to develop on different levels to "conceptualise the subject matter" (Denzin, 1997, p. 319). In social science research, triangulation is significant, as it is impossible to view life clearly through the participants' eyes and there is no guarantee the presence of the researcher does not change

the actions or thoughts of the participants. Triangulation can pertain to methods, theory, data and analysis.

Methodological triangulation is the most familiar interpretation of triangulation, it is a way of overcoming such biases through the use of two or more methods of data collection (Cohen, Manion, & Morrison, 2011; Denzin, 1997; Hansen, 2006) and a well-designed study takes advantage of the strengths of different methods (Babbie, 2011). This research used three different methods of data collection to study the phenomenon of Capability, allowing greater confidence in (Cohen, et al., 2011) and credibility of the research findings.

Theory Triangulation acknowledges that there is more than one theoretical scheme to interpret a phenomenon (Denzin 1997). *Data triangulation* uses more than one data source to obtain different views on a topic, and *analysis triangulation* uses multiple approaches to analyse data (Hansen, 2006). This research used these three different forms of triangulation throughout the three stages. Each will be discussed in more detail in the corresponding chapters.

Member check or respondent validation from participants is used to examine the analysis of the research and confirm or disconfirm the interpretations (Hansen, 2006). In this research, the focus group techniques (NGT and Delphi) incorporated feedback from participants to reach a consensus of opinion. Respondent validation was also incorporated into the interviews, by returning transcripts of interviews to participants and providing them with an opportunity to clarify ideas and concepts, as suggested by Hansen (2006, pp. 56-57).

There are some recognised, inherent weaknesses in the process of triangulation; for example, because multiple participants view the problems from different perspectives they may not provide data that lead to the same interpretation. Denzin (1997) encourages the researcher to embrace such differences, and to try to explain them, to further inform the researcher. Triangulation is not used to seek validity, rather the process encourages a more in-depth exploration making the conclusions more compelling (Denzin, 1997).

Transferability

Transferability refers to the extent to which the findings are applicable to other contexts, where a phenomenon is described in such detail that the conclusions drawn are able to be transferred or have some relevance to other contexts. In order to enable transferability, it is important to "accumulate empirical evidence about contextual similarity…providing sufficient descriptive data to make similarity judgements possible" (Lincoln & Guba, 1985, p.

298). The protocol for this study was designed using sources from the focus groups as well as the interviews, and used purposive sampling at each stage of the research. In this sense, even though the findings from this research are specific to NIC nursing and these particular groups, if one is able to draw similarities between the specific groups, then the findings may be transferable to other contexts.

Dependability

Dependability refers to the consistency and/or repeatability of the findings. In social sciences it is impossible to replicate an investigation exactly, however, it is important that the method may be replicated to explore the concepts with another population. Dependability is the extent to which the process of inquiry is plausible, with an audit trail of the findings, interpretations and conclusions are supported by the data (Lincoln & Guba, 1985). This thesis and associated appendices, provide such an *audit trail* for this research study.

Confirmability

Confirmability relates to the degree of impartiality with which the findings are generated from the participants' ideas, that there is no covert researcher bias, and the data are approached with a certain degree of objectivity. This study adopted Scrivens' views of subjectivity and objectivity, which are defined by the quality of the testimony. Subjective means unreliable, possibly biased or drawn from personal opinion, and objective comes to mean reliable, factual, confirmable (Scrivens cited in Lincoln & Guba, 1985). As stated by Lincoln and Guba "This definition removes the emphasis from the investigator and places it… on the data themselves"(1985, p. 300). In this respect, confirmability, along with dependability, were assured in this research through the inclusion of an audit trail, with a description of the research steps taken, records kept of the process, information about sampling, rationale for the decisions made, and detailed reports on the analytical steps.

Ethical considerations

Each stage of this research was approved by the Tasmanian Social Sciences Human Research Ethics Committee (HREC H0013429). Aligning with grounded theory, as the research process emerged, it was found that changes in approach were required, and hence ethics amendments were submitted. Specifically, the inclusion of the method trials, and changing Stage 3 method from the initial plan to use a survey instrument to undertaking semi-structured interviews (see Appendix G: Ethics Amendments).

Anonymity is ensured when both the researcher and participants cannot link responses with respondents, while confidentiality requires that the researcher can identify the participants but does not do so publically (Babbie, 2011, p. 71). Where possible, it was important to maintain anonymity and ensure confidentiality in this qualitative research. In order to protect confidentiality, all data were de-identified when shared with other participants, in the publications, and reported here. However, due to this study drawing from such a small specialist field as neonatal nursing in Australia and the nature of the study methods used, neither anonymity nor complete confidentiality could be guaranteed during the research process. This aspect will be discussed further in the subsequent Chapters 4, 5 and 6.

When working in focus groups the participants know (or come to know) both the researcher and each other, while it is the nature of interviews that the researcher and interviewee are in contact. When using focus groups for research, there is a risk of breach of confidentiality. For this reason, Hansen (2006) suggests focus groups must follow the usual ethical procedures for the institution, and participants are encouraged to respect each other's confidentiality. This expectation was reinforced by having participants sign the consent form stating that they understood the importance of confidentiality as part of their consent (Hansen, 2006) (see Appendix A: NGT participant information and consent). Prior to the commencement of the focus group, time was allocated for the participants to review the Participant Information sheet and consent form in order for the researcher to address any concerns, as recommended by Shaha, et al. (2011).

At each stage of the study, participants were fully informed of what their involvement in the research would entail, the purpose of the study, information security and how data would be used, and advised they were able to withdraw at any time (Hansen, 2006).

Recruitment

Purposive sampling (selecting participants with particular qualities) is key to successful focus groups (Cohen, et al. 2011). When exploring sensitive issues or when the researcher is trying to familiarise with new issues, Hansen (2006 p.122-4) recommends a well-informed, homogenous focus group to better able explore the issues through their personal narrative. Evaluating Capability is complex and multidimensional, and there is evidence to suggest that those with more professional experience are able to evaluate such nuanced behaviours and provide a more holistic assessment than less experienced assessors (Donaldson & Gray, 2012; Govaerts, et al., 2011). Therefore, purposive sampling was used throughout this

research to select participants who were currently in an academic or clinical nurse educational role.

For all stages of the study, the participants were required to possess a neonatal intensive care qualification. Other explicit inclusion criteria were identified within each stage of the research in order to provide the specific perspectives required to answer the particular research sub-question (Appendix A: NGT participant information and consent, Appendix B: eDelphi participant information and consent and Appendix F: Interview participant information and consent). These criteria are explained, and more detail relating to the research process is provided, in the chapters relating to the specific stage of the research (Chapters 4, 5 and 6).

The Australian College of Neonatal Nurses (ACNN) facilitated the process of recruitment for each stage of the research by emailing its members the invitation to participate (Appendix A: NGT participant information and consent, Appendix B: eDelphi participant information and consent and Appendix F: Interview participant information and consent). Interested candidates who met the inclusion criteria were asked to return the signed consent form to the researcher. Upon receiving this, the participant was contacted with further details regarding the process for the particular stage in which they were volunteering to participate.

The strength of purposive sampling lies in the quality of information obtained rather than the size of the sample (Hansen, 2006). In grounded theory, the sample sizes are determined by the data generated (Streubert & Carpenter, 2003). The nature of the research methods used in this study involved relatively small sample sizes, however the resulting in-depth study of the data facilitated transferability and allowed me, the researcher, to generalise to the wider population (Baker & Edwards, 2012; Hansen, 2006; Straus & Corbin, 1998).

Data generation and analysis

With grounded theory research, data generation and analysis is simultaneous (Charmaz, 2014; Straus & Corbin, 1998). The data generated in each stage of the research reported here informed the next stage of the research and contributed to the development of the final theory. These data are explained in more detail in Chapters 4, 5, and 6, wherein each of the individual stages are discussed.

Content analysis is "a strategy for collecting and analysing qualitative data through the use of an objective coding scheme" (Berge (2001) cited in Taylor, 2009, p. 8). Coding is a straightforward method to identify excerpts from the data or the narratives, which can then

be collated as ideas that were expressed or as themes. The analysis needs to incorporate both manifest and latent content. Manifest content are elements that are physically present and can be counted, whereas latent content requires an interpretation of the content, or "the symbolic meaning" of the data (Taylor, 2009, p. 10). Iterative thematic analysis (Hansen, 2006, p. 139) identifies recurring patterns or themes in the data. Such inductive coding, identifying the latent data through the themes and any recurring themes, add depth to the research through the analysis of manifest content (Taylor, 2009). Data from each stages of this research were subjected to content analysis through such inductive coding, and will be discussed in detail in Chapters 4, 5 and 6.

Limitations / boundaries

Neonatal nursing is such a specialised area in nursing in Australia and the community is small, it is not unusual for neonatal nurses to know each other even though they may work in different states. As discussed in relation to ethical considerations, the risk of breach of confidentiality in the focus groups was managed through the signing and returning of consent forms, which contained explicit information about confidentiality within focus group discussions. Participants were asked to respect each other's confidentiality and the signing of the consent form was an indication that they understood the importance of confidentiality.

There were also ethical limitations in contacting individual Neonatal Units for research purposes. This would have required each neonatal unit to undertake ethics approval in their own healthcare facility, which was not plausible. The ACNN actively encourages and supports research within the neonatal profession, and their research policy allows members undertaking research to use their membership database:

> The ACNN vision and mission statement advocates for excellence in the care of neonates and encourages quality clinical practice and research. As such the ACNN promotes and facilitates research related to neonatal care. The ACNN National Committee accepts requests from researchers to access ACNN members to participate in research and if such requests are accepted the ACNN will either distribute the information and invite to members to participate in research. Confidentiality of members' details is maintained at all times. It is emphasised that member participation in research is voluntary and should a member not wish to be sent information or invitations to participate in research, they are able to opt out by notifying the secretary of ACNN (Australian College of Neonatal Nurses, 2017)

Recruitment in this manner limited the participants to members of the ACNN, but as their membership was close to 600 at the time, there was potential for accessing a large division of the neonatal nurses in Australia. There is no national database to gather the numbers of neonatal nurses in Australia, so there is no way to confirm the percentage of representation of the neonatal nursing population overall in Australia.

The small participant numbers, and the fact that there was only one researcher analysing the data could be a potential limiting factor in generalising the findings to the wider nursing population. However, the small participant numbers in this type of research ensures impartiality and allows the participants to play an integral part in the process of analysing the results. Thus, the methods chosen provide a source of rich deep data to support concepts and ideas. This was an important consideration when deciding on the methods to employ for this study. The *transferability* of this research is facilitated through purposive sampling and clear method design, and as such, the findings may be applicable in contexts outside neonatal nursing.

Chapter Summary

This Chapter has introduced the research methodology of grounded theory and symbolic interactionism. It has justified the use of this theoretical approach, with a focus on the qualitative and quantitative aspects of inductive research. The rigor is justified through the principles of *trustworthiness*, where triangulation, ethical considerations and recruitment, data generation and analysis are crucial components of *credibility*, *transferability, dependability* and *confirmability*. While the chapter has introduced each stage of the research and corresponding method, it has not explored each method or the results of each method in detail. Features of each method will be discussed within the following three chapters (Chapters 4, 5 and 6), when each research question, associated method and results are examined individually. The following Chapter 4: PG Cert NIC Graduate Attributes discusses the process of developing the Graduate Attributes for neonatal nurses in Australia using the Nominal Group Technique.

Chapter 4: PG Cert NIC Graduate Attributes

What should be the discipline specific Graduate Attributes for neonatal nurses within the Australian context?

Introduction to the Chapter

This chapter presents a discussion and justification of the application of the Nominal Group Technique (NGT) to the first stage of the study (see Figure 4.1 taken from Figure 3.1 in Chapter 3). The chapter examines the strengths of the method, rigour of this aspect of the study and provides a discussion of the results of the NGT. It does so in three parts:

Section 4.1: Background to the Nominal Group Technique,

Section 4.2: Using the Nominal Group Technique (published journal article), and

Section 4.3: Study rigour and discussion.

Section 4.1, provides specific details of the NGT; justifying its suitability for answering the research question, participant recruitment, data generation and analysis, study rigour and ethical considerations and limitations. At appropriate places in Section 4.1, I have indicated where in the published paper (Section 4.2) further details of the method are to be found.

Section 4.2 is a paper published in 2014 (Bromley, 2014b) which presents and discusses the findings from this stage of the research. The NGT culminated in the development of discipline specific Graduate Attributes (GAs) for Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia. The paper should be read as the culmination of Stage 1 of the research straight after Section 4.1. Section 4.3 discusses the study rigour, including trustworthiness and ethical considerations.

STAGE 1: What are the expected outcomes for students graduating from PG Cert NIC?

- NGT
- PG Cert NIC Graduate Attributes
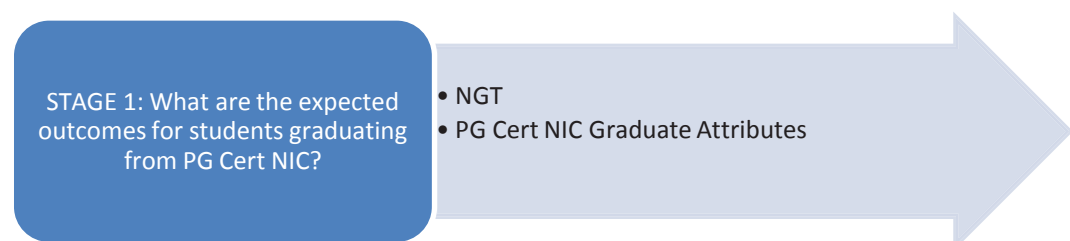
Figure 4.1. Stage 1 of the research

4.1: Background to the Nominal Group Technique

The need for graduate outcome statements

In 2011 Mannix (2011) published a study which focussed on education standards for neonatal intensive care nursing in Australia. She identified that there were no nationally agreed upon, graduate outcomes to inform course coordinators and students as to what is expected of a graduate in neonatal intensive care studies; there were no Graduate Attributes (GAs) for any postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia. For this research exploring Capability in nursing students undertaking the PG Cert NIC, the Graduate Attribute statements were viewed as an important preliminary step. The reasons for this have been explained in Section 2.2 of Chapter 2. This was the prompt for the first stage of this research study, the aim of which was to develop nationally agreed upon, discipline-specific Graduate Attributes for the Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia.

Neonatal Intensive Care (NIC) nurses graduate from several universities throughout Australia and so the development of Graduate Attributes for PG Cert NIC requires a consensus among the Neonatal Nurse Educators within Australia. The Australian College of Neonatal Nurses (ACNN) Annual conference in August 2013, provided an opportunity to accomplish such consensus on the GAs. This conference hosted the annual face-to-face workshop of the ACNN Neonatal Nurse Education Special Interest Groups (NNE SIG). The ACNN NNE SIG comprises representatives of neonatal nurse educators from both higher education institutions and the clinical practice area. The workshop was an ideal opportunity to develop consensus on the GAs for Neonatal Nurses in Australia using the Nominal Group Technique.

Grounded theory and NGT

Grounded theory places great emphasis on the voice of the participants (Babbie, 2011; Hansen, 2006). This research required the perspectives and views of expert and experienced neonatal nurses involved or interested in neonatal nurse education, facilitated through the inductive approach of a focus group, to develop new insights on the NIC Graduate Attributes. As discussed in Chapter 3, focus groups are a qualitative research method using group-based discussions to explore a particular issue or topic from the participants' viewpoint (Northcote, 2006). They are useful in the initial stages of research to develop themes or topics for subsequent research (Cohen, et al., 2011; Hansen, 2006). Focus groups are a valuable research tool when little is known of a topic, or when an in-depth understanding of an issue

is being sought (Northcote, 2006). They have also been found to be economical in terms of both time and money; by producing large amounts data in a short period of time at low cost (Cohen, et al., 2011; Hansen, 2006).

NGT is a particular focus group method, which involves small face-to-face focus group discussion to reach consensus (Delbecq, et al., 1986). NGT has advantages over other focus group techniques in that it is able to generate a greater number of ideas than traditional group discussion (Centers for Disease Control and Prevention, 2006). The technique is often used in research into health care education where a collaborative approach to problem solving is desired (Perry & Linsley, 2006). It gathers information by asking individuals to respond to questions posed by a facilitator and then asking participants to prioritise ideas (Delbecq, et al., 1986). The technique is primarily qualitative in that it seeks ideas from the participants, however, it does have quantitative features, in that it ranks these ideas from most to least important. The process in NGT of prioritising the issues presented, is an effective method in gaining consensus (Centers for Disease Control and Prevention, 2006; Harvey & Holmes, 2012).

The setting of the NGT (focus groups) needs to be conducive to discussion (Cohen, et al., 2011) and the characteristics of the physical facilities used in Stage 1 of this research are discussed in the ensuing journal article on the NGT (Bromley, 2014b).

Strengths of NGT

While other focus group approaches endeavour to minimise group dynamics so that the interpersonal constraints do not bias the views and opinions expressed, NGT relies on individuals' ideas within the group to generate a collective view (Cohen, et al., 2011). The facilitator provides the topic of discussion, and the participants collaborate to construct a communal opinion. By encouraging participants to confront issues through constructive problem solving there is a greater sense of closure at the end of the process (Centers for Disease Control and Prevention, 2006; Harvey & Holmes, 2012).

Method trial

To facilitate a focus group requires skill to observe and conduct the discussion without too much direction, to enable all participants to voice their opinions and not have the group be dominated by any particular voice (Hansen, 2006). As a novice to this research method, I followed the suggestion of Delbecq, et al. (1986), and conducted a trial of the NGT method with six of my work colleagues prior to the session to familiarise myself with the process.

This assisted in identifying any challenges in the method, providing me with experience and confidence to conduct the NGT focus group at the ACNN NNE SIG workshop. The data generated from the method trial did not add to the findings of this research and are not discussed in this thesis.

Participant recruitment

Participants in the NGT were selected for their experience in and knowledge of neonatal nurse education, and their familiarity with the issues to be presented (Hansen, 2006). As outlined previously, participants were recruited from the members of the ACNN NNE SIG who were attending the annual face-to-face workshop in October, 2013. The selection criteria were clearly identified on the Invitation to Participate sheet (Appendix A: NGT participant information and consent), which was emailed to the attending members prior to the workshop.

Although NGT may be viewed as an efficient method for generating an in-depth viewpoint, it may also be time-consuming when analysing the data if groups are large (Hansen, 2006). Deciding on the number of participants in the NGT is difficult, too small and intragroup dynamics can exert disproportionate effect, too large and it may become unwieldy and hard to manage (Cohen, et al., 2011).

In this research, the number of participants in the NGT workshop needed to strike a balance between ensuring there were enough participants to generate quality data, but not too many resulting in no time to comprehensively analyse the data. The recommended numbers for NGT is between 5 and 12 participants (Cohen, et al., 2011; Delbecq, et al., 1986; Hansen, 2006). Delbecq et al., (1986, pp. 69-70) suggest between five and nine participants because "[fewer] than five members lacks resources in terms of the number of critical judgments available to analyse the problem and arrive at a decision. On the other hand, adding beyond ten members often does not increase group accuracy".

The limiting factor of the sample size was the number of members of the ACNN NNE SIG attending the face-to-face meeting/workshop on that particular day. The final number of NGT participants was eight, which was quite a manageable group size. Details of the demographics of the group are provided in Bromley (2014b, p. 247) in Section 4.2 of this chapter.

Data generation and analysis

The NGT consisted of four rounds to prioritise participants' opinions of Graduate Attributes for the PG Cert NIC. Further details of these rounds are provided in Bromley (2014b, pp. 247-248) in section 4.2 of this chapter.

I transcribed the verbal data from the NGT conversation during the workshop in a spreadsheet on a laptop, which was projected onto a screen at the front of the room. I also had an assistant who undertook note-taking; she was a volunteer from within the group and hand wrote the data as a double check in case I missed any detail. This is the preferred choice of data gathering in NGT, ensuring the data collected verbatim did not suffer distortion through being summarised (Hansen, 2006).

As described in detail in Bromley (2014b), data generation and analysis is simultaneous within the NGT, as the data generated in each round feeds into the next round. The judgements of the individuals are pooled, and with each round priority and ranking occurs in order to gain a consensus (Delbecq, et al., 1986).

As the data for the NGT were collated on the excel spread sheet, the ranking of scores was easily undertaken. Thematic grouping of ideas was also undertaken as part of the NGT process at the time of the workshop. The final stage of the NGT analysed content through an objective coding scheme, which identified and collated ideas and themes (Taylor, 2009). A copy of the final spreadsheet analysis is provided in Appendix A: NGT participant information and consent. The sequence of analysis is discussed in detail in the journal article accompanying this chapter (Section 4.2: Bromley, 2014b, pp. 247-248).

4.2: Using Nominal Group Technique – Journal Article

Publication details

This paper was submitted to the Journal of Neonatal Nursing and subsequently published as:

Bromley P (2014) Using Nominal Group Technique (NGT) to reach consensus on Graduate Attributes for nurses undertaking Postgraduate Certification in Neonatal Intensive Care in Australia. *Journal of Neonatal Nursing, 20*(6), 245-252.

At this point, it would be beneficial to read the accompanying article to this stage of the study. This article describes the research process in more depth and explains the findings from this stage of the study.

This section of chapter 4 has been removed for copyright or proprietary reasons.

4.3: Study Rigour and Discussion

Study rigour in the NGT

Chapter 3 provided an explanation of how the rigour of the research was ensured, specifically, through a discussion of the *trustworthiness* of the research as well as the *credibility, transferability, dependability* and *confirmability* of the study. Aspects of each of these, specific to the NGT are discussed in this section.

Particular aspects of *trustworthiness* involved in Stage 1 of the research method relate to the use of purposive sampling and member checking. *Dependability* and *confirmability* were evidenced through the data gathering and analysis methods used, specifically member checking at each round and in the development of the report to present to the ACNN.

Credibility of this stage of the research was evidenced through the use of different methods of triangulation. The research scenario for the NGT was limited in time (one day) and space (one group), so the best way to triangulate the data was to choose specific participants (purposive sampling) to undertake the focus group session (Denzin, 1997). It was essential, therefore, to be selective in the criteria for participation. The individuals participating in the NGT were from the same discipline but had different clinical or educational positions within clinical practice or at a higher education institution. In this respect, the participants were able to view the concepts from the different perspectives of both the educator and the clinician. Analysis triangulation was facilitated through the exploration of the different views of the participants articulated through the NGT process; an advantage for this investigation as it develops a broader view of the issues.

Theory triangulation (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014; Denzin, 1997) was also undertaken through a comparison of the data generated through the NGT with industry standards for Registered Nurses as well as the Tertiary Educational Quality and Standards Agency (TEQSA).

Member checking or respondent validation (Hansen, 2006) was achieved through providing participants with the analysis and interpretations to confirm the issues had been identified clearly during the focus group session. Additional member checking occurred after the workshop. The results were analysed and the generated GAs were reported via email back to the participants of the workshop for their review and to provide any further feedback. Once the PG Cert NIC Graduate Attributes were agreed upon by the group, they were

presented in a report to the ACNN for endorsement (see Appendix A: NGT Participant information and consent).

According to Delbecq, et al., (1986), despite the fact that within the group the decisions are usually well accepted, one cannot be sure they will be accepted by the larger organisation. However, the Graduate Attributes identified through the NGT in this research have been endorsed by the College and are available for the wider neonatal education population from the Australian College of Neonatal Nurses (ACNN) Website (www.acnn.org.au). Having the PG Cert NIC Graduate Attributes endorsed by the professional body for neonatal nurses is another form of validation.

Transferability was made possible in this stage of the study through the use of purposive sampling for the NGT workshop. That is to say, even though the findings from this research are specific to this particular group of neonatal nurse educators, if the reader of this research is able to experience similarities to the group, then the findings may be transferable to other contexts (Lincoln & Guba, 1985).

The NGT method ensures *dependability* and *confirmability* in the research, as the process provides a clear audit trail (Lincoln & Guba, 1985), demonstrating how findings from each round were interpreted, thereby justifying the conclusions drawn. The round robin stage encourages participation from each member, and thereby diminishes the pressure to conform to the majority or the loudest voice (Centers for Disease Control and Prevention, 2006). The study demonstrates impartiality in that the findings were generated from the participants' ideas in a public forum, and therefore no covert researcher bias was possible (Lincoln & Guba, 1985).

In NGT the researcher often performs dual roles as a participant and as an observer (Delbecq, et al., 1986). Therefore, as I was also a working participant in the focus group, I consciously *stepped back* from the research in order to analyse the participants' views, including my own (Charmaz, 2014; Straus & Corbin, 1998). This was a straightforward process as the prioritisation stage during data analysis in NGT ensures impartiality.

As a Lecturer and Unit Coordinator in Neonatal Nursing, I had my own notions of what should be Graduate Attributes of PG Cert NIC. These have developed over the years through personal and professional life experiences. I was conscious of the fact that I came to this research with my own professional experiences and understanding, which enabled me to be sensitive to the ideas and concepts of the participants (Straus & Corbin, 1998, p. 48).

Furthermore, because all participants in the NGT were neonatal nurse educators, there was a strong possibility we were viewing the phenomenon from similar perspectives. However, I viewed this positively, as I chose this specific research method because I wanted to garner the opinions of experienced neonatal nurse educators.

Ethical considerations

As discussed in Chapter 3, participants were fully informed of what their involvement would entail; the purpose of the study, information security and that they were able to withdraw at any time (Hansen, 2006). Even though a participation information sheet and consent form were provided to participants prior to the day of the workshop, key information regarding participation was reviewed at the start of the workshop and participants were reminded of their right to withdraw at any time. It was emphasised though, that due to the nature of NGT, it would be impossible to remove individual's data once it had been analysed.

As Hansen (2006, p. 132) noted, "when numerous people are involved, it is difficult to ensure participants do not gossip about the participants in the group". This was addressed in part in two ways, by asking participants keep the opinions of the individuals in the group confidential and also through emphasising the confidentiality clause in the consent form. Having said this, nurses deal with sensitive patient information on a daily basis, and there is an implicit understanding of confidentiality within the profession.

Chapter Summary

This chapter has explained and justified the process of Nominal Group Technique used in the Stage 1 of this research, highlighting both the rigour of the NGT and its ethical considerations. Together Sections 4.1, 4.2 and 4.3 have provided methodological information, additional to that provided in Chapter 3. It has summarised how the opinions from a panel of neonatal nurse educators from both clinical practice and the tertiary education sector agreed upon the Graduate Attributes for the PG Cert NIC.

The next chapter, Chapter 5: PG Cert NIC Capability Framework, addresses the second stage of this research which used the Delphi process to garner the opinions from a panel of experts in NIC as to what are the Capability Requisites for achieving the PG Cert NIC GAs, and how these are developed over the 12-month PG Cert Course.

Chapter 5: PG Cert NIC Capability Framework

What are the experts' views of Capability Requisites of students enrolled in postgraduate neonatal intensive care courses.

Introduction to the Chapter

This chapter discusses and justifies the application of the Delphi/eDelphi Technique used in the second stage of the study (see Figure 5.1 taken from Figure 3.1 in Chapter 3). The chapter will examine the strengths of the method and rigour of the study, as well as presenting a discussion of the findings thereof. This chapter is presented in three parts:

Section 5.1: Background to the Delphi/eDelphi Technique,

Section 5.2: Using eDelphi to identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing, a paper published in 2015 (Bromley, 2015), and

Section 5.3 discusses the study rigour.

The paper provided in Section 5.2 presents findings from the eDelphi that culminated in the conceptualisation of the Capability Framework Capability Requisites (CRs) in nursing students undertaking a Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia. At appropriate places in Section 5.1, I have indicated where in the published paper further details of the method are to be found.

STAGE 2: What is required to develop these attributes and when are they expected to develop?

- eDelphi
- PG Cert NIC Graduate Capability Framework with Capability Requisites
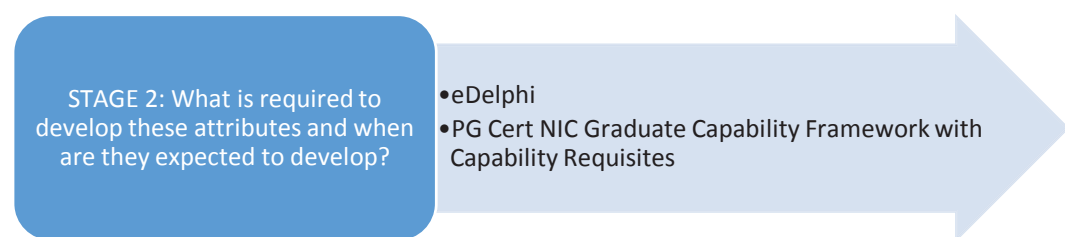
Figure 5.1. Stage 2 of the research

5.1: Background to the Delphi/eDelphi Technique

The need for Capability requisites in PG Cert NIC in Australia

The outcomes from Stage 1 of this research (using the NGT as described in Chapter 4) identified the discipline specific GAs for the PG Cert NIC course in Australia. The manner in which students achieve these Attributes from the perspectives of practitioners in the field became the logical focus of subsequent research, and the basis of the next research question: What are the experts' views of Capability requirements of students enrolled in the PG Cert NIC in Australia?

This research was inductive in that it used a form of focus group, to develop new insights from the perspective of the NIC profession. An assumption at the heart of this aspect of the research was that experienced neonatal nurse educators and neonatal nurse clinicians involved in the support of neonatal nursing students, have a clear understanding of what is required for students to achieve these Attributes and be Capable graduates. The primary goal for Stage 2 of this study, therefore, was to develop a consensus from a panel of experts[2] in the profession about what the Capability Requisites for nursing students enrolled in any PG Cert NIC course in Australia might be, and at what stage in the 12 month course they should be evident. For this purpose, an electronic version of the Delphi Technique (eDelphi) was used to develop a consensus.

Grounded theory and the Delphi Technique

Delphi research is heuristic, it attempts to find answers to questions where none have previously existed. It does this through gaining consensus from a panel of experts (Keeney, et al., 2011) where valid expert opinion is based on the Lockean notion that "an empirical generalization or communication is judged objective, true or factual if there is sufficient widespread agreement on it by a group of experts" (Mitroff & Turroff, 1975 cited in Powell, 2003, p. 380). It is visionary in that it attempts to identify what could or should be (Hsu &

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[2] For this research, 'experts' will be defined as neonatal Nurse Unit Managers and neonatal clinical practitioners with 5 or more years of experience in neonatal intensive care nursing and Neonatal Nurse Educators.

Sandford, 2007). The technique is iterative, achieving consensus through the process of multi-staged survey (Keeney, et al., 2011).

Delphi has become popular in health and nursing research, as the method lends itself well to investigating solutions to problems that do not afford clear-cut analytical techniques and where the shared opinions of experts in the area are valued (Keeney, et al., 2011). More recently, an electronic version (eDelphi) enabling data to be gathered fully online has been used in a number of research studies in nursing and nursing education. It has been used to develop practice standards (Gill, Leslie, Grech, & Latour, 2013), education standards (Mannix, 2011), education and research priorities (Cowman et al., 2012), direct care activities (Cowan, Brunero, Lamont, & Joyce, 2015), and to elicit consumer opinion (Perdok et al., 2014).

Delphi uses a quantitative process for ranking or more precisely, aggregating the ideas of participants (Delbecq, et al., 1986). As is the case in the NGT, the Delphi process relies on individuals to generate ideas, however, unlike NGT, individuals work in isolation and are anonymous to each other. After each round the results are pooled and collated by the researcher, these are then fed back to each individual, so that they can compare their own ideas with those of the whole group. The process continues until a consensus of opinion has been reached on the topic/s being explored. An example of this feedback is provided in Appendix C: eDelphi instructions for participants and consent. The research method for this study has been described in the accompanying publication "Using eDelphi to identify Capability Requisites for Postgraduate Certificate in Neonatal Intensive Care Nursing" (Bromley, 2015) in Section 5.2 of this Chapter.

Strengths of eDelphi

Traditional Delphi uses paper based surveys which are sent to participants by post or email (Keeney, et al., 2011). Email allows quick dissemination of information and hastens recruitment for research (Holloway, 2012), with the only limiting factor being access to a computer and internet. Where the latter is not limiting for participants, an online version of the Delphi, the eDelphi, can be used.

The eDelphi enhances the ability of the researcher to elicit expert opinion in a short period of time (Hsu & Sandford, 2007), and in this study I frequently had responses within 24 hours of emailing the survey link. The asynchronous nature allowed participants to respond within a given time period in their own time (Holloway, 2012). The main advantages of using an

online survey tool included the simplicity of the initial set up, the speed of administration and circulation, as well as quick and efficient analysis of results (Gill, et al., 2013).

The eDelphi is a quasi-anonymous online survey tool, it provides anonymity between panel members, however the facilitator is able to identify individual participants (Holloway, 2012; Keeney, et al., 2011). In order to protect the participants' confidentiality, the eDelphi online tool used had a high degree of security through safeguarding email addresses and the survey data was stored on a password-protected server. The tool (SurveyMonkey®) was purchased through the higher education institution in which I was enrolled, which had the added protection of the institution's firewall. This complied with the Social Science Human Research Ethics Committee (Tasmania) Network (SSHREC) requirements for electronic data storage. As is the case with all online information, there is the potential threat from hackers, however, it was considered this potential threat to data security was minimal and did not outweigh the benefits of an externally hosted commercial software package (Gill, et al., 2013).

It is prudent to consider the requirements for the research to enable maximum efficiency before selecting your program (Keeney, et al., 2011). Survey Monkey® was chosen for the eDelphi over other available programs primarily because of its familiarity. I had previously used the free basic plan in the method trial and found it to be user-friendly, enabling easy development of the survey. While the basic programs for many online survey tools, such as SurveyMonkey® are freely available, these packages usually restrict the number of questions and responses that are possible. Upgrades to some of these freeware applications are available, however there may be a cost attached. This research was undertaken using SurveyMonkey's® basic program with the 'Unlimited' plan which allowed for unlimited questions and up to 1000 responses.

Recruitment

There is no recommended size for the expert panel in a Delphi study, numbers can vary according to the research problem and available resources (Keeney, et al., 2011; Powell, 2003). Powell (2003) identified anywhere from 10 to 1685 participants, and Delbecq, et al. (1986) suggested 10 to 15 homogenous (similar skills or knowledge and who are well informed of the issues) panel members is sufficient. Primarily numbers depend upon the pool from which the panel is drawn; a small pool will generate small numbers of participants. Hansen (2006) indicated that the expertise of the panel is probably a more important inclusion criterion than large numbers.

For a Delphi study to elicit rich data, participants who had an understanding of, and an interest in the issues under consideration (Hansen, 2006), were recruited through purposive sampling. A small and homogenous expert panel of experienced neonatal nurse educators was constructed to explore and critique the topics and ensure that expert opinion was elicited in accordance with the recommendations of Delbecq, et al., (1986). The inclusion criteria for this stage of the research were neonatal nurses who supported PG Cert NIC students in clinical practice, as well as neonatal nurse academics who were currently involved in providing their education. The specific criteria used for and the process of selection is explained in Section 5.2, Bromley (2015, p. 226). Recruitment was facilitated through the Australian College of Neonatal Nurses (ACNN). The ACNN emailed all 576 members requesting participants for the study, resulting in 25 responses from neonatal nurses who met the specific inclusion criteria, this was a workable panel size for the eDelphi.

The final panel had equal representation from neonatal nurse educators and neonatal nurse clinicians (see Table 1, in section 5.2 Bromley, 2015 p.226). There was a greater representation of educators from clinical practice compared with the tertiary education sector. This was consistent with the fact that there are only nine higher education institutions that offer PG Cert NIC compared to 23 Neonatal Intensive Care Units (NICU) in Australia. The panel thus offered a representative sample of neonatal nurse educators in Australia. Furthermore, I considered the weighted clinical perspective to be a positive factor because the aim of this research was to identify Capability in students within the clinical practice area.

The literature on Delphi emphasises that ongoing participation in the process can become problematic (Keeney, et al., 2011). Even though there is no specific guidance as to acceptable response rate, Keeney, et al. (2011) suggest a response rate of 70% for each round is required to maintain rigour. I was cognisant of the fact that small numbers may not provide equal representation (Delbecq, et al., 1986) and maintained a watchful eye on attrition throughout the eDelphi. I encouraged continued participation by emailing weekly reminder notices to participants with a countdown to when the survey round would close, in accordance with the recommendation of Keeney, et al. (2011). Even so, there were two participants who missed the deadline and contacted me by email asking if they could complete the survey. The survey was easily re-opened for a limited period to accommodate these panel members. This allowed me to have an excellent response rate in all rounds; 100% in Round 1, 92% in Round 2 and 88% in Round 3.

Data generation and analysis

Data generation for the Delphi Technique is through a process of multi-staged survey designed to transform individual opinion into group consensus. Each round generated data to inform the subsequent round, the process continued until a consensus was reached (Keeney, et al., 2011).

eDelphi is an iterative process, content analysis was undertaken on the data generated from each round and sent back to the panel as either statements or as further questions for ranking according to their expert opinion. All rounds were delivered with clear instructions, unambiguous vocabulary, and using short and specific questions to minimise misunderstandings and potential response bias (Keeney, et al., 2011) (Appendix C: eDelphi instructions to participants for each round).

IBM® SPSS® version 20 (2011) was used to organise and analyse the data, enabling the calculation of descriptive statistics, in particular frequencies and inferential statistics, to ascertain the level of consensus for each question and stability between rounds.

Criteria for termination and level of consensus

There are a number of valid criteria for termination of Delphi such as; consensus, time and budget limitations, and saturation of data (von der Gracht, 2012). The most common criteria for terminating the Delphi is when a consensus has been reached through a statistical approach and percentage levels (Keeney, et al., 2011). The statistical approach uses the measures of central tendency, mean, mode or median to identify the "collective judgements of the respondents" (Keeney, et al., 2011 p.45). Keeney, et al., (2011) have identified that consensus can be anywhere between 50% and 80% and recommend this be predetermined at the outset of the eDelphi research. Participants usually draw toward a consensus after three (Keeney, et al., 2011) to five (Hsu & Sandford, 2007) rounds. When consensus is reached, the eDelphi can be terminated.

Some authors suggest, however, that this process of determining when to terminate the round is too arbitrary and subjective (Holey, Feeley, Dixon, & Whittaker, 2007; von der Gracht, 2012). von der Gracht (2012) and others suggest that inferential statistics, which measure the stability of responses between rounds (such as the Wilcoxon matched-pairs signed-test), as a more valid termination criterion (Chaffin & Talley, 1980; Holey, et al., 2007; von der Gracht, 2012; Gill, et al., 2013). When there is no significant statistical difference

between two consecutive rounds, group stability is achieved and the eDelphi can be terminated.

Consensus: Which to use, mean, mode, or median?

The purpose of the eDelphi is to gain a consensus of opinion, recognised by the identification of the most frequently agreed upon response to an item. Statistically this is referred to as the index of central tendency or the typical value (Polit, 2010, p. 398), which can refer to either mean, mode or median. There are potential problems with each of these measures, as the following example, which is also summarised in Table 5.1, illustrates.

The mean is the most commonly used index of central tendency as it represents the arithmetic average (Polit, 2010). The mean is affected, however, by every score and, when there are small sample sizes, it can be easily skewed and therefore not representative of a true converging to consensus. To demonstrate this effect, Table 5.1 provides a fictitious study to calculate the average weekly wage from a population of 11. In this example, using the mean, the average wage is calculated as $2,127.27 which is clearly inaccurate due to the one wage outlier.

Calculating the mode, the value that most often occurs in the data set, is another method to identify the index of central tendency (Polit, 2010). Problems arise, however, in a Likert scale when there are two or more modes (multimodal) in one answer, an outcome further confounded if one of these modes represents strongly agree and another mode represents strongly disagree. For a Delphi this would suggest marked opposition of opinion to the particular idea or concept. Table 5.1 demonstrates this multi modal effect where the average weekly salary could be either $100 or $500; slightly more accurate than the mean perhaps, but still not very helpful.

Polit (2010) indicates that the median, or the middle, is the most useful index of central tendency as is less affected by outliers than either mean or mode. In Table 5.1 the appropriateness of taking the median is demonstrated well, where the average wage is most accurately calculated at $400.

Table 5.1

Mean, mode and median

Working out the most typical value using mean, mode, and median. To calculate the average weekly wage from a population of 11 as an example of mean, mode and median.		
Mean: Represents the arithmetic average	**Mode:** The value that most often occurs in the data set	**Median:** The middle value
These are 11 weekly wages for a population. $100 $100 $100 $350 $400 $400 $450 $500 $500 $500 $20,000		
What is the **mean** weekly salary of this population? Mean wage: $2,127.27	What is the **mode** of the weekly salary for this population? Multimodal: $100 or $500	What is the **median** of the weekly salary for this population? Median wage: $400

In this study as I had a small sample size, I was concerned the results might be skewed if I used the mean, and using the mode may have produced multi modal responses at polar opposites. I therefore elected to use the median to measure the level of consensus, a point of view shared by Keeney et al. (2011).

Three termination criteria were used in this eDelphI; reaching a consensus through percentage levels and the statistical approach, and time. I followed the recommendation of Keeney, et al., (2011) choosing a measurement of central tendency (the median) with an a priori consensus percentage level of 70% as the foremost criterion for termination. However, to verify consensus, I also chose to follow the advice of Gill, et al., (2013) and used a statistical approach, the Wilcoxon test to measure the stability of responses between Rounds 2 and 3. The inference being, if there is stability between rounds then opinion will not change, thereby meeting the criteria for termination. Time, although it was not a deciding factor in itself, was a consideration to avoid participant fatigue and keep to the research schedule.

Round 1: Specific open ended questions

The first round asked the panel two open-ended questions to allow free expression in the responses followed by the opportunity to add any further comments. These questions were:

1. *In your opinion what would you consider to be Capability Requisites of nursing students enrolled in any 12-month Postgraduate Certificate in Neonatal Intensive Care in Australia and*

2. *How would this unfold during a 12-month PG Cert NIC?*

Are there any further comments you may have about of Capability requirements of students enrolled in postgraduate neonatal intensive care courses?

These questions generated a total of 452 individual statements. For subsequent rounds, it was necessary to summarise these statements into more focused themes and thus be more manageable for the panel to address. Thematic analysis was undertaken and patterns were identified within the data (Braun & Clarke, 2006; Vaismoradi, Turunen, & Bondas, 2013). Content analysis, as described by Keeney, et al. (2011), was also undertaken through typing all statements verbatim into a word document, statements that were the same or with similar meaning were grouped together and themes developed around these statements. Some statements were so similar they were able to be collapsed into one statement but as far as possible, I kept the wording true to the statements provided by the expert panel.

This process reduced the items to the 20 overarching themes or Capability Requisites (CRs), I identified each individual Capability Requisite (CR) numerically from 1-20, as shown in Table 5.2. Statements with the same or similar meanings were identified as variants of the main themes. In this manner, the variants were kept true and not lost to the process. The complete list of Capability Requisites (themes) and the variants are presented in the accompanying publication Bromley (2015, pp. 230-5) in Section 5.2.

Table 5.2.

Capability Requisites for PG Cert NIC

Capability Requisites (CR)
CR 1: Clinical Experience (Prerequisites)
CR 2: Attitudes and Values
CR 3: Clinical Capacity
CR 4: Knowledge
CR 5: Care Planning
CR 6: Family Centred Care
CR 7: Communication
CR 8: Clinical Assessment
CR 9: Technical Abilities
CR 10: Interpret Clinical Investigations
CR 11: Neonatal Transfer
CR 12: Neonatal Admission
CR 13: Respiratory Support
CR 14: Neurodevelopment
CR 15: Medication Management
CR 16: Fluids, Electrolytes & Nutrition
CR 17: Neonatal Resuscitation
CR 18: Palliative Care
CR 19: Teamwork and Leadership
CR 20: Research

Round 2: Ranking

The analysed responses (themes and variants) were then returned to the individual panel members for review. The second round survey asked each panel member to rank a theme, along with its variants, in the order they expected the student to have developed during the 12-month course (prerequisite, 3 months, 6 months, 9 months & 12 months) (see Appendix C: eDelphi instructions to participants for each round).

Round 3: Drawing towards consensus

Statements that had reached consensus were removed from the survey and 'banked', and flagged to the panel as having gained consensus. For Round 3, the remaining themes (and variants) that had not yet reached a consensus were returned to the panel to reconsider their responses after reviewing the group response to achieve consensus. Appendix C: eDelphi instructions to participants for each round, provides an example of how this was addressed.

Using the Wilcoxon test, 28 items showed a statistically significant difference (see Appendix E: eDelphi inferential statistics). This implied there was still instability between Rounds 2 and 3 for these particular items. However, these same items had a median of 70% or more indicating the panel had drawn to a consensus on these items. Therefore, despite the instability between the two rounds, the principle criteria for termination, percentage level consensus, had been met.

Interestingly, there were 17 items where, using the measure of central tendency (median 70%), a consensus was not reached. However, the Wilcoxon test showed there was no statistical significance between the two rounds, signifying stability between the two rounds on these particular items (see Appendix E: eDelphi inferential statistics). This stability between Rounds 2 and 3 on these items would suggest panel members were firm in their beliefs about these items and will not be persuaded or influenced by group opinion. Further rounds were thus unlikely to result in a consensus for these items. Therefore, despite not reaching a consensus on these items, the stability met the criteria for termination.

Given the level of agreement between Rounds 2 and 3, the small number of feedback comments from panel members (noted in Appendix D: eDelphi level of consensus 70%), and the potential panel burden to participate in another round, a fourth round was considered unjustified.

5.2: Using eDelphi to Identify Capability Requisites – Journal Article

Publication details

This paper was submitted to the Journal of Neonatal Nursing and subsequently published as:

Bromley P (2015) Using eDelphi to identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing. *Journal of Neonatal Nursing, 21*, (6), 224-236.

At this point, it would be beneficial to read the accompanying article to this stage of the study. This article describes the research process in more depth and explains the findings from this stage of the study. It also provides the framework (presented as a table in the article's appendix section) from which the concept of PG Cert NIC Capability Framework was developed.

This section of chapter 5 has been removed for copyright or proprietary reasons.

5.3: Study Rigour & Discussion

Study rigour

In Chapter 3, the rigour of the research was explained through the trustworthiness, including credibility, transferability, dependability, and confirmability. Aspects of each of these specific to the eDelphi are discussed here.

Theory triangulation in Delphi, is achieved in a similar way to the NGT. That is, the participants were drawn from the same discipline of neonatal intensive care nursing, they were all involved in neonatal nurse education but with different positions within the clinical and education context and were, therefore, able to view the concept of Capability from the different perspectives of the experienced neonatal educator and expert neonatal clinician.

Member checking was undertaken in the form of feedback after each round of the Delphi; the researcher provided participants with the results from the previous round, in order to enable a convergence of consensus of opinion (Powell, 2003). This also provided the opportunity for participants to clarify any areas or add new ideas to the discussion.

Ethical considerations

Informed consent was sought for the Delphi through providing a Participant Information Sheet and Consent form attached to the email sent to the potential participants during the recruitment process (See Appendix B: eDelphi participant information and consent). The participants were assured that although the researcher would know their identity in this process, they would remain anonymous to each other, and any information and/or quotes used in publication would be de-identified to maintain confidentiality (Hansen, 2006).

Limitations / boundaries

Because Delphi relies on personal opinion, responses can be influenced by "situational or personal bias" (Keeney, et al., 2011, p. 98). Throughout the eDelphi process I was mindful of the possibility that the panel may view the issues under consideration from the perspective of their own clinical practice, rather than exploring what could or should be. Hence, the visionary nature of Delphi was reiterated in each round, reminding participants that the focus of the eDelphi was all nursing students undertaking a PG Cert NIC in Australia, not just their own current area of clinical practice.

The methodological rigour of Delphi regarding small sample sizes and the methods for determining consensus is a continuing debate, as discussed in Section 5.1. The trustworthiness of this research method is measured by its credibility, transferability, dependability and confirmability, discussed in detail in Chapter 3. Particular aspects of credibility and transferability in the eDelphi included member checking and purposive sampling, while dependability and confirmability were evidenced through the data gathering and analysis methods used.

Discussion

Delphi is a well-recognised method for finding answers to questions where none have previously existed, through consensus from a panel of experts. The intention of this stage of the research was to determine Capability Requisites for the PG Cert NIC student. This subsequently contributed to the development of a Capability Framework for students undertaking any PG Cert NIC in Australia which is documented in Bromley (2015, pp. 230-235), provided in Section 5.2 of this chapter.

The results of the eDelphi study provided valuable information regarding the expected requirements for the development of Capability in the PG Cert NIC student throughout a 12 month course of study. These will be beneficial for curriculum and benchmarking purposes. This Capability Framework in Section 5.2 (Bromley 2015, pp.230-235) will be used as a scaffold, providing educators and designers of NIC curricula with concepts to aid the development of education programmes aimed at fostering Capability in NIC nurses.

At the time of publication of Bromley (2015) in Section 5.2, I identified the 20 themes as Capabilities, and analysed the variants as Capability Requisites (CRs). As I progressed in the study, however, and the concept of Capability was further clarified, I was concerned that in singling out the 20 themes as individual Capabilities, there was a risk of them becoming another form of 'competencies'. Capability is an holistic concept, and in this study these 20 themes are part of a jigsaw that contributes to the bigger picture of Capability in the PG Cert NIC nurse. Consequently, in stage 3 of this research, I modified this framework, and from this point forward, refer to the development of Capability as holistic; the 20 themes became the Capability Requisites (CRs), and the variants as parts of CRs which contribute to the evidence that a student is acquiring Capability.

Chapter Summary

The first stage of this research, the NGT described in Chapter 4, identified the discipline specific Graduate Attributes for the PG Cert NIC. The second stage of this research described here (Chapter 5), used the PG Cert Graduate Attributes to develop an understanding of what Capability Requisites support the development of these GAs, and when the student is expected to develop these CRs during the 12-month course.

This chapter has explained and justified the process of eDelphi used in this second stage of this study. It has provided methodological information specific to the eDelphi, additional to that provided in Chapter 3. It describes how the opinions from a panel of experts in neonatal intensive care nursing were garnered to determine the Capability Requisites of students enrolled in, and graduating from postgraduate neonatal intensive care courses in Australia. This provided the scaffolding on which to develop the Capability Framework for the PG Cert NIC

In order to fully contextualise and operationalise the concepts of Capability, it was necessary to further identify how Capability is evidenced by the student in Clinical Practice. The next chapter, Chapter 6: The Embodiment of a Capable Neonatal Nurse, addresses this third and final stage of the research. It describes the use of semi-structured interviews with expert clinicians supporting PG Cert NIC students to identify how Capability is recognised in clinical practice.

Chapter 6: PG Cert NIC Capability Wheel

__What is the evidence experienced Neonatal Intensive Care nurses use to recognise Capability in students enrolled in postgraduate neonatal intensive care courses?__

Introduction to the Chapter

This chapter will discuss and justify the use of semi-structured interviews for the third stage of the study and examine the strengths of the interview method and rigour of this aspect of the study (see Figure 6.1 taken from Figure 3.1 in Chapter 3). It will present the findings from the interviews and provide a discussion of the results of final stage of this research. It does so in three parts:

Section 6.1: Background to the methodology and interview method,

Section 6.2: How capability is recognised in nursing students undertaking postgraduate studies in neonatal intensive care, a paper published in press in 2017 (Bromley, 2017), and

Section 6.3: Further research findings.

Section 6.1 specifically explores aspects of the methodology and method not addressed in Chapter 3 or included in the published journal article (Bromley, 2017), incorporating a discussion of the study rigour. Where relevant, particular parts of the paper are referred to throughout Section 6.1 to gain specifics of the method and its outcomes. The paper (Bromley, 2017) which forms Section 6.2 of the chapter presents findings of the interviews on how Capability is evidenced in clinical practice in students undertaking the PG Cert NIC in Australia, and should be read as a culmination of Stage 3 of the research. Section 6.3 discusses further findings from Stage 3 not included in the published paper (Bromley, 2017). The chapter concludes with a discussion about how the outcomes of Stage 3 have informed the theory of Capability in the PG Cert NIC student and the resultant contextualisation of Capability in the PG Cert NIC nurse.
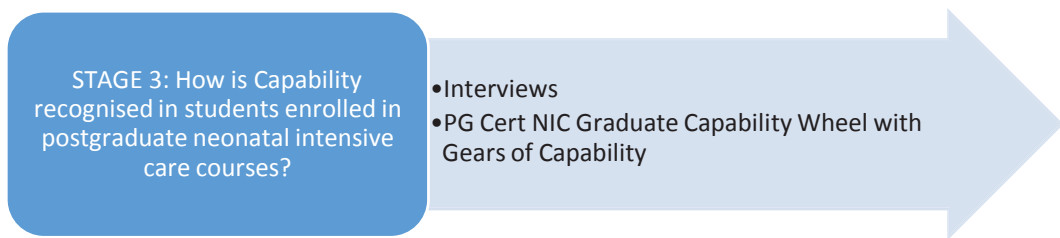
Figure 6.1. Stage 3 of the research

6.1: Background to the Research Method

In the second stage of this research, the results from the eDelphi answered the research sub-question 2 regarding what the expected Capability Requisites (CRs) are of nurses undertaking any Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia. This culminated in the development of a PG Cert NIC Capability Framework and led to the final research sub-question: What is the evidence experienced Neonatal Intensive Care nurses use to recognise Capability in students enrolled in postgraduate neonatal intensive care courses?

The CRs were used as a scaffold on which to build a picture of how Capability is seen in the clinical practice of the PG Cert NIC student. The final stage in this research compares the ideas on CRs with current experienced neonatal intensive care mentors' views in what they are appraising in nursing students enrolled in and graduating from PG Cert NIC in Australia.

This stage was designed to identify tacit understandings of Capability; to learn what Capability looks like in practice. Consequently, this research used an exploratory approach incorporating intensive interviews (Charmaz, 2014) with clinicians in practice, to identify the evidence that students' display that demonstrates Capability. Interviews enabled the nuanced understandings of the mentors[3] of NIC students to be explored. During the interviews the mentors reflected on their experiences and interactions with the PG Cert NIC students, their interpretations of verbal and non-verbal cues from the students, and made meaning on Capability.

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[3] The term 'mentor' has been used to collectively identify a qualified neonatal nurse who supports the PG Cert NIC students in clinical practice, whether they be preceptor, clinical supervisor, or clinical nurse educator.

Grounded theory and interviews

Interviewing is the most commonly used method for grounded theory, as it is a way of generating data through "gently-guided, one-sided conversations" (Charmaz, 2014, p. 56) in order to explore the participant's perspective or experiences. The interview questions are open-ended but focused, allowing the researcher to undertake an in-depth exploration of a particular area with which the interviewee has substantial experience (Charmaz, 2014). Through careful selection of participants, who have experience in the topic under study, the researcher can gain an understanding of the situation from their perspectives and the meanings they place on the experience. Also during the interview process, it is possible to follow up on "implicit views and accounts of actions" through more focused questioning (Charmaz, 2014, p. 56).

Strengths of interviews

Person-to-person semi-structured interviews are an interactive process whereby interviewer and participant explore interpretations of events, to create awareness and make meaning of those events. Personal intensive interviews are effective in that the interview design is flexible, iterative and continuous (Babbie, 2011, p. 340). The approach allows the researcher to explore the issues from the perspective of those involved (Hansen, 2006). While the interview focuses on a topic, it provides an interactive space as well as the time to enable the research participant's views and insights to emerge (Charmaz, 2014). The semi-structured approach facilitates the probing for answers and enables the clarification of any misunderstandings to elicit a rich data that can facilitate in-depth understanding (Hansen, 2006). Interviews are well suited to studies with small numbers of participants (Hansen, 2006) and they can complement other methods such as focus groups (Charmaz, 2014).

Study rigour

As discussed in Chapter 3, the rigour of this research was established in relation to the principles proposed by Lincoln and Guba (1985) as supporting the trustworthiness of the research, and hence the ability to evaluate its worth. The underpinning principles are the credibility, transferability, dependability, and confirmability of the study. Particular aspects of transferability involved in this research method were purposive sampling and member checking, while dependability and confirmability were evidenced through the data gathering and analysis methods used.

Credibility, or the probability that findings will be found credible are ensured through the processes of triangulation and member checking. Braun and Clarke (2006) suggest that if the findings are comparable with similar research, this also enhances the credibility of the research. Even though there is limited research on Capability in nursing, parallels can be drawn from the results of this study with other Capability research. These are explored in relation to the findings of this stage of the research in the accompanying publication "Capability: How is it recognised in student nurses undertaking postgraduate studies in neonatal intensive care?" (Bromley, 2017) in Section 6.2. Further credibility was evidenced through member checking; the participants were provided with the transcripts of their interviews to allow them the opportunity to clarify the information they provided, and add any new ideas.

Purposive sampling supports the principle of transferability. In social sciences, if there is a population that has the same specific qualities to the participants, and one is able to draw similarities to this specific population, then the findings may be transferable to other contexts (Lincoln & Guba, 1985). I purposely selected participants who were experienced in supporting PG Cert NIC students in practice (see Appendix F: Interview participant information and consent). It is recognised that more experienced assessors evaluate practice differently from their less experienced counterparts (Donaldson & Gray, 2012; Govaerts, et al., 2011). More experienced assessors pay attention to "contextual and situational-specific cues" (Govaerts, et al., 2011, p. 153). This was my reasoning behind such specific selection criteria.

Methodological considerations

Saturation has been described as the point when no new information emerges from the data; where this point is exactly, can be difficult to identify and can feel a little vague in qualitative research. Charmaz (2014) concurred, saying there is no magical point at which to stop and explaining that the researcher needs to *feel* like they have done everything that they could do to cover all bases. I followed the advice of Straus and Corbin (1998, p. 136) and ceased coding "when collecting additional data seemed counterproductive". I reached a point where the data generated from subsequent participants did not add any new ideas or concepts that significantly added to the emerging theory.

Sensitivity refers to how the researcher relates to and makes meaning of the data. Both Charmaz (2014) and Straus and Corbin (1998) explained that you do not come to research with an empty head, rather "the theories that we carry within our heads inform our research

in multiple ways, even if we use them quite un-self-consciously" (Straus & Corbin, 1998, p. 47). As a neonatal nurse, I was aware of my sensitivity towards collecting cues from verbal and non-verbal behaviours. For example, in clinical practice I am very familiar with using 'cues' from the neonate to help evaluate the condition of the neonatal patient. Pain cues are a valid method to assess pain or discomfort in the neonate and evaluate effectiveness of pain relief (Ballantyne, et al., 1999). Similarly, in teaching undergraduate nurses, we refer to verbal and non-verbal communication to facilitate the establishment of therapeutic relationships with patients (Stein-Parbury, 2009). Being aware of cue collecting made me sensitive to this behaviour in the mentors. The mentors were exploiting both verbal and non-verbal elements of behaviour which, in their mind, indicated Capability in the PG Cert NIC student. Hence the methodological concepts of symbolic interactionism and dramaturgical analysis informed this stage of the study by exploring the complex nature of verbal and non-verbal language as viewed from the mentors.

Data generation and analysis

With grounded theory research, data generation and analysis is simultaneous (Charmaz, 2014; Straus & Corbin, 1998). The data generated in this stage of the research and the analytical process which contributed to the development of the final theory, is reported in Section 6.2.

Participant recruitment

As for the previous stages, recruitment was facilitated through the Australian College of Neonatal Nurses (ACNN). Data from the ACNN indicated they emailed all 873 members requesting participants for the study, 398 members opened the email. Four (4) members identified themselves as meeting the selection criteria and contacted me to volunteer to participate in the interviews. Further details of the recruitment process and the potential limitations of small participant numbers are discussed in the accompanying publication in Section 6.2 (Bromley 2017, p.2). I have used the term 'mentor' to collectively identify these participants as the experts, who were qualified neonatal nurses, supporting the PG Cert NIC students in clinical practice, whether they be preceptor, clinical supervisor, or clinical nurse educator.

Interview preparation

In Chapter 5 Section 5.1, I have named up the 20 Capability Requisites (CRs) (see Table 5.2). There were some aspects of the CRs that I believed, were quite easily evidenced in practice,

and hence could be evaluated without difficulty through observation, or through specific forms of assessment. For example CR4: Knowledge, can be addressed through using a knowledge assessment tool, and CR8: Clinical Assessment, can be evaluated through the observation of the student undertaking a complete physical assessment on a baby. There were other CRs however, where the manner in which they are evaluated in practice require more nuanced procedures. These were the CRs I wanted to explore with the participants in the interviews.

In preparation for the interview, and to assist the clarification of their thoughts, the participants were provided with a copy of the Capability Framework (Bromley 2015, pp.230-5), developed from Stage 2 of the research. The specific CRs to be discussed in the interviews were highlighted (see Appendix F Interview participant information and consent).Table 6.1 identifies the 10 CRs discussed during the interviews. These were chosen as I considered them to be the less tangible CRs, and therefore the mentors would be able to make more evaluative judgements in this space (Govaerts, et al., 2011), due to their being more experienced in supporting students in practice.

The participants were provided with the two overarching questions for their consideration; which were:

1. *What is the evidence provided by the student that he/she has particular capability?*
2. *When assigning patient load to students undertaking the Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC), what are the qualities you look for to match the student nurse to the patient?*

Table 6.1

Capability requisites discussed during the interviews

Capability Requisites (CRs) discussed
CR2: Attitudes and Values
CR3: Clinical Capacity
CR5: Care Planning
CR6: Family Centred Care
CR7: Communication
CR 14: Neurodevelopment
CR 16: Fluids, Electrolytes & Nutrition
CR 18: Palliative Care
CR 19: Teamwork & Leadership
CR 20: Research

In the accompanying paper (Section 6.2) and Section 6.3, verbatim quotes are used from the interviews to provide examples of the depth and richness of the data and in support of the analysis. Quotations were de-identified using pseudonyms to maintain participants' anonymity and confidentiality.

Interview process

The participants were contacted by electronic media (Skype call), at a time and date suitable to them, between December 2015 and March 2016. The individual interviews lasted two to three hours apiece. I initially expected the interviews to last around one hour. However, the participants were so inspired by the topic, I took my lead from the participants, who were happy to provide this time. Their narratives included detailed reflections from practice and their story telling drew rich and explicit data, and in no way did the length of the interview impact on the quality of the data. Each participant engaged in a discussion to elicit their views on the evidence they regarded as demonstrating Capability in students undertaking the PG Cert NIC at various stages in the program. The content of the discussions meant that saturation was achieved with the four participants. I reached a point where subsequent participants were not adding new ideas or concepts to the emerging theory.

Data analysis and results

For the purpose of analysis, the interviews were recorded using Evaer™ a downloadable program specifically for recording Skype video and audio. The captured data were subsequently transcribed verbatim into a word document. I then undertook a content analysis through a sequence of coding techniques outlined by Charmaz (2014) and Straus and Corbin (1998).

Coding is the link between data collection and the emerging theory, it is where you start to identify what is happening and what it means (Charmaz, 2014). Charmaz (2014) advised, there is no right or wrong way to code, or right or wrong codes, and it need not be complex. She explains coding as the meaning the researcher makes of the data. I followed Charmaz's suggestion of sequential coding for grounded theory (GT), of initial, axial and selective coding, to afford a full examination of the data. Initial coding opens up the ground-breaking ideas, then axial coding finds the interconnections between the data and finally selective coding is fundamental in developing the theoretical framework (Charmaz, 2014).

Initial coding

Initially I manually coded the narratives to identify significant words or phrases (Charmaz, 2014). By using a form of line by line coding (Charmaz, 2014; Straus & Corbin, 1998), I coded sentence by sentence, and phrase by phrase to find the main themes and develop the categories for further coding.

Once I had worked through each transcript as a whole, I then undertook a modified version of Charmaz's (2014, p. 128) incident by incident coding. Whereby I coded Capability Requisite (incident) by Capability Requisite (incident) to identify similar emerging concepts. I then used constant comparative methods to analyse the similarities and differences in the evolving data (Charmaz, 2014). I compared not only the same Capability Requisites between participants, I also compared the different Capability Requisites within the one narrative, as this allowed me to identify consistency in the codes.

'Memoing' (Charmaz, 2014)

Charmaz (2014) suggests that the writing of memos is beneficial when gathering data to facilitate analysis. I used memos regularly; I would reiterate a comment or a quote from a participant that I felt was significant. As Charmaz (2014, p. 171) states "when you bring raw data right into your memo, you preserve telling the evidence for your analytical ideas from the start" and that "providing ample verbatim material 'grounds' your analysis… including material from different sources permits you to make precise comparisons in the memo". Figure 6.1 provides a sample of a memo I wrote in the early coding stage where I collated similar ideas as expressed by the participants.

Memo: "Listening with their eyes"

Clinicians embraced the student who asked questions, reminds me of a quote I once read about nursing students, can't remember where it was from but it went like this, *'I would rather be asked six stupid questions than have one stupid mistake'.*

In a new context, they have not experienced this previously, so they are *"anxious"* but they are *"still receptive".* This links to <u>awareness of own limitations</u> they *"know their own limits"* and they *"know that they don't know".*

But they are eager to learn and they actively seek out answers to questions, they *"learn from the team"* and have a *"lot of mentors".* <u>Continue to learn from the experiences as individuals and with others.</u>

They are "interested" and "want to know more", they are clarifying "how can I improve", and they have an "enquiring mind… asking people questions", "going out of their way to find information". <u>Confidence in their ability to take responsibility for their own continuing learning and professional development.</u>

They do a lot. Clinicians can see the students who are eager to learn. Their body language – they *"listen with their eyes".* The *"watching, waiting, looking, that whole taking a deep breath, and then putting it into practice".* I really like that expression 'listen with their eyes', it is very descriptive.

Figure 6.2. Example of a memo from the early coding stage

Theoretical comparisons and emerging themes

Theoretical comparison provides a way of knowing the world around us (Straus & Corbin, 1998). Straus and Corbin (1998, p. 80) advise, "just as we do not reinvent the world around us each day, in analysis we draw on what we know to help us understand what we do not know". Drawing on the properties of something that is very familiar, allows the examination of the object or incidents, thinking more abstractly, facilitates finding common properties in the data. I used the comparison with a learner car driver to clarify and confirm the evidence of Capability. Themes that emerged to describe the learner-driver were similar to the ideas I identified through the coding process in the interviews.

The following paragraphs not only demonstrate the analytic process of theoretical comparisons and the identification of emerging themes, but they also provide the results of this analysis. I explain the concept of Capability by comparing a learner-driver to the novice neonatal nurse, and draw on the data to clarify the meaning of Capability, by providing direct descriptive (in italics) from the mentor interviews, to illustrate this comparison.

For a learner-driver, everything is very conscious. The learner-driver enters the car, methodically and consciously checks the mirrors and indicators to make sure everything is in the correct position before ignition. When driving, the learner-driver is hesitant and nervous, he or she often makes jerky movements, and is not able to adjust quickly to changing conditions. The instructor takes on the responsibility of assessing the conditions and instructs the learner-driver accordingly; for example, 'you need to move into the right lane, check it is safe to do so, look in your mirrors, if it is safe, put your indicator on, and change lanes'. The learner-driver will accept this type of instruction and respond to it. The learner-driver tends not to consider different driving conditions, and is easily intimidated by other drivers. The learner-driver may look intense, maybe hunched over the steering wheel, and conversation is limited while driving as they focus on the activity of driving. If the driving conditions are more complex and the learner-driver is beginning to feel anxious and reactive, he or she might become explosive, blaming other drivers for unexpected manoeuvres. Focussing on the immediate conditions, the learner-driver does not consider potential accident areas or think about how they might avoid or limit damage in an emergency. The instructor is taking this responsibility at this stage of the learning process.

Similarly, the novice NIC student's work tends to be very *task orientated,* structured around *feeds and observations.* They are rigid in their approach to these tasks, *unable to adapt to changing circumstances* and when dealing with more complex patients, they are unable to *move forward.* They seem to have *no insight* into potential problems; they need prompting, and to be *told what to do.* The novice NIC student often relies on *cheat sheets,* which is a list of duties and tasks required to be undertaken throughout the shift. Like the learner-driver, they are slow to respond to changes in conditions. If circumstances change, they *can't adjust,* the find it difficult to reprioritise their workload. They *find it hard to re-focus* when events change from the plan for the day. They are *not attuned to the variances that happen,* and because they are so focused on their tasks and duties, they *miss engagements with team and family, because it's not on the cheat sheet.*

The novice NIC student tends not to be a team-worker, he or she is so focused on getting their own work done, they *prioritise their own needs* such as *meal breaks* rather than negotiating with their colleagues as to the best timing for breaks. However, more often, because they are so focused on getting work done on time, the novice NIC student tends to miss their meal breaks altogether, they do not *feed and water themselves,* and will *often be off late.*

The novice NIC student tends to be easily *overwhelmed* and *frustrated.* The mentors explained this was often picked up by their tone of voice and their body language. The mentors explained the NIC student would *become very loud,* they might *humff and shrug,* and *roll their eyes.* Or, on the other hand, the novice NIC student when feeling anxious, might be the opposite and become very *quiet,* and not *make eye contact.*

There are also the learner-drivers who think they are better drivers than they actually are. You have concerns for such a learner-driver because they appear too relaxed, or too confident. Perhaps they might drive with one arm resting on the open window, or they might be driving just a bit too fast for their ability. This learner-driver does not appear to maintain focus on the road; often talking too much, or is easily distracted by friends in the car, or they have the music turned up loud. When driving with this type of learner-driver, as an experienced driver, you are continually on the watch, keeping an eye on the learner-driver's speed, perhaps providing some (backseat) driving advice, which may not be graciously accepted. You are instinctively putting your foot on the (invisible passenger seat) break.

The mentors described similarly overconfident novice NIC students. There are the students who don't want to be seen to have short-comings, they know it all or are too confident. The novice NIC student might try to show that they are more confident than they actually are. The mentors implied they welcomed questions from students, as it demonstrated their thirst for knowledge. However, the mentors inferred the overly confident novice NIC student questioning was more confrontational. It felt to the mentors that the novice NIC student tended to mistrust their mentors and more experienced peers. Where, rather than ask a question, they would argue the point, *'but this and but that'*. Alternatively, the overly confident NIC student may appear unenthusiastic. They do not see the benefit of learning; *they know it all*. Similar to the learner-driver who may not always take kindly to the back seat driver, so too, the overly confident NIC student may appear to disregard or *not listen to feedback*, deliberately *not making eye contact* while the mentor is providing advice. The overly confident NIC student's body language and verbal communications are *abrupt* and negative, because *they feel they know better*.

Whereas, with a capable driver, the preliminary checks are done almost subconsciously, often performed while talking about something completely different. While driving, the capable driver is not aware of the simultaneous driving skills they are performing. For example, they are reading the road ahead and taking in the conditions, using their knowledge of the road, the conditions and their driving experience, to inform their

judgements and decision-making. The capable driver is now being responsive, rather than reactive. The capable driver looks confident and relaxed, with both hands on the steering wheel; the capable driver is able to chat and drive. As the passenger, you feel comfortable and relaxed, you let your mind wander to other things besides what is happening on the road, and let the driver do the driving.

The behaviours of the capable driver were echoed in the mentors' narratives about Capability in the NIC student. As the NIC student's confidence and knowledge develops, so does Capability. The mentors noticed that *they're happy, they look confident, like 'I know what I am talking about here',* answering parents' questions. The mentors also notice that *the parents are making eye contact, making direct and positive verbal communication with the student.*

The mentors explained that there would be a peaceful ambiance around the baby and the baby's environment*;* there is an *aesthetic environment,* and that *the baby is relaxed, they're* [the student is] *relaxed, the family's relaxed, it is calm, no fluster, a sort of calm aura.* The Capable NIC student *can organise care, and have a quiet, relaxed approach.* The *parents are relaxed, happy to talk, that whole trust thing*, and the *families look comfortable, confident to ask questions.* Sometimes the mentors might notice that the NIC student and the parents are just chatting and *spending time getting to know each other.* There were other cues the mentors would pick up on, such as *even if the nurse is not looking after their baby,* [the student] *would recognise* [the parents] *and say hello,* and *they know* [the parent's] *names.*

The mentors recognised that with increasing knowledge and clinical experience the NIC student became more confident; they would demonstrate a *patience, persistence, determination and calm enthusiasm.* The NIC student would appear to settle into the learning; *knowledge impacts on their attitude because they want to learn more,* and they begin to *understand the expectations of what needs to be done, when it needs to be done.* The mentors also noticed the student would begin to anticipate in practice. She or he would *look for policies and protocols,* and would now actively seek information*, 'I can do a bit of background to this',* to find out how to do something*,* rather than *waiting to be told what to do.* The Capable NIC student would now be recognising learning opportunities and teachable moments. Not just for themselves, but the mentors would see the NIC students *starting to teach juniors,* and in seeing them teach junior people, it was like the student would be thinking *'yep I may not know everything but I can still teach someone something'.*

The mentors noticed in the Capable NIC student a developing clinical awareness with improved clinical reasoning skills. It is now possible for the mentors to let the NIC student *do, then clarify,* and *provide* [a] *reasoning and evaluation.* One mentor expressed this as a *developing intuition,* where the NIC student does not *always have to ask before they do something.* At the same time, the mentors noted the NIC student is more *flexible,* that they are no longer task limited; in fact, they are now able to *multi-task* and *prioritise.*

This theoretical comparison with the learner-driver allowed me to develop a clearer picture of the development of Capability. Drawing on something that was familiar, allowed me to think more abstractly and find common properties in the data.

'In vivo' codes (Charmaz 2014)

Charmaz (2014) also recommends during initial coding, that the researcher look for participant's codes, as this may reveal a different understanding. She states these are often a well-known word or expression that has a general meaning or understanding, and refers to them as 'in vivo' codes (Charmaz 2014). For example, one of my participants used the expression to *"suffer in silence"* when describing students who are hesitant to ask for assistance; an aspect that was also identified in the other interview transcripts. Another in vivo code highlighted was *"listening with their eyes"* (from Figure 6.1) which, although not a well-known expression, is descriptive of how a student absorbs new experiences and learning, an attentive watching and listening at the same time.

Axial coding

After the initial coding, the analysis moved on to a more focused *axial* coding, the aim of which was to condense and sharpen the analysis, and highlight important emergent themes (Charmaz, 2014). Axial coding "occurs around the axis of a category, linking categories at a level of properties and dimensions" (Straus & Corbin, 1998, p. 123). During the analysis of the data, I was careful to avoid reducing the Capability framework to another tick-box model, for example, Capability A is demonstrated through X, Y, and Z. I could see that there were common emerging themes in the different CRs, and rather than aligning theme to CRs, I categorised them into eight over-arching themes. These were: Organisation & Planning, Knowledge, Inter-professional Communication, Thinking Critically, Relationships with Neonate, Relationships with Families, Relationships with Colleagues, and Attitudes & Values.

Some of these over-arching themes seemed to be interrelated. Straus and Corbin (1998) describe these as relational statements, when there "seems to be condition [or] interaction"

between the themes that have emerged from the data (Straus & Corbin, 1998, p. 135). The statements from the mentors related to the student's confidence and experience, trust, enthusiasm and teamwork, time management, and recognising their own learning needs. Although separate identities, these themes interact with one another. For example, the statements implied that as a student became more knowledgeable and experienced, their time management improved. With improved time management, the student became more confident, and with confidence, there was a willingness to explore and experience more, this in-turn further developed their knowledge and understanding.

A common view of the mentors was that the more experience the nurse had prior to undertaking the PG Cert NIC, the more confident the student. For example, working in the neonatal clinical area preceding the course, or being a Registered Midwife, or themselves being a mother, the mentors noticed the signs of Capability earlier when compared to the absolute novice NIC student. The mentors implied the novice NIC student, lacking in confidence, at first was unsure of whom to trust, but that trust developed as they worked with more experienced staff. As trust developed between the NIC student and mentor, the NIC student responded by being a more active team player and enthusiastically took on whatever work was required. As the NIC student's knowledge and understanding increased they began to acknowledge not only their knowledge deficits, but importantly to recognise that it is alright not to know it all, recognition that they were unsure and in need of assistance, strengthened the trust between student and mentor.

Selective coding

Selective coding (Straus & Corbin, 1998, p. 143) or theoretical coding (Charmaz, 2014, p. 150) is the process of synthesising and refining the theory. Following axial coding, the data were synthesised into larger groups or categories and larger theoretical building blocks emerged. This process was augmented through comparison with other studies investigating similar concepts to those of Capability in nursing practice.

Killam, Luhanga and Bakker (2011) explored the characteristics of the unsafe undergraduate student in clinical practice. Their research identified three key themes 1) unprofessional image, 2) ineffective interpersonal interactions, and 3) knowledge and skill incompetence. The characteristics described in these studies aligned well with the emerging concepts from my research. Using these three themes as a foundation, I selectively coded the data to improve on my emerging theory. I then modified these themes to produce my three overarching themes of *Professionalism*, *Interpersonal Relationships*, and Knowledge *& Skill*.

Although Straus and Corbin (1998, p. 155) do not recommend this process of comparison within the literature, they do identify that this might be a way of identifying central ideas. They suggested that by "locating [the] findings in the larger body of professional knowledge... contribute[s] to further developments and refinement of existing concepts". In addition, as a method of triangulation, it facilitated study rigour. I have summarised the progression of coding in Table 6.2: Process of Sequential Coding.

Table 6.2

Process of Sequential Coding

Initial coding	Axial coding	Selective coding
Not questioning – just doing what has always been done, Standards and auditing, Reading the literature Although not actively involved in research it seems they are beginning to ask the questions – why? Is there a better way?	Thinking critically	Professionalism
With the baby – developmentally organised, gentle approach to cares, KC cuddles	Relationships with baby	Interpersonal Relationships
Families – time family stays, family involvement, conversations with family, ambiance around family, comfortable, remember names, saying hello, body language, flexible and receptive to family's needs, listening with empathy and advocate for family	Relationships with families	
Colleagues – peers, multidisciplinary team (lactation consultant, medical practitioners)	Relationships with colleagues	
Written – contemporaneous, relevant information, organised Colleagues – Planning, explaining, reasoning, feedback to mentor, anticipate Referring to social worker, lactation consultant	Inter-professional Communication	
Disrespectful behaviour, challenging without rationale, unprofessional conversations, use of social media Values – moral and ethical, cultural respect, fair and equitable,	Attitudes & Values	
Limited understanding – not speak up in ward round, defer to mentor, avoiding situations they are unsure of (breastfeeding instruction) Learning – teachable moments, asking questions, ongoing learning, take initiative to learn more Teaching others – juniors, families	Knowledge	Knowledge & Skill
Task orientated – not able to prioritise, easily flustered, not flexible Not managing – overwhelmed, baby disorganised, quiet, not willing to listen Time out – not getting to breaks, late off work, not asking for help planning, anticipating needs, discharge	Organisation & planning	

'Trimming the theory' (Straus & Corbin, 1998)

Occasionally, there are ideas that emerge from the data that are interesting but do not actually add anything to the theory, and therefore these ideas might be *trimmed* from the theory (Straus & Corbin, 1998, p. 159). This does not mean the ideas are redundant, but that they may be more useful if pursued at another time.

The following is an interesting example of 'trimming the theory'. The interviews drew attention to a potential for gender difference in mentors' approaches to interpreting certain behaviour and making meaning from this. It was apparent the three female mentors greatly relied on interpreting verbal and non-verbal cues from the students to inform their decisions on Capability. Whereas the one male participant (Malcolm, a pseudonym), did not seem as attuned to these types of cues despite my probing during the interview. This was particularly apparent during the discussions on palliative care; I asked each participant how they would recognise whether the student was managing the situation. The females would look for signs of distress, such as teary eyes, not talking much, not allowing themselves to go for a meal break. Whereas Malcolm stated he would ask the student "how are you managing?" When I probed him further about observing for behaviours that might indicate they were upset, he explained the student would be "crying".

While the female mentors discussed how they interpret behaviours and body language, whereas Malcolm relied more on investigating the students' declarative knowledge, he would ask the student outright how they were managing, or rather than watching how they applied knowledge in practice, he would ask them knowledge questions. This suggests there may potentially be gender differences in mentors evaluating students' practice, an idea I noted in the memo I made at the time (Figure 6.2 Potential gender differences to evaluation and assessment).

As there were few participants, it was impossible to generalise about gender differences. While this is an interesting idea it was not adding to the emerging theory, nor did it assist in answering my research question. I therefore decided that this dimension was outside the scope of this research and did not pursue this line of inquiry.

Memo: Gender differences

Interesting interview with Malcolm (pseudonym), the one and only male participant. He could not seem to answer the questions from a 'viewing' perspective. Tried to phrase questions in order for Malcolm to state what he saw but he kept on reverting to either what he expected from students, or he would address it by asking knowledge questions of the student. Did not seem to be able to describe the subtle student behaviour, or cues the student demonstrated as evidence of capability. I tried to be more specific in my questioning by asking him what behaviour did he see or what did the student say, but even this did not provoke his observational data. When pressed about non-verbal body language, he described the position and posture, sitting down, kneeling next to the mum, but did not seem to be able to make interpretations from the body language. He relied on the assessments he undertook in clinical practice- OSCEs case studies etc.

Now I am thinking, is this a gender thing? Do males view different things when observing students practice?

I did ask a couple of my male nurse colleagues about this. What was their opinion? Both feel they do observe for verbal and non-verbal cues as part of their evaluation on how students are managing, and I tend to agree with them, having worked with both of them in this capacity I have known them to do this.

But this begs the question are they the exception? As academics, are they more informed or aware of verbal and non-verbal forms of communication? Or is Malcolm the exception? Is he a person that does not consciously take in these cues?

Which leads to another question in the differences people use to assess Capability – how might this effect standards of evaluation?

Figure 6.3. Potential gender differences to evaluation and assessment

6.2 Using Interviews to Contextualise Capability in NIC Nursing Students – Journal Article

Publication details

This paper was submitted to the Journal of Neonatal Nursing and subsequently published 'Article in Press' as:

Bromley P (2017) Capability: How is it recognised in student nurses undertaking postgraduate studies in neonatal intensive care? *Journal of Neonatal Nursing* pp 1-6

At this point it would be beneficial to read the accompanying article to this stage of the study.

This article described the research process in more depth and explains the findings from this stage of the research. It situates Capability in the neonatal clinical practice and provides clarity to the concept of Capability in the PG Cert NIC nursing student.

This section of chapter 6 has been removed for copyright or proprietary reasons.

6.3 "Filling in the Gaps"

From the research I found the three overarching themes of Professionalism, Interpersonal Interactions, and Knowledge and Skill. The mentors recognised Capability through observing subtle verbal and non-verbal cues, which Rittman and Osburn (1995) describe as "watchful listening". The published manuscript accompanying this chapter (Section 6.2) discusses a number of findings from this study which reflect those of the wider literature (Killam, Montgomery, Luhanga, Adamic & Carter, 2010; Luhanga Yonge & Myrick., 2008; Luhanga, Larocque, MacEwan, Yovita, & Danyluk, 2014; Rittman & Osburn, 1995; Tanicala, Scheffer & Roberts, 2011) and supports the conclusions I have drawn from this study. There were other findings related to *Trust*, and *Expertise and Experience* not discussed in detail in the Bromley (2017) paper (Section 6.2) due to a focus on the recognition of Capability. In this section, I will conclude this chapter with a short discussion on the two additional findings of Trust and Experience.

The importance of trust within the student/mentor relationship has been explored in the literature. Hauer et al., (2014) discussed trust in the student/mentor relationship in terms of the student needing to earn their mentor's trust. According to Hauer, et al., (2014) trust plays a crucial role in student/mentor relationship and in the provision of developmentally appropriate learning opportunities; the clinical supervisor needs to trust the trainee before they are able to make decisions on how much independence to allow their trainees. In my research, I also found trust to be a crucial factor in the student / mentor relationship, although the mentors provided a different perspective from Hauer, et.al. (2014). The mentors in my research implied it was the student who needed to develop the trust in their mentor, rather than the mentor developing trust in the student. For example, Rosalie stated that the student needed to *"trust that the teacher is going to take them through step by step"* during complex clinical experiences. Helen expressed that "*if they* [the student] *have worked with them [the mentor] before they [the student] trust their* [the mentor's] *judgement".* In order for them to develop relationships with their colleagues, Helen suggested that the *"students who seem to thrive, find a buddy that they trust and … want to be like that person".* This perspective of trust, suggests the mentors in this study are aware of the challenges and potential barriers to learning in clinical practice, and nurture a safe learning environment for their NIC students.

The extent of previous experience of the PG Cert NIC student was also emphasised in the interviews. Mentors believed that inexperience influenced student confidence which may

therefore delay the development of Capability. One example the mentors discussed was in advising on breast feeding; Helen explained that *"they* [the student] *don't feel confident because they don't know a lot about it* [breast feeding], *and if they* [the student] *have not breast fed they find it difficult to provide advice.* Associated with inexperience, age was viewed as a potential barrier to developing confidence in providing breast feeding advice. Rosalie suggested *"the age gap as well, a lot of our students are really younger and they are trying to teach women who are older than them how to breast feed".*

Conversely, the mentors suggested that students who had been working in a neonatal nursery for a number of years, might feel a little intimidated by undertaking further study. Rosalie explained that perhaps the students were concerned that they have *"been in this job for so long and maybe [they] haven't got it quite right".* The mentors suggested these students were worried that they may have been doing something incorrectly without realising. Despite this, all mentors recognised that overall, age and experience contributed positively to the development of Capability. If the student has had prior experience, particularly in Midwifery or with their own babies, the mentors believed the student tended to be more confident; as Helen stated *"the girls that are midwives, they tend to develop a little bit quicker".*

Conclusion

The findings from this stage of the research align well with other research on the Capability in students and nurses. The three overarching themes of *professionalism, interpersonal relationships,* and *knowledge and skills* identified from the data, provide the evidence of Capability. The interviews revealed that Capability is demonstrated through the different aspects of verbal and non-verbal communication. In their practice, the mentors interpret verbal and non-verbal behaviours of the PG Cert NIC nurses, which inform their assessment of how the student is managing and whether they might be able to take on more complex cases in clinical practice.

Chapter Summary

The first stage of this research, the NGT described in Chapter 4, identified the discipline specific Graduate Attributes (GAs) for the PG Cert NIC. The second stage of this research described in Chapter 5, used the PG Cert Graduate Attributes to develop an understanding of what Capability Requisites (CRs) support the development of these GAs, and when the student is expected to develop these CRs during the 12-month course. The third, and final

stage of this research, described here (Chapter 6) contextualises and operationalises the concepts of Capability, to further identify how Capability is evidenced by the student in Clinical Practice.

This chapter has explained details of the methodology related to interview technique that were not addressed in Chapter 3. It describes the use of semi-structured interviews with expert clinicians supporting PG Cert NIC students to identify how Capability is appraised in clinical practice. It has presented the findings from this stage of the research to explain how Capability is recognised in the NIC nursing student. It has drawn conclusions that there are three underpinning themes of *professionalism, interpersonal relationships,* and *knowledge and skills* that contribute towards the development of Capability. These conclusions are explored in more depth in the following chapter, Chapter 7: From Competence to Capability, in a discussion which will conceptualise Capability in the NIC nursing graduate.

Chapter 7: Conclusion from Competence to Capability

Conceptualising Capability in the neonatal intensive care clinical context, drawing conclusions and making recommendations.

Introduction to the Chapter

This Chapter discusses the concept of Capability in the context of the PG Cert NIC student and the results that emerged from this study. The chapter is presented in five sections:

Section 7.1: Recapitulation of the three stages of the research

Section 7.2: Outcomes of the research

Section 7.3: Answering the research question

Section 7.4: Potential application of the research outcomes, and

Section 7.5: Limitations

Section 7.6: Recommendations for further research

Section 7.1 reminds the reader of the three stages of this research that led to the development of a PG Cert NIC Capability Framework. The next section, Section 7.2, describes how Capability was considered as an holistic perspective from which to view clinical practice. It will demonstrate how the concept of Capability in the PG Cert NIC student can be represented diagrammatically and introduces the PG Cert NIC Capability Wheel. Section 7.3 describes how this research has answered the research question. It explains how the PG Cert NIC Capability Framework and Capability Wheel provides the language with which to talk about and recognise Capability with the PG Cert NIC student. Section 7.4 presents potential applications for this research. The principle purpose being how the PG Cert NIC Capability Framework and Capability Wheel can support both students and mentors in the neonatal context in recognising and developing Capability. Section 7.5 summarises the limitations of this study and links them to the areas for future research. Section 7.6 provides recommendations for further research; for NIC nursing education, the nursing profession, and other areas more broadly.

Section 7.1: Recapitulation of the Three Stages of the Research

The catalyst for the research reported in this study was to identify how nursing students undertaking the Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) are assessed and evaluated for competence in clinical practice. As the study progressed, however, it was apparent that competence was a very narrow concept and that Capability provided a more accurate description of the desirable attributes. Consequently, as the research progressed, its focus moved from competence to Capability. The aim of this study, therefore, became to explore and define Capability within the context of the neonatal intensive care clinical practice setting. It was important to develop a concept of Capability in students of PG Cert NIC with a view to articulating what it looks like, thereby making it amenable to assessment in the future. In order to clarify how Capability is contextualised in practice, a three step process was undertaken, referred to as Stages 1, 2 and 3. The methods used, and the outcomes of each stage are summarised here in Section 7.1.

Stage 1: PG Cert NIC Graduate Attributes

STAGE 1: What are the expected outcomes for students graduating from PG Cert NIC?

- NGT
- PG Cert NIC Graduate Attributes
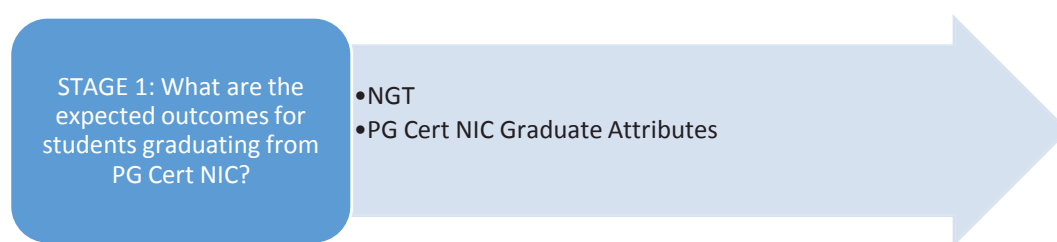
Figure 7.1. Stage 1 of the research (taken from Figure 3.1 in Chapter 3).

In Stage 1 (Figure 7.1 summarises the first stage of this research) expert neonatal nurses identified the requirements of PG Cert NIC graduates when they complete the course of study, through the Nominal Group Technique (NGT). The product of this stage was the discipline-specific PG Cert NIC Graduate Attributes.

This stage was discussed in Chapter 4 and the accompanying publication titled 'Using Nominal Group Technique (NGT) to reach consensus on Graduate Attributes for nurses undertaking Postgraduate Certification in Neonatal Intensive Care in Australia' (Bromley, 2014b). Bromley (2014b) demonstrated how the PG Cert NIC Graduate Attributes align with the ACNN Standards for Neonatal Nurses as well as the Tertiary Education Quality and Standards Agency's (TEQSA) threshold learning outcomes (TLOs) for a specified discipline within the Australian Quality Framework (AQF). The PG Cert NIC Graduate Attributes have been endorsed by the professional body for neonatal nurses in Australia, the Australian

College of Neonatal Nurses (ACNN). The Report with the Graduate Attributes is freely available to view online from the ACNN website[4] in their Resources page. The establishment of the PG Cert NIC Graduate Attributes informed the second stage of this research.

Stage 2: Capability Framework

STAGE 2: What is required to develop these attributes and when are they expected to develop?

- eDelphi
- PG Cert NIC Graduate Capability Framework with Capability Requisites
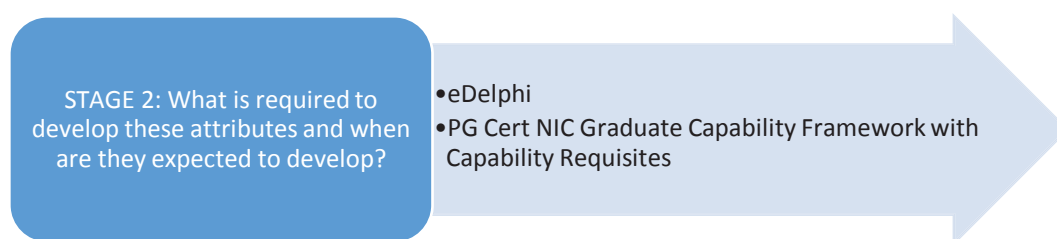
Figure 7.2. Stage 2 of the research (taken from Figure 3.1 in Chapter 3).

Once the PG Cert NIC Graduate Attributes were established, it became clear that practice in NIC requires much more than minimum requirements for safe practice and that Registered Nurses undertaking postgraduate study are expected to have Capabilities at a more complex level than newly qualified Registered Nurses. The aim of Stage 2 (Figure 7.2 summarises the second stage of this research), therefore, was to develop a consensus, from practitioners in the neonatal intensive care, on the requirements to achieve such Graduate Attributes from the PG Cert NIC student. This second stage of the study, using eDelphi, identified 20 Capability Requisites (CRs) which underpin the PG Cert NIC students' learning during the 12-month PG Cert NIC course.

Chapter 5 and the accompanying published paper titled 'Using eDelphi to identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing' (Bromley, 2015) discussed the process and outcomes of Stage 2 of the research. The eDelphi panel also considered at what point in the 12-month course they would expect the CRs to be evident in the PG Cert NIC student. These data informed the development of the PG Cert NIC Capability Framework which was published by Bromley (2015). The PG Cert NIC Capability Framework informed the third and final stage of this research.

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[4] The Australian College of Neonatal Nurses (ACNN) URL: www.acnn.org.au

Stage 3: PG Cert NIC Capabilities
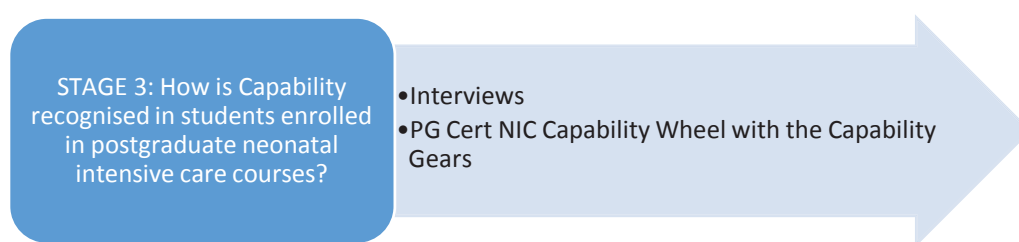
Figure 7.3. Stage 3 of the research (taken from Figure 3.1 in Chapter 3).

The aim of Stage 3 (Figure 7.3 summarises the third stage of this research) was to determine how Capability is recognised in the PG Cert NIC student in clinical practice. To do so, four neonatal nurses from clinical practice who were experienced mentors of students undertaking the PG Cert NIC were interviewed. Of the 20 Capability Requisites identified from the PG Cert NIC Capability Framework, 10 CRs were identified to be more tacit, where evaluating for their existence was not immediately recognisable in the PG Cert NIC student. Thus, it was these 10 CRs which were the focus of the interviews. This final stage showed how the student demonstrates these implicit CRs in clinical practice.

Chapter 6 and the accompanying submitted manuscript 'Capability: How is it recognised in student nurses undertaking postgraduate studies in neonatal intensive care?' (Bromley, 2017) discussed the findings from this stage of the research. Analysis of the interviews identified three domains: *Professionalism, Interpersonal Interactions*, and *Knowledge and Skills* underpinning Capability.

Section 7.2: Outcomes of the Research

There were five clear outcomes of this research. The following section will discuss each of these outcomes individually and describe how they relate to each other to develop an holistic concept of Capability in the PG Cert NIC students.

The five outcomes were:

7.2.1 Gears of Capability (PG Cert NIC)

7.2.2 Hierarchy to Capability (PG Cert NIC)

7.2.3 Capability Framework (PG Cert NIC)

7.2.4 Capability Wheel (PG Cert NIC)

7.2.5 Definition of the Capable Neonatal Nurse

7.2.1 Gears of Capability (PG Cert NIC)

Analysis of the interviews in this study identified that the development of Capability in PG Cert NIC nurses was recognised through a number of interrelated characteristics. These were categorised into three domains of; Professionalism (problem, solving, analytical thinking, reflective practice), Interpersonal Interactions (ethical behaviour, written and verbal communication, interactions with families, patients and colleagues) and Knowledge and Skill (recognising incomplete praxis and ongoing learning needs, and time management and setting realistic and achievable goals). These three domains underpin Capability; they are closely interlinked, like the gears on a wheel where one gear moves another. These 'Gears of Capability' (Professionalism, Interpersonal Interactions, and Knowledge and Skill) direct and power the student towards the development of Capability. Figure 7.4 provides a diagrammatical representation of this process.
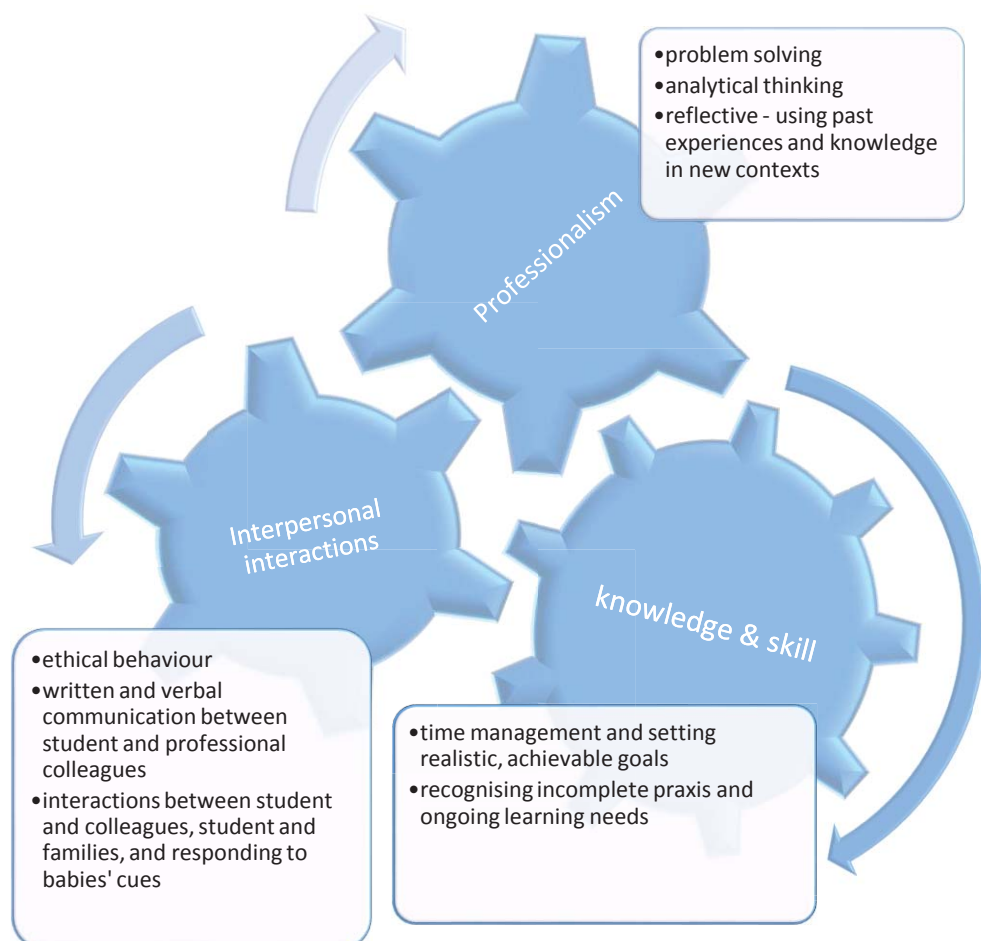
Figure 7.4. The Gears of Capability (PG Cert NIC) (copyright Patricia Bromley, 2017)

In Chapter 2, Table 2.1 compared Stephenson and Yorke's (2012) concept of capability with Scott's et al. (2010) Capabilities of successful graduates and Coetzee's (2014) concept of *graduateness* to demonstrate alignment. Table 7.1 is an extension of this in which the three interacting characteristics of Professionalism, Interpersonal Interactions, and Knowledge and Skill from this study, are mapped against these three previous studies, to demonstrate their alignment. Drawing parallels with other Capability research contributes to the trustworthiness of the findings, and suggests the concept of Capability in the PG Cert NIC Graduates is transferable to other nursing disciplines as well as other professions.

Table 7.1

Comparing Stephenson and Yorke's concept of capability, Capabilities of successful graduates from Scott et al., and Coetzee's concept of graduateness with the PG Cert NIC Capabilities

Capability (Stephenson & Yorke 2012)	Capabilities of successful graduates (Scott et al. 2010)	Graduateness (Coetzee 2014)		PG Cert NIC Capabilities (Bromley 2017)
		Domain	Core Skill	
Take effective and appropriate action	**Cognitive capabilities:** For example, being able to set and justify priorities	Scholarship	**Problem solving skills** Consider the complexities of the larger cultural, [specialist area] reality To be creative and proactive in problem solving, offering new ideas and insights Ability to make clear decisions Analytical thinking skills Higher order critical or reflective thinking – giving accurate explanations, making rational judgments breaking information into parts to see relationships and patterns – drawing insightful conclusions **Enterprise skills** Being venturesome and applying critical thinking, taking initiative. Being able to recognize and adept at dealing with organizational or team politics, have sound financial awareness when controlling budgets	**Professionalism:** Problem solving Analytical thinking Reflective – using past experiences and knowledge in new contexts

Capability (Stephenson & Yorke 2012)	Capabilities of successful graduates (Scott et al. 2010)	Graduateness (Coetzee 2014)		PG Cert NIC Capabilities (Bromley 2017)
		Domain	Core Skill	
Explain what they are about	Personal capabilities: For example, being willing to face and learn from my errors and listen openly to feedback, understand my personal strengths & limitations	Global and moral citizenship	Ethical and responsible behaviour Accepting full responsibility for decisions and actions Upholding the ethics and values of one's profession Willing to take the lead in providing direction to others, motivating, empowering. Understanding the importance and consequences of ethical and socially responsible behaviour Presenting and applying information skills Present (verbally or written) one's knowledge, facts, ideas, opinions Avoiding jargon or complicated language when presenting ideas Commit information to memory quickly, and offer solutions for making a positive difference by considering a wide range of alternatives. To stay focused and show enthusiasm and clarity. Interactive skills Effective and efficient use of language and technology when communicating and interacting with people from diverse cultures, backgrounds and authority levels. Building social networks. A good command of English Ability to work with experts from other fields	Interpersonal interactions: Ethical behaviour Written and verbal communication between student and professional colleagues
Live and work effectively with others	Interpersonal capabilities: For example, being able to work with senior staff without being intimidated			Interactions between student and colleagues, student and families, and responding to babies' cues

Capability (Stephenson & Yorke 2012)	Capabilities of successful graduates (Scott et al. 2010)	Graduateness (Coetzee 2014)		PG Cert NIC Capabilities (Bromley 2017)
		Domain	Core Skill	
Continue to learn from their experiences in a diverse and changing society.	Generic skills and knowledge: For example, being able to organise my work and manage time	Lifelong learning	**Continuous learning orientation** Having a cognitive meta-awareness and openness towards their own learning Proactively engage in the process of acquiring new knowledge, skills and abilities throughout their lives and career in reaction to and anticipation of changing technology and performance criteria Reflecting on ones work to develop higher level critical thinking skills **Goal-directed behaviour** Setting realistic goals, developing plans and taking actions to achieve one's goals Accomplish tasks and meeting deadlines. Access information needed to solve problems or make decisions Surf the internet to find new information	**Knowledge & skill** Recognising incomplete praxis and ongoing learning needs Time management and setting realistic, achievable goals

7.2.2 Hierarchy to Capability (PG Cert NIC)

In Chapter 2, I explained how achieving Capability is a staged process and that there is a hierarchy to the development of Capability (Figure 7.5) for the PG Cert NIC nursing student. Understanding that the development of Capability is a staged process will go some way to assist NIC educators and mentors to nurture and facilitate its development. It will also assist the PG Cert NIC student to recognise expectations within the clinical setting and have their own realistic expectations of their Capability. Competence, which is focused on proficiency in performance of tasks, provides the foundations on which all else follows. The student progresses towards the more discipline specific Graduate Attributes. The PG Cert NIC Graduate Attributes which encompass discipline-specific knowledge, tasks, and skills that the student should have developed on completion of the course. Ultimately, however, in order to function well, the PG Cert NIC nursing student must achieve more than just competence and proficiency in discipline specific knowledge, tasks, and skills. Capability, for the PG Cert NIC graduate, signifies the development of *Professionalism, Interpersonal Interactions,* and *Knowledge & Skill.*

PG Cert NIC
Graduate
Capabilities
Professionalism,
Interpersonal Interactions
Knowledge & Skills,

PG Cert NIC
Graduate Attributes
Discipline specific
Knowledge, Skills and Tasks

Comptetence
Skills and Tasks
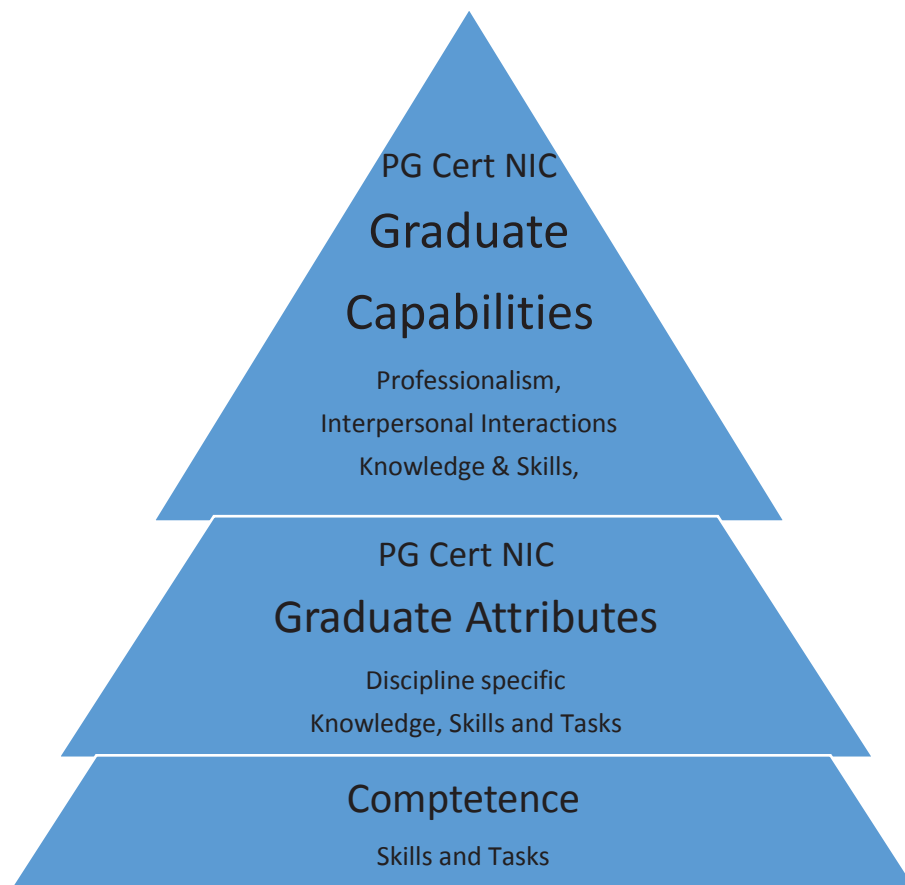
Figure 7.5. Hierarchy to Capability (taken from Figure 2.1 in Chapter 2)

7.2.3 The Capability Framework (PG Cert NIC)

In Section 5.2 of Chapter 5, the paper presents the PG Cert NIC Capability Framework (Bromley, 2015, pp. 230-5) which incorporates the 20 Capability Requisites (CRs) (Table 7.2) and the expected progress to acquire the CRs. The CRs are essential components in the development of Capability in the PG Cert NIC student.

Table 7.2.

Capability Requisites for PG Cert NIC

Capability Requisites (CRs)
CR 1: Clinical Experience (Prerequisites)
CR 2: Attitudes and Values
CR 3: Clinical Capacity
CR 4: Knowledge
CR 5: Care Planning
CR 6: Family Centred Care
CR 7: Communication
CR 8: Clinical Assessment
CR 9: Technical Abilities
CR 10: Interpret Clinical Investigations
CR 11: Neonatal Transfer
CR 12: Neonatal Admission
CR 13: Respiratory Support
CR 14: Neurodevelopment
CR 15: Medication Management
CR 16: Fluids, Electrolytes & Nutrition
CR 17: Neonatal Resuscitation
CR 18: Palliative Care
CR 19: Teamwork and Leadership
CR 20: Research

The PG Cert NIC Capability Framework (Bromley, 2015, pp. 230-5) built a more holistic concept of Capability addressing the discipline specific nuances of neonatal intensive care nursing. The Capability Framework also provided information on when it was expected the student to develop the CRs. The 20 CRs, which provided the basis for the Framework, became the spokes in the PG Cert NIC Capability Wheel (Figure 7.6).

7.2.4 The Capability Wheel (PG Cert NIC)

It has been established that Capable graduates not only have a high level of technical competence, but also personal, interpersonal and cognitive capabilities (Scott, et al., 2010). This study has furthered this understanding by identifying that mentors of PG Cert NIC students appraise developing Capability through the application of knowledge and their skill while navigating the complexities of the work context, evidenced through verbal and non-verbal behaviours. The mentors interpreted student behaviours within the clinical context, in order to evaluate their abilities in managing the situation, which in turn informed their ideas of the student's overall Capability for future situations. This holistic concept of Capability in the PG Cert NIC nurse is represented diagrammatically in the Capability Wheel (PG Cert NIC), powering Capability forward (see Figure 7.6).

Figure 7.6. The Capability Wheel (PG Cert NIC): The embodiment of a capable neonatal nurse (copyright Patricia Bromley 2017).

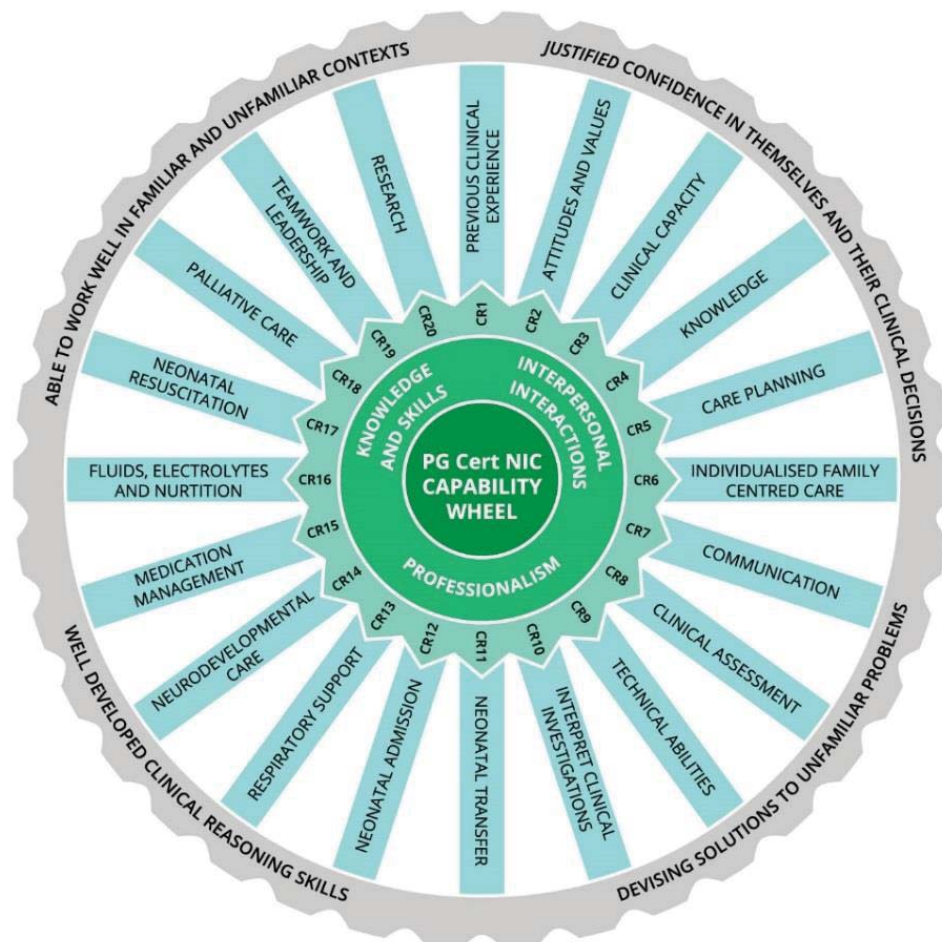The hub of the Capability Wheel (PG Cert NIC) are the Gears of Capability (PG Cert NIC) (Figure 7.4) professionalism, interpersonal interactions, knowledge and skills. The spokes on a wheel connect the central gears to the rim and play an important role in maintaining strength and stability in the wheel. Here the spokes are the 20 Capability Requisites (Table 7.2). The rim holds the tyre, and the tyre is the interface with the road. In this analogy, this is the student interface with practice. As discussed in Chapter 6, students in practice are appraised through interpretations of verbal and non-verbal communication (Section 6.2) which demonstrate Capability. The evidence the PG Cert NIC student provides of Capability in practice, is literally *where the rubber hits the road*. Capability is recognised by the student's ability to; work in familiar and unfamiliar environments; having justified confidence, in themselves and their clinical decisions; having the clinical reasoning skills to enable them to devise solutions to unfamiliar problems.

As each part of a wheel is dependent on the other to be functional, straight spokes, well-greased gears, and good rubber on the tyre, so too is each component of the PG Cert NIC Capability Wheel dependent on the other. The PG Cert NIC Capability Wheel moves the NIC nurse forward, along the path of Capability, as a wheel progresses, Capability progresses.

7.2.5 Definition of the Capable Neonatal Nurse

The PG Cert NIC Capability Framework and Capability Wheel defines the *Embodiment of a Capable Neonatal Nurse.* As a result of this extensive and in-depth study, the following definition of the Capable neonatal nurse emerged:

> *The neonatal nurse demonstrates Capability through their Professionalism (problem solving, analytical thinking), their Interpersonal Interactions (ethical behaviour, presenting and applying information and interactive skills), and their Knowledge and Skills (effective time management, recognising incomplete praxis and ongoing learning needs). The Capable neonatal nurse can be relied on to work just as well in familiar and unfamiliar environments, with a justified confidence in her or his clinical decision making, with well-developed clinical reasoning skills providing the means to devise novel solutions to unfamiliar problems.*

Section 7.3: Answering the Research Question

The overarching research question was "Contextualising Capability: How Capability is identified and recognised in Registered Nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care."

This research has shown that mentors are alert to how a student functions within the work environment through such things as how they manage their time, how they manage stress, how they relate to colleagues and family, and how they measure up to professional expectations of the clinical practice in the neonatal intensive care. The mentors are vigilant to the novice who may be uncertain and shy and lack confidence. Similarly, the mentors are alert to the overconfident student. Both types of student may not recognise when a situation is out of their scope of practice and hence not ask for help when required. The mentors 'pick up' on cues, which provide them with information on how the student is managing clinical practice.

Prior to this research study, mentors may not have described this cue collecting in the PG Cert NIC student, and the meanings they make from them, as identifying Capability per se. Nevertheless, what they have identified as aspects of performing well in clinical practice, are identified in the Capability literature. This study provides the evidence that neonatal clinicians who mentor PG Grad Cert NIC students in practice, are in fact appraising Capability. This research has contextualised Capability in the PG Cert NIC student and identified what mentors use to appraise students in practice. The PG Cert NIC Capability Framework and Capability Wheel provides the mentor with a language with which to talk about Capability with the PG Cert NIC student. Once there is a common language between PG Cert NIC student and mentor, Capability can be more easily recognised, developed and nurtured.

Section 7.4 Potential Applications of the Research Outcomes

I have avoided providing specific examples of 'Capability' in the Capability Framework and Capability Wheel, as I do not want it to be prescriptive, or risk it becoming another tick box of individual qualities, attributes, skills or knowledge. I believe it is important for individuals to be consciously thinking about what the various aspects of the Capability Wheel mean to them personally, as a student, mentor, or educator. The ability to reflect and identify one's position, one's own concepts and ideas using the Capability Wheel and the Capability

Framework, when discussing the various aspects of Capability with colleagues or with students in a mentoring situation, encourages discourse, and raises awareness as to what Capability means to those individuals in that particular context. Nevertheless, the next few paragraphs will discuss ways the PG Cert NIC Capability Framework and the PG Cert NIC Capability Wheel could be used to support mentors in practice to appraise PG Cert NIC students' development of Capability. This research has identified at least six potential applications and these are described within the following section.

7.4.1 Endorsement from the profession

Gaining endorsement from the Australian College of Neonatal Nurses (ACNN) for the PG Cert NIC Capability Framework, PG Cert NIC Capability Wheel and the definition of Capability will ensure the concept is accepted by the neonatal profession and neonatal educators. Having the endorsement of the professional body for neonatal nurses will encourage integration into NIC education curriculums and NIC clinical practice. The research outlined in Section 7.5 will go some way to assist the processes required to ensure endorsement.

7.4.2 Mentors to appraise and nurture Capability in practice, not 'assess performance'

In Chapter 2, the literature review acknowledged challenges for clinicians in practice to assess the PG Cert NIC students on behalf of the education institutions, identifying a number of barriers to assessment reliability and validity. Furthermore, it identified that the tools designed to assess practice in PG Cert NIC students, and students in other clinical settings, have often been reduced to a tick box of competencies. This was perceived as a reductionist (Girot 2000), simplistic and prescriptive (O'Connell, et al., 2014) approach to evaluating practice, as practice is much more complex than this.

During their interviews, mentors indicated that there were specific cues that they noticed in the novice NIC nurse, and they described how these behaviours change as the students' knowledge, experience and confidence increase. The mentors were able to gauge how well the student was managing by picking up on cues, verbal and non-verbal communication, which they interpret to make meaning of student Capability. The Capability Framework and Wheel affirm their practice and enable it to be made explicit.

While the Capability Framework (Bromley, 2015 pp. 230-5) identifies particular aspects of Capability, its use, in conjunction with the PG Cert NIC Capability Wheel enables a more holistic approach to developing Capability. Reflective learning, an aspect of Professionalism

where one is able to use past experiences and knowledge, aids the development of the metacognitive skills required for novel problem solving (Biggs & Tang, 2007). Reflection on a clinical episode is one way to develop students' Capability. Students might be assisted to reflect critically on a clinical episode by referring to the Capability Wheel. An example of this might be asking the student to reflect on the experience of undertaking a neonatal admission (CR12 Neonatal Admission 'spoke' on the Capability Wheel) by referring to the other components of the PG Cert NIC Capability Wheel. Starting with the Gears of Capability, the student could identify key areas that were personally significant to them. Such as; *Professionalism*, analysing the situation to make decisions on immediate care; *Interpersonal Interactions*, communication with transfer team, and *Knowledge & Skills*, time management and recognising when to ask for assistance. Then working around the other 'spokes', the student could decide which Capability Requisites were called upon during the episode in question.

Using the PG Cert NIC Capability Wheel in conjunction with the Capability Framework, would also enable the student to identify future professional development, relevant to their needs. By reflecting upon where *the rubber hits the road* during neonatal admission into the NIC, the student would consider all four components of the rim. The context (was it familiar or unfamiliar?), devising solutions to any issues that arose (were the solutions familiar or were there new solutions to unfamiliar problems?), clinical reasoning skills (how well developed are they?), and justified confidence in their clinical decision-making (did they feel confident in their decision-making?).

Mentors and students working in the clinical area may use the Capability Framework and the Capability Wheel to make explicit the implicit, to provide an holistic perspective in order to appraise the development of Capability in the PG Cert NIC student. Making Capability explicit, clearly identifying the concepts of Capability not only allows the students to recognise Capability in themselves, but also allows the mentors to recognise their students' developing Capability. The Capability Framework and Capability Wheel augment the dialogue between student and mentor by providing the nomenclature for effective feedback, in order to nurture Capability in students.

Some aspects of clinical practice are tacit, for example, CR2: Attitudes and Values, and the Capability Framework and the Capability Wheel provide the opportunity to make these more explicit. Both would provide the chance to initiate the dialogue between student and mentor, as to what they believe *Attitudes and Values* mean to them individually, and to discuss what

the expectations are of the practice area. The Capability Wheel, *where the rubber hits the road,* will provide guidance as to how this is evidenced in practice; how does the student respond to unfamiliar contexts and unfamiliar problems? Is the student developing problem solving to unfamiliar problems?

Finally, for mentors of the students in practice, the structure of the Capability Framework allows them to plan and guide the PG Cert NIC Student's clinical practice experience to align with a Capability curriculum. For example, for CR10: Clinical Investigations (Bromley 2015, p. 233), the Capability Framework identifies that by three months the PG Cert NIC student is expected to understand blood sugar levels (BSL). In order to align their practice and assessment with these expectations, the mentor could ensure that the student is provided with the opportunity to experience caring for a baby with hypoglycaemia during their first three months of their study.

7.4.3 Using the Capability Framework to develop curricula and support teaching

Ebrall (2007) argued that a Capability Framework would promote capability-driven learning. While declarative knowledge and procedural knowledge and skills are expected initially, as the student's knowledge, experiences and confidence develops, they advance to more complex cases, requiring advanced Capability in critical analysis and problem solving (Ebrall, 2007). In order to develop PG Cert NIC Graduates who are Capable, however, the curriculum must have a clear focus on Capability.

The PG Cert NIC Capability Framework could become central to a neonatal capability-driven curriculum. The PG Cert NIC Capability Framework identifies the expected development of Capability Requisites (in terms of both 'the what' and 'the when') throughout the course. These CRs could be translated into learning objectives and structured into the curriculum, with the timing of the development of expertise being aligned with the ordering of individual units of study. Furthermore, as those responsible for evaluating clinical practice will be working within the same framework, the theory and practice aspects of the course will align more closely.

7.4.4 Portfolio building for students

In Section 2.1 the initial literature review (Bromley 2014a) Practice Portfolios were identified as a means of evaluating students' clinical practice. Portfolios are made up of: Reflective Components such as; journaling, attendance at conferences and educational seminars,

exploration of clinical episodes of practice (critical analysis and reflection); and Feedback Components such as feedback from peers and colleagues (direct observation). The literature review revealed claims, however, that there were a number of drawbacks to this method of evaluating clinical practice. Redfern, Norman, Calman, Watson & Murrels (2002) argued that students were often over-assessed, with a requirement for large volumes of evidence resulting in a superficial and/or strategic approach to learning and assessment contributions (doing just enough to pass). Plaza, Draugalis, Slack, Skrepnek & Sauer (2007) were concerned with the integrity of the submitted testimonies from students, suggesting they may not be authentic representations of the student's actual work.

The PG Cert NIC Capability Wheel provides the basis for portfolio development, and facilitates reflection and feedback components of the portfolio. While the PG Cert NIC Capability Framework is not prescriptive; it allows for forward planning for clinical experience in the different clinical areas of the neonatal unit. The Capability Framework provides the structure on which to build a portfolio of clinical experiences. The Capability Framework guides students (and mentors) as to where they are at in their educational and clinical experience, to identify the expected progression through the course and to determine the types of evidence they could incorporate into the portfolios.

7.4.5 Professional development and performance management

The Capability Wheel provides the nomenclature for professional development, not only for Registered Nurses qualified in neonatal nursing, but at all levels of nurses caring for neonates and their families, such as enrolled and/or mothercraft nurses. The Capability Framework and Capability Wheel thereby augment professional development conversations, and enable students and mentors to articulate areas for professional development. For example, a neonatal nurse may want to develop her Capability in Neonatal Transport; the spokes on the Capability Wheel (Figure 7.6) identify the areas on which to concentrate:

- CR1: Clinical experience, what experience has the nurse had in the transport of the neonate? Was the experience by road, or by plane?
- CR4: Knowledge, is there any further learning required to assist in undertaking neonatal transport, such as a workshop in managing the deteriorating baby for example?
- CR9: Technical Abilities, are there any new skills that may be required, for example inserting an intravenous cannula?

- CR11: Neonatal Transfer, has the nurse admitted or prepared a baby for neonatal transfer, if so at what level nursery was it?

- CR19 Teamwork and Leadership, a reflection would be enhanced through an exploration of the 'gears' of the Capability Wheel – what roles do *Professionalism, Interpersonal Interactions* and, *Knowledge and Skills* play in leading a neonatal transfer?

The PG Cert NIC Capability Framework would also be conducive to supporting staff in performance management. It can be challenging to discuss a failure to maintain optimal professional learning or perhaps the lack of insight into, or a realistic image of deficit Capability, without seeming punitive. For example, a neonatal nurse may not be providing care with a complete knowledge and understanding of the most recent evidenced-based best care. Skin-to-skin or Kangaroo Cuddles is a good example here. There is a large amount of evidence to support skin-to-skin, when the neonate is places naked except for a nappy upright and supine on the skin of the mother or father's chest, is beneficial for both baby and mother/father. Skin-to-skin has been shown to improve feeding tolerance and promote weight gain, as well as providing cardiovascular, respiratory and temperature stability (Ramanathan, Paul, Deorari, Taneja, & George, 2001). It promotes brain growth and neurodevelopment (Kaffashi, Scher, Ludington-Hoe, & Loparo, 2013), and to have maximum effect for neurological benefits, a minimum of 60 minutes each skin-to-skin is recommended (DiMenna, 2006). Skin-to-skin also has positive effects for parents by reducing maternal postpartum depression (Dombrowski, Anderson, Santori, & Burkhammer, 2001) and improving lactation (Ohgi et al., 2002). For fathers, skin-to-skin has been shown to facilitate the bonding process (Blomqvist, Rubertsson, Kylberg, Jöreskog, & Nyqvist, 2012). Despite all this evidence however, many nurses are reluctant to provide skin-to-skin with parents, or they limit the time in skin-to-skin to much less than 60 minutes (Engler et al., 2002).

The Capability Wheel (Figure 7.6) provides the vocabulary necessary to identify where the nurse could develop a more informed approach to this aspect of her care:

- CR1: Previous clinical experience, how confident is the nurse at providing KC. What experience has she or he had with KC? Did something untoward happen in a previous episode that influenced her/his views on it?

- CR2: Attitudes and Values, what are the nurse's beliefs around parental bonding? What are her/his stances on shared care and parental presence?

- CR4: Knowledge, what is her/his understanding of KC? Is there any further learning required in order to undertake KC with parents?

- CR5: Care Planning, how does the nurse manage her/his time, does she/he make realistic and achievable goals when planning care?

- CR6: Integrated Family Centred Care, how does the nurse involve the families in care, and what does the nurse see as their role?

- CR7: Communication, how does the nurse communicate with parents? What is the body language, the verbal and non-verbal communication?

- CR8 Clinical Assessment: How to monitor a baby in KC? What are the signs that baby is managing well?

There is no need to identify something from every 'spoke' of the Wheel, however, working around the PG Cert NIC Capability Wheel, helps identify, and prioritise professional development and learning requirements. It enables the neonatal nurse the chance to find out what they currently know and where they have gaps in knowledge and practice, in order to plan their professional development needs and strategies.

7.4.6   Quality improvement of the PG Cert NIC program

Scott and colleagues (2010) studied the concept of capability in new nursing graduates to identify how university learning could be made more relevant to professional learning. A post-graduation survey, based upon the PG Cert NIC Capability Framework and Capability Wheel, would enable researchers to draw from the NIC graduate experience to inform program improvements. Not only would the PG Cert NIC program be designed and implemented in accordance with the Capability Framework, but ongoing quality improvement would be guided by it. The PG Cert Capability Framework and Capability Wheel could underpin evaluative curriculum redesign research, whereby the framework guides the research questions and the curriculum is finessed in line with research outcomes.

Section 7.5: Limitations

The prominent limitation to this study is the small participant numbers. However, while the population was small, the findings do reflect other studies exploring Capability.

The principle limitation to Stage 1 of this research could be lack of representativeness as only one NGT session was undertaken which may not be typical of the larger population (Babbie,

2011). Therefore, this work cannot reflect the thoughts and ideas of all educators involved in any Graduate Certificate of Neonatal Intensive Care in Australia.

Another limiting factor to the NGT could be the number of items participants were asked to prioritise. According to Delbecq et al. (1986), participants are able to reliably prioritise anywhere between five and nine items. For longer lists (around twenty items), he recommends selecting eight priority items. From the 18 items identified in Round 4 of the NGT, the participants were asked to prioritise only five items from the list.

The results from Stage 2 of this research suggested some ambiguity with prerequisite experience in special care/high dependency nursery and the progression through the programme. This area would need to be clarified in follow-up studies when completing the Capability Framework (PG Cert NIC).

During stage 3, the interviews addressed the more tacit aspects of the Capability Requisites in the Capability Framework. This meant that only ten of the 20 CRs were discussed with the mentors in any detail during the interviews. Consequently, there are gaps in how the other ten CRs are evidenced in practice.

This research was very specific, in that it sought to elicit only the views of *experienced* neonatal nurses on the subject of Capability in the PG Cert NIC nursing students. To obtain a full picture on Capability it would need to explore this concept from the perspectives of inexperienced neonatal nurses as well as the opinions of the students.

This research identified a potential confounding factor that female mentors may recognise Capability in PG Cert NIC students differently to their male counterparts. Differences between assessors in regards gender was outside the scope of this research study but would be an interesting follow-up study.

Furthermore, the research cohort in this study was deliberately narrowed to the neonatal specialist area of nursing in Australia and the findings are very likely to be culturally bound by social context in English speaking Australia (Cohen, et al., 2011).

Section 7.6: Recommendations to Further this Research

This research has answered the original research question of "How Capability is identified and recognised in Registered Nurses undertaking the Postgraduate Certificate in Neonatal

Intensive Care". Section 7.4 identified how the PG Cert Capability Framework and Wheel might be applied to clinical practice and neonatal education. As this is original research, the manner and ways in which the PG Cert NIC Capability Framework and Wheel are applied in clinical practice and NIC education would also form the basis for further research. This fact, along with the limitations identified in the previous section, I have identified six potential areas to further this research:

7.6.1. Completing the evidence for all the Capability Requisites in the Capability Framework

As explained in Chapter 6 the interviews addressed the more tacit aspects of the Capability Requisites in the Capability Framework. This meant that only ten of the 20 CRs were discussed with the mentors in any detail during these interviews. Consequently, there are gaps in how the other ten CRs are evidenced in practice. Further research would explore these areas in more depth, contributing to a deeper and more robust understanding from the profession's perspective, of how Capability might be recognised in these other areas.

7.6.2. Potential for developing evaluation 'tools' to assess clinical practice

Stephenson (1992) noted that within the working context, there is something about a Capable person that is easy to recognise but often difficult to measure. The PG Cert NIC Capability Framework and the PG Cert NIC Capability Wheel makes Capability in neonatal clinical practice explicit. Subsequent research will use the Capability Framework and the Capability Wheel to develop valid and reliable 'tools' for the *assessment* of clinical practice. For example, a Portfolio can be a valuable and valid assessment tool if used well. The PG Cert NIC Capability Framework and Wheel could easily be developed into a Portfolio to determine the types of valid and reliable evidence on which to base assessment.

7.6.3. Gender differences in viewing and appraising Capability

It is known there are differences between experienced and novice assessors (Govaerts et.al. 2011) and for this reason I specifically chose experienced NIC nurses to participate in this research. Differences between assessors in regards gender, however, has not been specifically explored. In Chapter 6.1, I noted a potential confounding factor that female mentors may be viewing different things in students to their male counterpart. The one male (Malcolm) interviewed, did not seem to use the same *antennae* as the female mentors for collecting and interpreting non-verbal behaviours (see Memo Box 6.1 in Chapter 6). Rather

than making meanings from observing the subtle behaviours of non-verbal communication, Malcolm seemed to rely more on evaluating the declarative knowledge of the student by asking the student specific questions.

This aspect of the study has raised the question of whether there are gender differences in evaluating practice. Furthermore, if there are gender differences, does this relate to what they value in practice and whether this may influence the outcomes of evaluation? This provocative idea has unlocked an entirely different perspective on assessment, which deserves a more in depth study in the future. Nevertheless, in the interim, the opportunity for discussion between mentor and student, about the PG Cert NIC Capability Wheel allows for individual differences, whether through gender or otherwise, to be identified and clarified.

7.6.4. Using a Capability Framework more broadly in nursing and other disciplines

The PG Cert NIC Capability Requisites, the Framework, and Wheel are specific for the neonatal specialist area. However, the concept can be extended to other post-registration and pre-registration nursing courses in Australia and in disciplines other than nursing. It would also be valuable to explore if they are culturally sensitive, applicable internationally.

Section 2.2 discussed how the Registered Nurse Standards for Practice (NMBA 2016) now incorporate Capability as part of the Standards. However, it was also noted that the NMBA has not defined Capability in this document. Developing a Capability Framework and Wheel would not only be most suitable for undergraduate nursing students, it would provide a structure towards recognising and defining Capability for the Registered Nurse. Importantly then, further research, to explore the concept of Capability more broadly across other nursing disciplines would be beneficial.

The Gears Of Capability on the PG Cert NIC Capability Wheel are generic, they align well to other researchers' concepts of Graduate Capability (Scott, et al., 2010; Stephenson & Yorke, 2012; Coetzee, 2014). While the spokes on the PG Cert NIC Capability Wheel are specific to the discipline of neonatal nursing, this should not be a limiting factor for other disciplines. So the spokes on the Capability Wheel could be modified to identify specific Capability Requisites to other nursing specialty areas and other disciplines. Further research is warranted to confirm (or otherwise) that this is the case.

Furthermore, it has been clearly documented in this thesis, that the research cohort in this study was deliberately narrowed to the neonatal specialist area of nursing in Australia. In future research, it would be appropriate, therefore, to explore whether the findings reported here for NIC nursing are culturally bound (Cohen, et al., 2011), and to broaden the research to consider other social contexts, other countries, including societies where English is not the first language.

7.6.5. Capability from the student perspective

This research was very specific, in that it sought to elicit only the views of experienced neonatal nurses on the subject of Capability in the PG Cert NIC nursing students. However, studies have noted that students may view their Capability as different from their more experienced colleagues, and taking snapshots from the teacher's perspectives and expectations "may not be aligned with what the students both experience and perceive in terms of their development" in clinical practice (Bath, et al., 2004, p. 325). It would be appropriate, therefore, to explore any differences in the understanding of Capability between the PG Cert NIC student and an experienced neonatal nurse. Further research is, therefore, required to explore the concept of Capability from the students' perspective, in order to evaluate any disparities between the mentors' expectations compared with students' expectations.

7.6.6. Evaluation research – using the framework in practice

Evaluation research is the study of the impact of an intervention (Bryman, 2016). The methodology of evaluation research lends itself well to an interrogation of a practice setting that involves researchers, clinicians and students. The PG Cert NIC Capability Framework and Capability Wheel has the potential to close the purported theory-practice gap with capacity for a study to establish how the PG Cert NIC Framework and Wheel translates into practice. With an evaluation research focus, researchers, clinicians and their students, could collaborate to identify exactly how the PG Cert NIC Framework and Capability Wheel are used by the clinical practice area and whether in fact it does go some way towards closing the theory-practice gap.

Conclusion

The concept and vocabulary around competence has long been confusing, and when assessing or evaluating clinical competence it has been too easy to slip into the trap of

minimum performance standards, limited to only what can be measured – declarative knowledge and performance of skills. Consequently, the assessment of clinical practice in NIC nursing has been problematic because what needs to be assessed to ensure that NIC graduates are fit for purpose is more complex than minimum performance standards. Capability is more holistic and recognises the complexity of clinical practice.

A clear finding from this research is that Capability in the PG Cert NIC nursing student both includes, and moves beyond, competence. This research has identified that central to the development of Capability are the three underpinning domains of Professionalism, Interpersonal Interactions and Knowledge and Skills. This research has mapped the progression from competence, through discipline specific Graduate Attributes, to the PG Cert NIC Capability Framework and Capability Wheel. It has taken this circuitous route, in order to clarify what is really being appraised in the PG Cert NIC student. This study shows that, NIC nursing students in practice are, in fact, being appraised on Capability, which until now, has not been named up as such. Specifically, this research has identified how we recognise Capability in Registered Nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care.

References:

Aiken, L. H., D. M. Sloane, L. Bruyneel, K. Van den Heede, P. Griffiths, R. Busse, M. Diomidous, J. Kinnunen, M. Kózka, E. Lesaffre, M. D. McHugh, M. T. Moreno-Casbas, A. M. Rafferty, R. Schwendimann, P. A. Scott, C. Tishelman, T. van Achterberg and W. Sermeus (2014). Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. *The Lancet*, 383(9931), 1824-1830. doi: https://doi.org/10.1016/S0140-6736(13)62631-8

Australian College of Neonatal Nurses. (2012). Australian Standards for Neonatal Nurses 3rd Edition: Australian College of Neonatal Nurses.

Australian College of Neonatal Nurses. (2014). Position statement on the provision of neonatal nursing education, from https://www.acnn.org.au/resources-and-research/position-statements-professional-and-clinical/Provision-of-neonatal-nursing-education.pdf

Australian College of Neonatal Nursing. (2017). Neonatal Nursing, from https://acnn.sslsvc.com/about/neonatal-nursing/

Babbie, E. (2011). *The basics of social research* (5th ed.). Belmont, CA: Wadsworth Cengage Learning.

Baker, C., Wuest, J., & Stern, P. N. (1992). Method slurring: the grounded theory/phenomenology example. *Journal of Advanced Nursing, 17*(11), 1355-1360. doi: 10.1111/j.1365-2648.1992.tb01859.x

Baker, S. E., & Edwards, R. (2012). How many qualitative interviews is enough?: Expert voices and early career reflections on sampling and cases in qualitative research: National Centre or Research Methods.

Ballantyne, M., Stevens, B., McAllister, M., Dionne, K., & Jack, A. (1999). Validation of the premature infant pain profile in the clinical setting. *The Clinical journal of pain, 15*(4), 297-303.

Blomqvist, Y. T., Rubertsson, C., Kylberg, E., Jöreskog, K., & Nyqvist, K. H. (2012). Kangaroo Mother Care helps fathers of preterm infants gain confidence in the paternal role.

Journal of Advanced Nursing, 68(9), 1988-1996. doi: 10.1111/j.1365-2648.2011.05886.x

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: http://dx.doi.org/10.1191/1478088706qp063oa

Brewer, M., Flavell, H., Harris, C., Davis, M., & Bathgate, K. (2014). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability, 5*(1), 29-46.

Brink, H., van der Walt, C., & van Rensberg, G. (2006). *Fundamentals of Research Methodology for Healthcare Professionals* (2nd ed.). Cape Town: Juta & Co.

Bromley, P. (2014a). Clinical competence of neonatal intensive care nursing students: How do we evaluate the application of knowledge in students of postgraduate certificate in neonatal intensive care nursing? *Journal of Neonatal Nursing, 20*(4), 140-146. doi: http://dx.doi.org/10.1016/j.jnn.2014.02.002

Bromley, P. (2014b). Using Nominal Group Technique (NGT) to reach consensus on Graduate Attributes for nurses undertaking Postgraduate Certification in Neonatal Intensive Care in Australia. *Journal of Neonatal Nursing, 20*(6), 245-252. doi: 10.1016/j.jnn.2014.08.002

Bromley, P. (2015). Using eDelphi to identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing. *Journal of Neonatal Nursing, 21*(6), 224-236. doi: http://dx.doi.org/10.1016/j.jnn.2015.09.003

Bromley, P. (2017). Capability: How is it recognised in student nurses undertaking postgraduate studies in neonatal intensive care? *Journal of Neonatal Nursing*. doi: 10.1016/j.jnn.2017.08.004

Bryman, A. (2016). *Social research methods* (5th ed.): Oxford ; New York : Oxford University Press, 2016.

Capability. (2018). In *English Oxford Living Dictionaries.* Retrieved from https://en.oxforddictionaries.com/definition/capability

Carryer, J., Gardner, G., Dunn, S., & Gardner, A. (2007). The capability of nurse practitioners may be diminished by controlling protocols. *Australian Health Review* (1), 108.

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum, 41*(5), 545-547. doi: 10.1188/14.ONF.545-547

Centers for Disease Control and Prevention. (2006). Gaining consensus among stakeholders through the nominal group technique. *Evaluation Briefs, 7*. Retrieved from https://www.cdc.gov/HealthyYouth/evaluation/pdf/brief7.pdf

Cescutti-Butler, L., & Galvin, K. (2003). Parents' perceptions of staff competency in a neonatal intensive care unit. *Journal of Clinical Nursing, 12*(5), 752-761. doi: 10.1046/j.1365-2702.2003.00783.x

Chan, M. F., & Arthur, D. G. (2009). Nurses' attitudes towards perinatal bereavement care. *Journal of Advanced Nursing, 65*(12), 2532-2541. doi: http://dx.doi.org/10.1111/j.1365-2648.2009.05141.x

Chaffin, W. W., & Talley, W. K. (1980). Individual stability in Delphi studies. *Technological Forecasting and Social Change, 16*(1), 67-73. doi: http://dx.doi.org/10.1016/0040-1625(80)90074-8

Charmaz, K. (2014). *Constructing Grounded Theory* (2nd ed.). London: Sage.

Coetzee, M. (2014). Measuring student graduateness: reliability and construct validity of the Graduate Skills and Attributes Scale. *Higher Education Research & Development, 33*(5), 887-902. doi: 10.1080/07294360.2014.890572

Cohen, L., Manion, L., & Morrison, K. (2011). *Research Methods in Education* (7th ed.). Abingdon, Oxon: Routledge.

Cowman, S, Gethin, G, Clarke, E, Moore, Z, Craig, G, Jordan-O'Brien, J, McLain, N & Strapp, H 2012, 'An international eDelphi study identifying the research and education priorities in wound management and tissue repair', *Journal of Clinical Nursing*, vol. 21, no. 3/4, pp. 344-353. doi: 10.1111/j.1365-2702.2011.03950.x

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1986). *Group techniques for program planning: a guide to nominal group and Delphi processes*. Wisconsin: Green Briar Press.

Denzin, N. (1997). Educational research, methodology and measurement: an international handbook (2nd ed., pp. 318-322): Pergamon Press.

DiMenna, L. (2006). Considerations for implementation of a neonatal kangaroo care protocol. *Neonatal Network, 25*(6), 405-412.

Dombrowski, M. A. S., Anderson, G. C., Santori, C., & Burkhammer, M. (2001). Kangaroo (skin-to-skin) care with a postpartum woman who felt depressed. *MCN: The American Journal of Maternal/Child Nursing, 26*(4), 214-216.

Donaldson, J. H., & Gray, M. (2012). Systematic review of grading practice: Is there evidence of grade inflation? *Nurse Education in Practice, 12*(2), 101-114.

Ebrall, P. (2007). From competency to capability: an essential development for chiropractic education. *Chiropractic Journal of Australia, 37*(2), 61-67.

Engler, A. J., Ludington-Hoe, S. M., Cusson, R. M., Adams, R., Bahnsen, M., Brumbaugh, E., Ryan, D. L. (2002). Kangaroo care: national survey of practice, knowledge, barriers, and perceptions. *MCN: The American Journal of Maternal/Child Nursing, 27*(3), 146-153.

Flinkman, M., Leino-Kilpi, H., Numminen, O., Jeon, Y., Kuokkanen, L., & Meretoja, R. (2017). Nurse Competence Scale: a systematic and psychometric review. *Journal of Advanced Nursing, 73*(5), 1035-1050. doi: 10.1111/jan.13183

Foster, J., Spence, K., Henderson-Smart, D., Harrison, D., Gray, P. H., & Bidewell, J. (2013). Procedural pain in neonates in Australian hospitals: A survey update of practices. *Journal of paediatrics and child health, 49*(1), E35-E39. doi: 10.1111/jpc.12064

Gill, F. J., Leslie, G. D., Grech, C., & Latour, J. M. (2013). Using a web-based survey tool to undertake a Delphi study: Application for nurse education research. Nurse Education Today, 33(11), 1322-1328.

Girot, E. A. (2000). Assessment of graduates and diplomates in practice in the UK -- are we measuring the same level of competence? *Journal of Clinical Nursing, 9*(3), 330-337. doi: 10.1046/j.1365-2702.2000.00393.x

Govaerts, M. J. B., Schuwirth, L. W. T., Van der Vleuten, C. P. M., & Muijtjens, A. M. M. (2011). Workplace-based assessment: effects of rater expertise. *Advances in Health Sciences Education, 16*(2), 151-165. doi: 10.1007/s10459-010-9250-7

Hamilton, K. E., Redshaw, M. E. S., & Tarnow-Mordi, W. (2007). Nurse staffing in relation to risk-adjusted mortality in neonatal care. Archives of Disease in Childhood -- Fetal & Neonatal Edition, 92(2), F99-f103.

Hansen, E. C. (2006). Successful qualitative health research: A practical introduction. Crows Nest, Australia: Allen & Unwin.

Harvey, N., & Holmes, C. A. (2012). Nominal group technique: An effective method for obtaining group consensus. *International Journal of Nursing Practice*, 18(2), 188-194. doi: 10.1111/j.1440-172X.2012.02017.x

Hase, S., & Davis, L. (1999). *From Competence to capability: the implication for human resource development and management*. Paper presented at the Millennial challenges in management, education, cyber technology, and leadership: Association of International Management, 17th Annual Conference, San Diego.

Hauer, K., Cate, O., Boscardin, C., Irby, D., Iobst, W., & O'Sullivan, P. (2014). Understanding trust as an essential element of trainee supervision and learning in the workplace. *Advances in Health Sciences Education, 19*(3), 435.

Holey, E., Feeley, J., Dixon, J., & Whittaker, V. (2007). An exploration of the use of simple statistics to measure consensus and stability in Delphi studies. *BMC Medical Research Methodology,* 7(1), 52.

Holloway, K 2012, 'Doing the E-Delphi: using online survey tools', *Computers Informatics Nursing*, vol. 30, no. 7, pp. 347-350.

Hsu, C.-C., & Sandford, B. A. (2007). The Delphi technique: making sense of consensus. *Practical Assessment, Research & Evaluation, 12*(10), 1-8.

Kaffashi, F., Scher, M. S., Ludington-Hoe, S. M., & Loparo, K. A. (2013). An analysis of the kangaroo care intervention using neonatal EEG complexity: A preliminary study. *Clinical Neurophysiology, 124*(2), 238-246. doi: http://dx.doi.org/10.1016/j.clinph.2012.06.021

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi Technique in Nursing and Health Research*. Oxford: Wiley-Blackwell.

Killam, L., Luhanga, F., & Bakker, D. (2011). Characteristics of Unsafe Undergraduate Nursing Students in Clinical Practice: An Integrative Literature Review. Journal of Nursing Education, 50(8), 437-446. doi: 10.3928/01484834-20110517-05

Killam, L. A., Montgomery, P., Luhanga, F. L., Adamic, P., & Carter, L. M. (2010). Views on unsafe nursing students in clinical learning. *International Journal of Nursing Education Scholarship, 7*(1), 1-17.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry* (Vol. 75): Sage.

Luhanga, F., Yonge, O., & Myrick, F. (2008). Hallmarks of unsafe practice: what preceptors know. *Journal for Nurses in Professional Development, 24*(6), 257-264.

Luhanga, F. L., Larocque, S., MacEwan, L., Yovita, N., & Danyluk, P. (2014). Exploring the issue of failure to fail in professional education programs: a multidisciplinary study. *Journal of University Teaching & Learning Practice, 11*(2), 3.

Mannix, T. (2011). Using the Delphi technique to develop standards for neonatal intensive care nursing education. *Neonatal, Paediatric & Child Health Nursing, 14*(3), 25-36.

Maxwell, J. A. (2006). Literature reviews of, and for, educational research: A commentary on boote and beile's "scholars before researchers". Educational researcher, 35(9), 28-31.

McKechnie, L. (2016). Family-integrated care in the neonatal unit. *Infant, 12*(3), 79-81.

Mills, J., Bonner, A., & Francis, K. (2006). The Development of Constructivist Grounded Theory. *International Journal of Qualitative Methods, 5*(1), 25-35. doi: 10.1177/160940690600500103

Monterosso, L., Kristjanson, L., Sly, P. D., Mulcahy, M., Holland, B. G., Grimwood, S., & White, K. (2005). The role of the neonatal intensive care nurse in decision-making: Advocacy, involvement in ethical decisions and communication. *International Journal of Nursing Practice, 11*(3), 108-117. doi: 10.1111/j.1440-172X.2005.00512.x

Northcote, J. (2006). Focus Groups. *Of Substance: The National Magazine on Alcohol, Tobacco and Other Drugs*, 4(1), 16-17.

Nursing and Midwifery Board of Australia. (2006). National Competency Standards for the Registered Nurse. Retrieved from the Nursing and Midwifery Board of Australia website:http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Professional-standards.aspx

Nursing and Midwifery Board of Australia. (2016). Registered Nurse Standards for Practice. Retrieved from the Nursing and Midwifery Board of Australia website: http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Professional-standards.aspx

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

Ohgi, S., Fukuda, M., Moriuchi, H., Kusumoto, T., Akiyama, T., Nugent, J. K., Brazelton, T B., Arisawa, K., Takahashi, T., Saitoh, H. (2002). Comparison of kangaroo care and standard care: behavioral organization, development, and temperament in healthy, low-birth-weight infants through 1 year. *Journal of Perinatology, 22*(5), 374.

Perdok, H, Mokkink, L, van Dillen, J, Westerneng, M, Jans, S, Mol, BW & de Jonge, A 2014, 'Opinions of Maternity Care Professionals About Integration of Care During Labor for "Moderate Risk" Indications: A Delphi Study in The Netherlands', *Birth*, pp. 195-205. doi: 10.1111/birt.12102

Perry, J., & Linsley, S. (2006). The use of the nominal group technique as an evaluative tool in the teaching and summative assessment of the inter-personal skills of student mental health nurses. *Nurse Education Today, 26*(4), 346-353. doi: 10.1016/j.nedt.2005.11.004

Plaza, C. M. P. P., Draugalis, J. R. P., Slack, M. K. P., Skrepnek, G. H. P., & Sauer, K. A. P. M. (2007). Use of Reflective Portfolios in Health Sciences Education. *American Journal of Pharmaceutical Education, 71*(2), 1-34.

Polit, D. F. (2010). *Statistics and data analysis for nursing research* (2nd ed.). New Jersey: Pearson. Powell, C. (2003). The Delphi technique: myths and realities. Journal of Advanced Nursing, 41(4), 376-382. doi: 10.1046/j.1365-2648.2003.02537.x

Ramanathan, K., Paul, V., Deorari, A., Taneja, U., & George, G. (2001). Kangaroo Mother Care in very low birth weight infants. *Indian journal of pediatrics, 68*(11), 1019-1023.

Redfern, S., Norman, I., Calman, L., Watson, R., & Murrells, T. (2002). Assessing competence to practise in nursing: a review of the literature. *Research Papers in Education, 17*(1), 51-77. doi: 10.1080/02671520110058714

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences,* 4(2), 155-169. doi: 10.1007/bf01405730

Rittman, M. R., & Osburn, J. (1995). An interpretive analysis of precepting an unsafe student. *Journal of Nursing Education, 34*(5), 217-221.

Rodham, K., Fox, F., & Doran, N. (2015). Exploring analytical trustworthiness and the process of reaching consensus in interpretative phenomenological analysis: Lost in transcription. *International Journal of Social Research Methodology, 18*(1), 59-71.

Royal College of Nursing. (2015). Career, education and competence framework for neonatal nursing in the UK. Retrieved from http://www.rcn.org.uk/__data/assets/pdf_file/0010/607690/FINAL-WEB-FILE_230115.pdf

Sasso, L., Bagnasco, A., & Watson, R. (2016). Competence-sensitive outcomes. *Journal of Advanced Nursing*, n/a-n/a. doi: 10.1111/jan.12941

Scott, G., Chang, E., & Grebennikov, L. (2010). Using successful graduates to improve the quality of undergraduate nursing programs. *Journal of Teaching and Learning for Graduate Employability, 1*(1). Retrieved from doi:http://dx.doi.org/10.21153/jtlge2010vol1no1art547

Sinkovics, R. R., Penz, E., & Ghauri, P. N. (2008). Enhancing the trustworthiness of qualitative research in international business. *Management International Review, 48*(6), 689-714.

Spencer, D., Riddle, M., & Knewstubb, B. (2012). Curriculum mapping to embed graduate capabilities. *Higher Education Research and Development, 31*(2), 217-231. doi: 10.1080/07294360.2011.554387

Stein-Parbury, J. (2009). *Patient & Person: interpersonal skills in nursing* (4th ed.). Sydney: Churchill Livingstone Elsevier.

Stephenson, J. (1992). Chapter One: Capability and Quality in Higher Education. From Kogan Page Ltd

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.580.5690&rep=rep1&type=pdf

Stephenson, J., & Yorke, M. (Eds.). (2012). *Capability and Quality in Higher Education* London: Routledge.

Straus, A., & Corbin, J. (1998). Basics of qualitative research: Techniques and procedures for developing grounded theory (2nd ed.).

Streubert, H. J., & Carpenter, D. R. (2003). *Qualitative research in nursing: advancing the humanistic imperative* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.

Tanicala, M. L., Scheffer, B. K., & Roberts, M. S. (2011). Pass/fail nursing student clinical behaviors phase I: moving toward a culture of safety. *Nursing Education Perspectives, 32*(3), 155-161.

Taylor, F. (2009). Content Analysis and Gender Stereotypes in Children's Books. *Sociological Viewpoints, 25*, 5-22. doi: 10.1037%2f%2f0003-066x.54.6.408

Torii, K., & O'Connell, M. (2017). Preparing young people for the future of work.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*(3), 398-405. doi: 10.1111/nhs.12048

von der Gracht, H. A. (2012). Consensus measurement in Delphi studies: Review and implications for future quality assurance. *Technological Forecasting and Social Change*, 79(8), 1525-1536. doi: http://dx.doi.org/10.1016/j.techfore.2012.04.013

Watson, R., Stimpson, A., Topping, A., & Porock, D. (2002). Clinical competence assessment in nursing: a systematic review of the literature. *Journal of Advanced Nursing, 39*(5), 421-431. doi: 10.1046/j.1365-2648.2002.02307.x

Appendices

Appendix A: NGT Participant Information and Consent

This appendix contains documentation related to Stage 1 of the research, namely using Nominal Group Technique (NGT) to develop the PG Cert NIC Graduate Attributes.

- NGT: Letter to ACNN
- NGT: Invitation to Participate
- NGT: Participant Information Sheet
- NGT: Consent Form
- NGT: Spreadsheet from focus group
- NGT Report on the PG Cert NIC Gradate Attributes

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FACULTY OF EDUCATION

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5th August 2013

Karen New
The Professional Officer
Australian College of Neonatal Nurses

Dear Karen,

My name is Patricia Bromley; I am a lecturer in the School of Nursing and Midwifery, University of Tasmania. I am a Doctor of Education student at the University of Tasmania exploring the concept of competence in postgraduate nursing students of Graduate Certificate in Neonatal Intensive Care in Australia. My supervisors are Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck.

This project seeks to better understand how we assess clinical competence in nursing students of Postgraduate Certificate in Neonatal Intensive Care.

The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care certificate courses in Australia;
2. To reach consensus on competence, what is expected (skills, knowledge attitude) of postgraduate students of neonatal intensive care certificate courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of clinical competence in neonatal intensive care units in Australia.

As part of my research I am now seeking participation from members of the Australian College of Nurses (ACNN) Neonatal Nurse Educators Special Interest Group (NNE SIG) in a focus group using Nominal Group Technique at the face-to-face workshop to be held on the 8th August 2013 as part of the 8th ACNN Annual Conference and Symposium.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

I have enclosed a Participant Information Statement which explains the research in more detail. I was wondering if it would be possible to distribute this information to members of the ACNN NNE SIG prior to the workshop? Interested participants may contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Nursing and Midwifery, University of Tasmania

FACULTY OF EDUCATION

SCHOOL OF EDUCATION

5th August 2013

Invitation to Participate

My name is Patricia Bromley; I am a lecturer in the School of Nursing and Midwifery, University of Tasmania. I am a Doctor of Education student at the University of Tasmania exploring the concept of competence in postgraduate nursing students of Graduate Certificate in Neonatal Intensive Care in Australia. My supervisors are Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck.

This project seeks to better understand how we assess clinical competence in nursing students of Postgraduate Certificate in Neonatal Intensive Care.

The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care certificate courses in Australia;
2. To reach consensus on competence, what is expected (skills, knowledge attitude) of postgraduate students of neonatal intensive care certificate courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of clinical competence in neonatal intensive care units in Australia.

As part of my research I am now seeking participation from members of the Australian College of Nurses (ACNN) Neonatal Nurse Educators Special Interest Group (NNE SIG) in a focus group using Nominal Group Technique at the face-to-face workshop to be held on the 8th August 2013 as part of the 8th ACNN Annual Conference and Symposium.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

For your information I have enclosed a Participant Information Statement which explains the research in more detail and a consent form. If you are interested in participating please return the signed consent form to me at the following email address. Upon receiving this I will then contact you will further detail regarding the Nominal Group workshop.

If you have any further questions please contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Nursing and Midwifery, University of Tasmania

FACULTY OF EDUCATION

SCHOOL OF EDUCATION

5th August 2013

Assessment of clinical competence of neonatal intensive care student nurses: Part 1 - What should be the Graduate Attributes for nurses with Postgraduate Certificate in Neonatal Intensive Care within the Australian context?

This information sheet is for members of the Australian College of Neonatal Nurses (ACNN) Neonatal Nurse Educators Special Interest Group (NNE SIG) who wish to participate in a focus group workshop using the Nominal Group Technique at the NNE SIG face-to-face meeting on Thursday 8th August 2013 to identify, what might be, the expected Graduate Attributes from nurses of Postgraduate Certificate of Neonatal Intensive Care.

Invitation

This project seeks to better understand how we assess clinical competence in students of Postgraduate Certificate in Neonatal Intensive Care in Australia. The study will be conducted in three stages:

1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care certificate courses in Australia;
2. To reach consensus on competence, what is expected (skills, knowledge attitude) of postgraduate students of neonatal intensive care certificate courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of clinical competence in neonatal intensive care units in Australia.

This study is being conducted in partial fulfilment of a Doctor of Education for Patricia Bromley under the supervision of Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck.

What is the purpose of this study?

The aim of this first stage of the study is to establish a consensus on what might be the expected attributes from graduates of Postgraduate Certificate in Neonatal Intensive Care courses in Australia.

Why have I been invited to participate?

You have been identified through the Australian College of Neonatal Nurses (ACNN) as a member of the ACNN Neonatal Nurse Educator Special Interest Group (NNE SIG).

You are invited to participate in a focus group 1-2 hour workshop using the Nominal Group Technique at the NNE SIG face-to-face meeting on Thursday 8th August 2013 to identify, what might be, the expected Graduate Attributes from nurses of postgraduate education in Neonatal Intensive Care Nursing.

Participation is voluntary and you have the right to withdraw at any time. There are no disadvantages, penalties or adverse consequences for not participating or for withdrawing prematurely from the research.

What will I be asked to do?

If you agree to participate in this project:

1. You will be asked to take part in a focus group using the Nominal Group Technique at the annual workshop on Thursday 8th August 2013
2. You will need to sign a consent form indicating that you have read and understood the participant information statement and consent form
3. You will review the final grading for Graduate Attributes for comment
4. You will be able to access the final research at the completion of the project

Nominal Group Technique (NGT) is a research methodology often used in health care education to develop and problem-solve. It is also a good method the gain consensus and allows the group to prioritise a number of issues.

Conducting the NGT session will include a five (5) step process namely:

- Assemble a problem-solving team (participants)

1. Generating ideas:
   - Each team member independently generates their own ideas on the attributes that they believe are important for graduates to hold on graduation from a postgraduate certificate in neonatal intensive care.

2. Recording ideas:
   - Round-robin feedback session to concisely record each idea without debate
   - Facilitator collects cards and registers the ideas on whiteboard and/or computerized document connected to an overhead projector for participants to view.

3. Discussing ideas:
   - Each idea is discussed to clarify the meaning of each item to express their understanding of the logic behind the idea and the relative importance of the item.
   - Group members are allowed to express their understanding of the logic and relative importance of the idea

4. Voting on ideas:
   - Individuals vote privately to prioritize ideas on separate cards
   - The ideas are them ranked in order of most common to least common reason
   - Then the first five (5) ideas are collected for inclusion in data.

5. Thematically group:
   - At the end of the above process the ranked ideas (Graduate Attributes) are thematically grouped. The participants generate the themes through an iterative process of grouping and regrouping until the main themes emerge and cannot be improved upon.

Are there any possible benefits from participation in this study?

By participating in this workshop, you may be assisting in the establishment of nationally recognised Graduate Attributes for Postgraduate Certificate Neonatal Intensive Care Nursing studies in Australia.

Are there any possible risks from participation in this study?

No risk or harm is anticipated from participating in this stage of the project. Anxiety of discomfort may be experienced if conflicting opinions are expressed and unresolved. This will be mitigated by thorough training of the researcher facilitating the discussion in how to identify and manage scenarios in which a participant may feel uncomfortable in a small-group environment. The approach and philosophy underlying the discussions will be directed towards constructive problem solving.

Participants who experience difficulty or discomfort may talk privately with the researcher or seek counselling support.

What if I change my mind during or after the study?

You are free to discontinue participation in the research at any time without providing an explanation. All you need to do is notify the student investigator at the time of the workshop. You may also withdraw consent; however, if you wish to withdraw consent it will not be possible to remove anonymous data from the Nominal Group Technique after completion workshop.

What will happen to the information when this study is over?

Consent forms, and other data will be kept in a locked filing cabinet in a locked room at the University of Tasmania, School of Nursing and Midwifery Domain Campus. Computer files will be password protected. All data will be archived in a locked filing cabinet in the researcher's office within the University of Tasmania and according to NHMRC guidelines for five years from the date of first publication. After this time, raw data will be shredded and/or deleted from computer files.

All data will be treated in a confidential manner. Due to the nature of focus group discussions, confidentiality cannot be guaranteed. During the focus group discussion participants are asked to keep discussions confidential. Confidentiality will be reinforced by having participants sign a consent stating they understand the importance of confidentiality. There will be no deception of participants either by concealment or covert observation.

How will the results of the study be published?

At the end of the research project, the results of this project will appear in a EdD thesis and may appear in papers, journal articles and in presentation, but you or your organization will not be identified in any of these reports.

What if I have questions about this study?

Any questions regarding this project may be directed to:
Patricia Bromley: email patricia.bromley@utas.edu.au or telephone +61 6226 4692

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. You will need to quote H0013429.

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form.
This information sheet is for you to keep.

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SCHOOL OF EDUCATION

5th August 2013

Assessment of clinical competence of neonatal intensive care student nurses: Part 1 - What should be the Graduate Attributes for nurses with Postgraduate Certificate in Neonatal Intensive Care within the Australian context?

This consent form is for members of the Australian College of Neonatal Nurses (ACNN) Neonatal Nurse Educators Special Interest Group (NNE SIG) who wish to participate in a focus group workshop using the Nominal Group Technique at the NNE SIG face-to-face meeting on Thursday 8th August 2013 to identify, what might be, the expected Graduate Attributes from nurses of Postgraduate Certificate in Neonatal Intensive Care.

1. I agree to take part in the research study named above.

2. I have read and understood the Information Sheet for this study.

3. The nature and possible effects of the study have been explained to me.

4. I understand that this part of the study involves the Nominal Group Technique which is a five step process to gather information and prioritize ideas to reach a consensus.

5. I understand that participation involves no foreseeable risk, discomfort or harm to participants

6. I understand that all research data will be securely stored on the University of Tasmania premises for five years from the publication of the study results, and will then be destroyed.

7. Any questions that I have asked have been answered to my satisfaction.

8. I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.

9. I understand the importance of confidentiality and agree to protect the privacy of all the focus group participants

10. I understand that the results of the study will be published so that I cannot be identified as a participant.

11. I understand that my participation is voluntary and that I may withdraw at any time without any effect.

    I understand that I will not be able to withdraw my data after completing the Nominal Group Technique focus group workshop as it will have been collected anonymously.

Participant's name: _____

Participant's signature: _____

Date: _____

Statement by Investigator

☐ I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

☐ The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: _____

Investigator's signature: _____

Date: _____

Graduate Attribute Theme	Variable	Score	Score	Score	Score	Score	Score	Score	Score	Total
provide skilled nursing care to sick and preterm neonates	to facilitate breastfeeding- explain rationale behind technical skills - understand pharmacokinetics and administer medications safely - the ability to manage technical equipment - manage mechanical ventilation techniques	4	2	3	5	5	5	5	5	34
understand the pathophysiology of the neonate	to optimise neurological outcomes - to recognise and manage signs of deterioration _form a comprehensive physical assessment of the neonate, deviations from the norm and complex needs -provide skilled nursing care to sick and preterm neonates	4	5	5	4	4	2			24
good communication skills	understanding and communicating therapeutically with families - communicate with peers, the m-d team and families	3	4	4	3	4	3			21
critical thinking	ability to problem solve -intuitive nursing	2	3	5	5	4				19
research orientated	evidence-based specialist knowledge - information literacy -apply evidence based learning to provide care	1	1	2	1	4				9
ability to multi task / situational awareness	crisis management -time management - ability to prioritise	3	1							4
social responsibility to deliver culturally appropriate care		3								3
ability to adapt the model of care to the environment	flexibility in practice	1	2							3
work with a multidisciplinary team approach		2								2

	understand that the grad cert is preceptorship -being able to encourage others in their learning			
the beginning - life long learning		1		2
patient and family advocate		2	1	2
ethical and professional understanding		1		1
policy development				0
reflective and insightful about their practice				0
being politically and socially aware	understand the broad aspects of neonatal nursing			0
practice development	ability to recognise challenges in practice and provide a solution focused attitude			0
leadership skills				0
empathy				0

This report presents the results of the focus group workshop using Nominal Group Technique (NGT) to develop consensus on what might be the Graduate Attributes for students undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Graduate Attributes 2014

Postgraduate Certificate Neonatal Intensive Care Nursing in Australia

Patricia Bromley RN, MEd, NICU, Doctor of Education Candidate

Contents

Results from the Focus Group Workshop using Nominal Group Technique (NGT) for the Graduate Attributes for any Postgraduate Certificate in Neonatal Intensive Care in Australia

Introduction

This report presents the results of the focus group workshop using Nominal Group Technique (NGT) to develop consensus on what might be the Graduate Attributes for students undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

These Graduate Attributes, once ratified by the Australian College of Neonatal Nurse (ACNN), will be used to inform course coordinators and students as to what is expected of a graduate in neonatal intensive care studies in Australia.

Feedback (member check) has been undertaken whereby the participants of the NGT have examined the analysis of the results of the research and confirmed the interpretations (Delbecq, Van de Ven, & Gustafson, 1986; Keeves & Sowden, 1997).

Rationale:

The primary goal for the workshop was to develop a consensus on a set of Graduate Attributes for nurses undertaking any Postgraduate Certificate in Neonatal Intensive Care Nursing.

Scope:

The discipline grouping who participated in the NGT focus group included neonatal nurses with a special interest in neonatal nurse education. This comprised Neonatal Nurse Unit Managers, Clinical Neonatal Nurse Educators and Academic Neonatal Nurse Educators, employed in Special Care Baby Units, Neonatal Intensive Care Units, and Tertiary Education Centres. The NGT focus group workshop was incorporated into the Australian College on Neonatal Nurses (ACNN) Neonatal Nurse Education Special Interest Group (NNE SIG) annual face to face meeting in August 2013.

Demographic data

There were eight Participants (n=8) in the workshop: Unit Managers (n=1), Nurse Educators in the clinical area (n=3), Nurse Educators in the tertiary sector (n=3) and Other (n=1). There was a range of experience from 5 to 30 years, with a cumulative Neonatal Intensive Care experience of 157 years. The demographic data were collected via a free electronic survey (Survey Monkey®) following the workshop.

Nominal Group Technique

Nominal Group Technique (NGT) involves small face-to-face focus group discussion to reach consensus. The process gathers information by asking individuals to respond to questions posed by a moderator and then asking participants to prioritise ideas (Delbecq et al., 1986).

Nominal Group Technique is a five step process involving:
1. Generating ideas: each individual in the group silently generates ideas and writes them down.
2. Recording ideas: Group members engage in a round-robin feedback session to concisely record each idea.
3. Discussing ideas: Each recorded idea is then discussed to obtain clarification and evaluation.
4. Voting and ranking: Individuals vote privately on the priority of ideas, and the group decision is made based on these ratings.
5. Thematical grouping: the items are thematically grouped to aid analysis.

Research Question

The facilitator presented the question "*What do you think should be the graduate attributes of nurses who successfully undertake a postgraduate certificate in neonatal intensive care nursing?*" to the participants of the workshop. After analysis of the data generated from the NGT workshop several graduate attributes have been identified.

ACNN NNE SIG
Graduate Attributes for Postgraduate Certificate in Neonatal Intensive Care.
March 14

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Graduate Attributes for Postgraduate Certificate in Neonatal Intensive Care Nursing in Australia

The Australian College of Neonatal Nurses (ACNN) NNE SIG has defined a set of Graduate Attributes that can be expected of all graduates of any Postgraduate Certificate in Neonatal Intensive Care Nursing in Australia. The ACNN expects graduates to demonstrate a range of skills and capabilities related to the professional area in which they have studied.

By completing any Postgraduate Certificate in Neonatal Intensive Care in Australia students should have attained the following graduate attributes related to:

1. The provision of care
   - Provide skilled nursing care to sick and preterm neonates by being able to:
     - Explain rationale behind technical skills, have the ability to manage technical equipment, and manage mechanical ventilation techniques;
     - Understand pharmacokinetics and administer medications safely; and
     - Facilitate breastfeeding.
   - Understand the pathophysiology of the neonate by being able to:
     - Perform a comprehensive physical assessment of the neonate, identify deviations from the norm and complex needs;
     - Recognise and manage signs of deterioration; and
     - Optimise neurological outcomes.
   - Multi task and have situational awareness in:
     - Crisis management;
     - Time management; and
     - Ability to prioritise.
   - Adapt the model of care to the environment and be flexible in practice
   - Utilise critical thinking skills through:
     - Ability to problem solve; and
     - Intuitive nursing knowledge.
2. Ethical and professional responsibilities
   - Advocate for the patient and family;
   - Practice is underpinned with ethical and professional insight; and
   - Demonstrate a social responsibility through the delivery of culturally appropriate care.
3. Communication and teamwork
   - Ability to work in a multidisciplinary team approach; and
   - Have good communication skills through:
     - Understanding and communicating therapeutically with families; and
     - Communicating with peers, the multidisciplinary team and families.
4. Knowledge
   - Understand that the graduate certificate is the beginning of lifelong learning
   - Preceptorship and being able to encourage others in their learning
   - Research focused through:
     - Application of evidence based learning to provide care;
     - Evidence-based specialist knowledge; and
     - Information literacy.

ACNN NNE SIG
Graduate Attributes for Postgraduate Certificate in Neonatal Intensive Care.
March 14

Page 3

References

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1986). Group techniques for program planning: a guide to nominal group and Delphi processes. Wisconsin: Green Briar Press.

Keeves, J., & Sowden, S. (1997). Educational research, methodology and measurement: an international handbook (2nd ed., pp. 296-306). New York: Pergamon Press.

Appendix B: eDelphi Participant Information and Consent

This appendix contains documentation related to Stage 2 of the research, namely using eDelphi to develop the PG Cert NIC Capability Framework.

- eDelphi: Letter to ACNN
- eDelphi: Invitation to Participate
- eDelphi: Participant Information Sheet
- eDelphi: Consent Form

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The Professional Officer
Australian College of Neonatal Nurses

8/03/17

Dear Karen,

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate at the University of Tasmania exploring the concept of competence in postgraduate nursing students of Neonatal Intensive care in Australia. My supervisors are Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck.

This project seeks to better understand how we assess clinical competence in postgraduate student in Neonatal Intensive Care.

The study will be conducted in three stages:

1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on competence, what is expected (skills, knowledge attitude) of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of clinical competence in neonatal intensive care units in Australia.

In Stage 2 of my research I am seeking participation from neonatal nurse practitioners to participate in a Delphi Technique study to determine the competence in relation to Neonatal Intensive Care clinical practice

The inclusion criteria for this study are as follows:
- Willing to participate
- Must possess a neonatal intensive care qualification: and
- are either a Neonatal Nurse Unit Manager; or
- Neonatal Clinical Practitioner with 5 or more years of experience at a senior level in neonatal intensive care nursing; or
- Neonatal Nurse Educator with at least 5 years' experience teaching in neonatal intensive care; and
- Be employed within a Neonatal Intensive Care Unit / Special Care Baby Unit or within a Tertiary Education Institution in Australia

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

I have enclosed a Participant Information Statement which explains the research in more detail, and a consent form. I was wondering if it would be possible to distribute this information to members of the ACNN?

Neonatal Nurses who meet the inclusion criteria and are interested in participating please return the signed consent form to me at the following email address. Upon receiving this I will then contact them and provide further details regarding the Delphi Study.

Interested participants may contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

UNIVERSITY OF TASMANIA

9/06/14

Invitation to Participate

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate at the University of Tasmania exploring the concept of *Capability* in nursing students undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia. My supervisors are Dr Sharon Fraser, Dr Kim Beswick, and Dr Doug Colbeck.

This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability*, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

For Stage 2 of my research I am seeking participation from neonatal nurse clinicians to participate in a Delphi Technique study to determine the *Capability* requisites for nursing students undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The inclusion criteria for this study are as follows:
- Must possess a neonatal intensive care qualification: and
- Have 5 or more years of experience at a senior level in Neonatal Intensive Care / Special Care Nursery: and/ or
- At least 5 years' experience as a Neonatal Nurse Educator teaching neonatal intensive care; and
- Be employed within a Neonatal Intensive Care Unit / Special Care Baby Unit or a Tertiary Education Institution in Australia.

The study will be carried out using the Delphi technique consisting of 3 questionnaires (known as rounds) aiming to achieve consensus. A link to each online questionnaire will be emailed to each participant. Simple and specific instructions will be provided with each questionnaire.

The amount of time necessary for completion of each questionnaire (round) will vary, but should be approximately 15 – 30 minutes for round 1, 10 – 20 minutes for round 2, and 20-30 minutes for round 3. The whole study should be completed within three months. There are no right or wrong answers to the questions. The project is seeking your expert opinion. I think you will find the process interesting and results will be made available at the conclusion of the study.

It is important you understand that your participation in this project is entirely voluntary. If you do not wish to take part in the study it will not affect your employment or service provided. In addition, any information that you provide will be confidential and when results of the study are reported, you may not be identifiable in the findings. Your name will not be recorded in any rounds; instead, you will be allocated a unique code that can only be identified by the researcher. You will remain anonymous to the other participants (or experts) throughout this Delphi study and only the researcher will be able to identify your specific answers. Completion of each round of Delphi questionnaires imply your ongoing consent to participate.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

For your information I have enclosed a Participant Information Statement which explains the research in more detail and a consent form. If you are interested in participating and you meet the inclusion criteria please return the signed consent form to me by 30th June at the following email address. Upon receiving this I will then contact you with further details regarding the Delphi Study.

If you have any further questions please contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd, EdD Candidate,
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

FACULTY OF EDUCATION

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Participant Information Sheet

Assessment of *Capability* of neonatal intensive care student nurses: Stage 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of *Capability* requisites of students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least 5 or more years of experience at a senior level in Neonatal Intensive Care / Special Care Nursery , and/or at least 5 years' experience as a Neonatal Nurse Educator teaching neonatal intensive care within Australia, who wish to participate in a Delphi Technique study to determine the *Capability* requisites for student nurses undertaking any Postgraduate Certificate in Neonatal Intensive Care within Australia.

Invitation

This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.
The study will be conducted in three stages:

1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability* requisites, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

This study is being conducted in partial fulfilment of a Doctor of Education for Patricia Bromley under the supervision of Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck

What is the purpose of this study?

The aim of this second stage of the study is to establish consensus from the opinions of experts' (experienced neonatal nurse clinicians and neonatal nurse educators) on *Capability* requisites of students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Why have I been invited to participate?

You have been identified through the Australian College of Neonatal Nurses (ACNN) as a member of this organisation, who possesses a neonatal intensive care qualification and are a neonatal nurse clinician with at least 5 years' experience at a senior level, or a neonatal nurse educator with at least 5 years teaching experience, and are employed within a

Neonatal Intensive Care Unit / Special Care Baby Unit or within a Tertiary Education Institution in Australia.

Participation is voluntary and you have the right to withdraw at any time. There are no disadvantages, penalties or adverse consequences for not participating or for withdrawing prematurely from the research.

What will I be asked to do?

If you agree to participate in this project:

1. You will be invited to participate in a Delphi Technique research during July - September 2014
2. You will need to sign a consent form indicating that you have read and understood the participant information statement and consent form
3. Participants will have three weeks to complete and return each round of the survey, it is anticipated no more than three rounds will be required to complete the Delphi.
4. You will review the feedback and responses from the final questionnaire for comment
5. You will be able to access the final research at the completion of the project

Delphi Technique is a research methodology designed to achieve agreement among experts on certain issues where there is none has previous existed or where there is uncertainty or a lack of empirical evidence.

Conducting a Delphi study will include selecting a panel of experts to undertake a multi-staged process through sequential questionnaires or 'rounds' where feedback from the preceding round transforms group opinion into a consensus. A consensus is usually reached in two or three rounds.

1. Round One: the first questionnaire
   - Once signed consent form is received by the researcher, participants will receive an email with a link to the first questionnaire. This questionnaire will request demographic information. It will also ask participants questions relating to what, in their opinion are the *Capability* requisites, for postgraduate nurses undertaking a certificate in neonatal intensive care.
2. Round Two: the second questionnaire
   - The participants' responses to round one will be transcribed and analysed to identify emerging themes. The content of the first questionnaire will form the basis of the second-round questionnaire. The participants will be asked to score their agreement with each response using a Likert scale from one to five.
3. Round Three: the third and (potentially) final questionnaire
   - This round provides the participants the opportunity to compare their responses with those of other members. They are invited to change their score or respond with further comments if they wish.

Quotes may be used from this data however it will be de-identified to maintain participants' confidentiality.

Are there any possible benefits from participation in this study?

By participating in this Delphi study, you may be assisting in the establishment of *Capability* requisites for students in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Are there any possible risks from participation in this study?

No risk or harm is anticipated from participating in this stage of the project. Anxiety or discomfort may be experienced if conflicting opinions are expressed and unresolved. This will be mitigated by thorough training of the researcher facilitating the discussion in how to identify and manage scenarios in which a participant may feel uncomfortable in a focus group environment. The approach and philosophy underlying the Delphi rounds will be directed towards constructive problem solving.

Participants who experience difficulty or discomfort may talk privately with the researcher or seek counselling support.

What if I change my mind during or after the study?

You are free to withdraw at any time without providing an explanation and request that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the final round. All you need do is notify the student investigator by email or telephone.

What will happen to the information when this study is over?

Consent forms, and other data will be kept in a locked filing cabinet in a locked room at the University of Tasmania, School of Health Sciences - Nursing and Midwifery Domain Campus. Computer files will be password protected. All data will be archived in a locked filing cabinet in the researcher's office within the University of Tasmania and according to NHMRC guidelines for five years from the date of first publication. After this time, raw data will be shredded and/or deleted from computer files.
All data will be treated in a confidential manner. Due to the nature of such a small specialist expert panel confidentiality cannot be guaranteed. However, during the process, participants will be asked to keep their opinions confidential. There will be no deception of participants either by concealment or covert observation.

How will the results of the study be published?

At the end of the research project, the results of this project will appear in a EdD thesis and may appear in papers, journal articles and in presentation, but you or your organization will not be identified in any of these reports.

What if I have questions about this study?

Any questions regarding this project may be directed to:
Patricia Bromley: email patricia.bromley@utas.edu.au or telephone +61 6226 4692

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. [*HREC H0013429*].

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form and return it to the researcher. This information sheet is for you to keep.

FACULTY OF EDUCATION

SCHOOL OF EDUCATION

Consent Form

Assessment of *Capability* of neonatal intensive care student nurses: Stage 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of *Capability* requisites of students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

This consent form is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least 5 years of experience at a senior level in Neonatal Intensive Care / Special Care Nursery, and/or as a Neonatal Nurse Educator with at least 5 years' experience teaching neonatal intensive care, within Australia, who wish to participate in a Delphi Technique study to determine the *Capability* requisites for students undertaking any Postgraduate Certificate in Neonatal Intensive Care Nursing within Australia.

1. I agree to take part in the research study named above.
2. I have read and understood the Information Sheet for this study.
3. The nature and possible effects of the study have been explained to me.
4. I understand that the study involves participation in a Delphi Technique, this is a multi-staged process achieved through sequential questionnaires or 'rounds' where feedback from the preceding round transforms group opinion toward a consensus.
5. I understand that participation involves no foreseeable risk, discomfort or harm to participants
6. I understand that all research data will be securely stored on the University of Tasmania premises for five years from the publication of the study results, and will then be destroyed
7. Any questions that I have asked have been answered to my satisfaction.
8. I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.
9. I understand that the results of the study will be published so that I cannot be identified as a participant.
10. I understand that my participation is voluntary and that I may withdraw at any time without any effect.
    If I so wish, I may request that any data I have supplied be withdrawn from the research within four weeks of the date of the final round.

Participant's name: _____

Participant's signature: _____

Date: _____

Statement by Investigator

☐   I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

☐   The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: _____

Investigator's signature: _____

Date: _____

Appendix C: eDelphi Instructions to Participants for Each Round

This appendix contains documentation related to Stage 2 of the research, namely using eDelphi to develop the PG Cert NIC Capability Framework.

- Round 1: Cover letter outlining the working of the Delphi for Round 1
- Round 1: Instructions
- Round 1: Survey
- Round 2: Cover Letter
- Round 2: Instructions
- Round 2: Reminder email
- Round 3: Cover Letter
- Round 3: Instructions
- Round 3: feedback from Round 2 for Round 3 – sent via email

FACULTY OF EDUCATION

SCHOOL OF EDUCATION

Cover letter outlining the working of the Delphi for round one

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Dear Expert Panel Member
Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.
Thank you for responding to my email, indicating you meet the inclusion criteria and would like to participate in this study. This letter will explain the purpose of Round One of this Delphi study.

The purpose of this project is to generate ideas, using Delphi Technique, to identify what are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Specialty clinical areas, such as neonatal intensive care, require proficient nurses with skills specific to the job. Stephenson (1992, p. 1) refers to this as "fitness *for* purpose", where education delivers *Capable* graduands. He stresses that higher education is more than the acquisition of "knowledge and intellectual skill", it also:
   a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
   b) Prepares the student to be personally effective within the circumstances of their lives and work; and
   c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Stephenson states capability is often "easier to recognise than to measure" (1992, p. 1), and that in the past, in an attempt to measure capability educationists have been tempted to reduce capability to "separately measurable competences" (1992, p. 1). Much of the problem with evaluating clinical competence in nursing has been the confusion as to the definition of competence (Bromley, 2014; Buckingham, 2000). The terms *competent*, *competence*, *competency* and *competencies* have often been interpreted as the same thing. Given the problem with defining competence, the adoption of Stephenson's (1992) concept of *Capability* (capital C) may clarify meaning.

Neonatal healthcare is constantly transforming, and requires nurses that are able to work effectively and efficiently in new and demanding contexts. Educators of neonatal intensive care nurses need to prepare graduands that are to be active and effective participants in these changing circumstances. As Stephenson (1992) suggests, *Capability* refers to more than the possession of transferable skills, and, the possession of specialist knowledge is no guarantee that they will be used effectively.

Stephenson (1992) has developed a working definition for *Capability*:

Capable people have confidence in their ability to: Take effective and appropriate action, Explain what they are about, Live and work effectively with others, and Continue to learn from their experience, as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).

Neonatal Nurse educators and experienced neonatal clinicians involved in the support of neonatal nursing students need to have a clear understanding of what is required for students to be *Capable*. This Delphi study aims to develop a consensus on what experts consider to be *Capability* requisites in students undertaking any Postgraduate Certificate in Neonatal Intensive Care Nursing throughout a 12 months education program. This second stage of this study will inform and generate evidence in order to develop a capability framework for any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Thank you for your participation and assistance in this project.

Please contact the researcher by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692 if you require any further clarification.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania
Private Bag 135, Hobart, TAS, 7001

REFERENCES

Bromley, P. (2014). Clinical competence of neonatal intensive care nursing students: How do we evaluate the application of knowledge in students of postgraduate certificate in neonatal intensive care nursing? *Journal of Neonatal Nursing, 20*(4), 140-146. doi: http://dx.doi.org/10.1016/j.jnn.2014.02.002

Buckingham, S. (2000). Review : Clinical competency: the right assessment tools? *Journal of Child Health Care, 4*(1), 19-22. doi: 10.1177/136749350000400103

Stephenson, J. (1992). Quality in Learning: A Capability Approach in Higher Education. from Kogan Page Ltd http://www.johnstephenson.net/qinlintro.htm

Instructions for the first-round Delphi questionnaire:

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Delphi Round one: Identification of *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

***Capable* graduands:**
Where higher education is more than the acquisition of "knowledge and intellectual skill", it also:
  a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
  b) Prepares the student to be personally effective within the circumstances of their lives and work; and
  c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Definition for *Capability*:
  Capable people have confidence in their ability to
  - *Take effective and appropriate action,*
  - *Explain what they are about,*
  - *Live and work effectively with others, and*
  - *Continue to learn from their experience*
  as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).

Please list your answers to the following question. You can list as many as you wish and they do not have to be in any particular order.

Question 1: What are your views of *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Please complete this questionnaire by [insert date]

The results from this round will be categorised to form the basis for the second-round questionnaire.

Page 1: Outline of the Delphi for round one (ethics approval number H0013429)

Dear Expert Panel Member
Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.
Thank you for responding to my email, indicating you meet the inclusion criteria and would like to participate in this study. Please refer to the letter accompanying this first round of the Delphi study.

Specialty clinical areas, such as neonatal intensive care, require proficient nurses with skills specific to the job. Stephenson (1992, p. 1) refers to this as "fitness *for* purpose", where education delivers *Capable* graduands. Stephenson (1992) has developed a working definition for *Capability*:

> *Capable people have confidence in their ability to: Take effective and appropriate action, Explain what they are about, Live and work effectively with others, and Continue to learn from their experience, as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).*

This Delphi study aims to develop a consensus on what neonatal students should be *Capable* of throughout a 12 months education program.

The purpose of this project is to generate ideas, using Delphi Technique, to identify what are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Please contact the researcher by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692 if you require any further clarification.

Thank you for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

Round 1: What are the experts' views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Page 2: Code

Thank you for volunteering to participate in this study.

You will remain anonymous to other participants (or experts) throughout this Delphi study and only the researcher will be able to identify your specific answers.

Your name will not be recorded in any rounds; instead you will generate a unique code that can only be identified by the researcher.

To create your code, answer the following questions and place your answer in the box provided.

- What is the month of you birthday in Numbers?
- What is the first letter of your last name?
- What is the first letter of your mothers last name
- What is your house number?

Page 3: Demographic Information

Demographic information will only be used to support the findings of the research.
Any information that you provide will be confidential and when results of the study are reported, you may not be identifiable in the findings.
Your name will not be recorded in any rounds.

1. What gender do you most identify with? _____

2. What is your age? _____

3. Highest level of education obtained?

4. Highest level of education obtained
    Hospital certificate
    Bachelor degree
    Graduate certificate
    Graduate Diploma
    Masters Degree
    Doctorate

5. Number of years with a qualification in Neonatal Intensive Care Nursing

6. Please indicate the main context of your current practice with students undertaking any Postgraduate Graduate Certificate in Neonatal Intensive Care Nursing
    5 or more years of experience at a senior level in Neonatal Intensive Care / Special Care and currently employed within a Neonatal Intensive Care Unit/Special Care Baby Unit in Australia.
    5 or more years of experience at a senior level in Neonatal Intensive Care / Special Care and currently employed within a Tertiary Education Institution in Australia
    5 or more years of experience as a Neonatal Nurse Educator teaching neonatal intensive care and currently employed within a Neonatal Intensive Care Unit/Special Care Baby Unit in Australia.
    5 or more years of experience as a Neonatal Nurse Educator teaching neonatal intensive care and currently employed within a Tertiary Education Institution in Australia.

Round 1: What are the experts' views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Page 4: Identification of Capability requisites

Please list your answers to the following question.

You can list as many ideas as you wish and they do not have to be in any particular order.

Please complete this questionnaire by Friday 1ˢᵗ August

1. In your opinion what do you consider to be *Capability* requisites of nursing students enrolled in any 12 month Postgraduate Certificate in Neonatal Intensive Care in Australia?

2. At what stage within the 12 month Postgraduate Certificate in Neonatal Intensive Care course do you expect the student to demonstrate each identified capability?

The content of the second questionnaire will be formulated from the responses to the first.
A link to the second round questionnaire will be emailed to you within the next month

Thank you for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

email: patricia.bromley@utas.edu.au
telephone: (03) 6226 4692

Cover letter outlining the working of the Delphi for round two

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Dear Expert Panel Member
Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Thank you for returning the first round Delphi questionnaire.

The aim of this project is to generate ideas, using Delphi Technique, to identify what are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

***Capable* graduands**:
Where higher education is more than the acquisition of "knowledge and intellectual skill", it also:
   a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
   b) Prepares the student to be personally effective within the circumstances of their lives and work; and
   c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Definition for *Capability*:
   Capable people have confidence in their ability to
   - *Take effective and appropriate action,*
   - *Explain what they are about,*
   - *Live and work effectively with others, and*
   - *Continue to learn from their experience*
   as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).

You will now find the second round questionnaire which includes all the responses from your profession in relation to *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The second-round questionnaire is different from the first round and I have provided instructions for completing this round.

If you could complete and return the questionnaire by [insert date] I would be most grateful. If you wish to discuss any aspect of this further, please contact me by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you once again for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the second-round Delphi questionnaire:

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Delphi Round two: **Ranking of *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care**

The second round of this Delphi lists the responses from panel members in Round 1. These responses have been content analysed and similar responses grouped together in themes to ensure that the questionnaire is not repetitive and easy to complete. The meanings of the responses have not been changed.

The purpose of this exercise is to generate an **agreement on the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care**

Round 2 has two steps: Firstly, please indicate which you feel best describes whether you agree the particular requisite should be included within the Postgraduate Certificate in Neonatal Intensive Care, and secondly, when would you expect the student to develop these *Capabilities*.

You will see a scale beside each sentinel/hurdle assessment. This scale is numbered 1 to 5. These numbers correspond to a response as below:

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly disagree

Question 2: Within the 12 month course when would you expect the students to develop these *Capabilities?*

1. Prerequisite
2. Three months
3. Six months
4. Nine months
5. Graduation

Once you have completed the questionnaire click 'done' to submit your responses

Please complete this questionnaire by [insert date].

Delphi Round 2: Capability Requisites for neonatal intensive care nursing students

Dear Expert Panel Member,
Thank you for volunteering to participate in this research. I am now undertaking Round 2 of the Delphi study.
This is just a reminder that the closing date for Round 2 of the Delphi process is Monday 27th October.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thank you for your continued participation in this research, your input is most valuable.

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

Regards Trish Bromley
Patricia Bromley
Lecturer, School of Health Sciences,
Nursing and Midwifery,
University of Tasmania

Cover letter outlining the working of the Delphi for round three

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Dear Expert Panel Member

Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Thank you for returning the second round Delphi questionnaire.

Attached to this email you will find a PDF document for the third round Delphi questionnaire. It includes details on the *Capability* requisites you have identified and rated in relation to agreement. Within this document, the *Capability* requisites that have reached consensus are highlighted in yellow.

The third round Delphi questionnaire is slightly different from the previous questionnaire; please read the instructions carefully and complete the Delphi questionnaire as fully as you can.

Please print off the questionnaire to complete this final round of the Delphi survey. If you could email the completed questionnaire back to me by [insert date] I would be most grateful.

If you wish to discuss any aspect of this further, please contact me by email or telephone.

Thank you for your continued participation in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the third-round Delphi questionnaire:

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Delphi Round three: **Reaching consensus**

The third round of this Delphi includes those *Capability* requisites that have not yet reached agreement from the panel. You will see three columns beside each statement.

Column one shows the group response to the *Capability* requisites. This will appear as a number which corresponds to the same scale as in Round 2 and which is outlined below. Column two shows your own individual response to the *Capability* requisite. Again this will appear as a number which corresponds to the scale below:

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly disagree

Column three is blank and is provided as an opportunity for you to reconsider your responses since Round 2. I would appreciate it if you would reconsider your original responses in the context of the group responses to each *Capability* requisite and if you wish to change your response, please do so by indicating in the appropriate response beside the identifies *Capability*. Please note that you do not have to change your original response if you do not wish to.

Once you have completed the questionnaire please email the complete questionnaire with your final responses to me at paticia.bromley@utas.edu.au

Please complete and return this questionnaire by [insert date]

| **Patricia Bromley**
| Lecturer |
| Nursing & Midwifery, School of Health Sciences |
| University of Tasmania |
| Private Bag 135, Hobart TAS 7001 |
| Tel: +61 3 6226 4692 | Fax: +61 3 6226 4690 |
| Email: patricia.bromley@utas.edu.au

Code: 02VR1

NB: Items that have reached consensus have been removed

1. Prerequisite	Group response	Your response
Midwifery desirable not essential	agree	Agree
Completion of a transition course or similar education model	agree	Strongly agree
Clinical rotation beginning in Neonatal Special Care Nursery progressing to Neonatal Intensive Care Nursery	Strongly agree	Strongly agree
6 - 9 months experience in High Dependency Nursery	agree	Strongly agree
12 months experience in Neonatal Intensive Care Nursery	agree	Agree
1-2 years' experience in Neonatal Intensive Care Nursery	Neither agree nor disagree	Disagree

2. Attitudes & Values	Group response	Your response
Critical thinking (Willingness to problem solve; Involved in problem-based learning able to apply to practice; Use methodical and logical thinking to achieve best outcomes)	3 months	Entry level
Retain information (Knowing how to learn)	Entry level	3 months
Long term goals	3 months	3 months
Peer Appraisal	3 months	3 months
Creative (Courage to experiment – try new things)	6 months	Entry level
Awareness of own limitations	Entry level	3 months
Demonstrate patience, persistence, determination and calm enthusiasm	3 months	3 months
Ability to work within dynamic and intense environment (Ability to adapt knowledge and competences to new and unfamiliar contexts; Objective skills to support changing cultures; Ability to adapt to changing circumstances; Confident in responding appropriately in varying circumstances	6 months	6 months
Be clinically proficient, using evidence based care	9 months	6 months
Supportive personal network	Entry level	3 months
Confidence (Confidence in own skills and abilities; Belief in personal effectiveness)	6 months	3 months
Understands the broader context of practice legislative requirements (Knowledge of nursing leaders)	6 months	3 months

3. Clinical Capacity	Group response	Your response
Teach and support junior nurses (Teach less experienced nurses)	9 months	6 months
Able to care for SCN babies (Capable of caring for a patient load of babies requiring basic neonatal care; capable of patient load; basic neonatal care; basic nursing skills)	3 months	3 months
More independent with SCN infant	3 months	3 months
Understands complex needs at a beginning independent practitioner and able to care for special care babies unsupervised (Care of SCN babies unsupervised; Beginning independent practitioner)	6 months	3 months
Stabilisation of >32 week premature neonate in SCN	6 months	3 months
Able to care for premature/LBW/CNLD (comfortable with handling sick and preterm neonate)	6 months	3 months
Developing skills in advanced neonatal care (ability to care for more complex needs)	9 months	6 months
More acute patient load HFNC, chronic conditions, surgical conditions.	9 months	6 months
Able to care for surgical babies – minor – hernia, circumcision, cardiac	9 months	6 months
Developing skills in advanced neonatal care (ability to care for more complex needs ; advanced neonatal care surgical care; major surgical – omphalocoele)	9 months	9 months
Able to care for NAS	3 months	3 months
Able to care for HIE – seizures	9 months	6 months
Able to care for cardiac – PDA	9 months	3 months
Able to care for >28 week ventilated care for sick neonate	9 months	6 months
Able to care for Microprems <28 weeks	12 months	6 months
Attend deliveries to >28 weeks with mentor	9 months	6 months

4. Knowledge	Group response	Your response
Infection (advanced neonatal care infections control; sepsis – prophylactic treatment)	3 months	3 months
Thermoregulation and temperature control (Understanding and demonstration of principals of thermoregulation of the neonate)	3 months	Entry level
Understanding and demonstration of principals of differing needs of the preterm or unwell neonate to the well and healthy infant	3 months	Entry level
Demonstrate understanding of BFHI principles	Entry level	Entry level
Understanding principals of nutritional needs of infant in neonatal unit	3 months	3 months
Knowledge of and competence with delivering care NAS and settling ,	3 months	3 months
Immunizations	3 months	Entry level
Respiration physiology	3 months	3 months
RDS and HMD	6 months	3 months
PPHN	9 months	3 months
Mec asp	9 months	3 months
Ventilation methods & principles	6 months	3 months
Beginning to understand complexities of neonatal pathophysiology and relate to care	6 months	3 months
Basic understanding of medical conditions	3 months	3 months
Congenital abnormalities	6 months	3 months
Understand maternal conditions (Antenatal steroids, Mg, maternal infections)	3 months	Entry level
Haemodynamics	6 months	Entry level
Understands complex needs (Understands the biological plausibility of everything they practice)	9 months	3 months

5. Care Planning	Group response	Your response
Time management (Time management - developing)	Entry level	Entry level
Time management skills (Time management – competent)	6 months	3 months
Formulate individual plan of care (Planning of care; Enable continuity of care; Able to plan and 'cluster' a baby's care; Care plan development; Implement plan provide direct care)	3 months	3 months
Plan care to incorporate aspects of condition - incorporate best practice (Ability to be flexible in terms of delivery of care; Integrate skill knowledge and trouble shoot problems)	6 months	3 months
Anticipate condition from antenatal/intrapartum data – anticipate management from this data	6 months	3 months
Suggestions for on-going care	6 months	3 months
Evaluate and revision of care based on response and anticipated outcomes (Evaluate care)	6 months	3 months
Proficient nursing care	9 months	3 months

6. Family Centred Care	Group response	Your response
Understanding of Family Centred care (Principles of shared care; Support family needs; Parental involvement)	3 months	Entry level
Education parent – bathing, feeding, positive touch, nappy changes,	3 months	Entry level
Educate breast expression by hand & pump	3 months	Entry level
Educate parents for home (Preparation for discharge – home care, SIDS, CPR, Home oxygen, orthopaedic splints)	6 months	Entry level
Advocate for parents (Understanding and supporting the additional family needs of an infant requiring admission to a Neonatal unit)	3 months	3 months
Counselling (reassure parents)	6 months	3 months

7. Communication	Group response	Your response
Verbal communication – confidence to speak up within the NICU team (advise multidisciplinary team (MDT) of deterioration; Articulate care provided to parents and team; Ability to communicate with SCN/NICU areas)	3 months	3 months
Verbal communication with families (Be able to competently deal with the parents, answer their questions within their scope of practice)	3 months	3 months
Keep senior fully informed of changes & plans (The ability to verbally handover their assessment to a senior nurse with appropriate suggestions for ongoing care)	3 months	Entry level

8. Clinical Assessment	Group response	Your response
Physical assessment (Newborn assessment; Ability to do basic assessment; Examination of the newborn)	3 months	Entry level
Responds to changes in condition (Identify and report deterioration of neonate; Recognise acute deterioration [bradycardia / pneumothorax]; Identify deterioration requiring escalating support; Able to recognise deterioration in neonate and bring it to medical attention)	3 months	3 months
Correctly identifying breathing problems	3 months	3 months
Recognise S&S of neonatal conditions	3 months	3 months
Distinguish normal / abnormal skin, stools, gastric asp	3 months	3 months
Comprehensive assessment – data gathering	6 months	3 months
Able to recognise subtle signs of a deteriorating baby (Recognising deteriorating resp/ NEC; Progress to increased appreciation of nuances of neonatal assessment)	6 months	6 months
Auscultate heart sounds (pulses; cardiac)	3 months	3 months
Observations (temperature, HR,RR, Oxygen saturation, BP, HC, L, normal/abnormal; Differentiate normal / abnormal; Deviation from normal)	3 months	3 months
Pain assessment	3 months	3 months

9. Technical Ability	Group response	Your response
Set up cot	3 months	Entry level
Equipment – Vapotherm/HFNC	3 months	3 months
Competence in use of isolette, water bed and open care systems	3 months	Entry level
Check suction and T-piece device (Neopuff set up)	3 months	Entry level
Equipment function – IVAC/IMED/syringe drivers	Entry level	Entry level
Able to set up CPAP circuit (CPAP, how to trouble shoot the circuit, how to change the circuit.	6 months	3 months
Phototherapy (Knowledge of and competence with delivering care requiring phototherapy- bilisoft and phototherapy lights)	3 months	3 months
Set up ventilators (Able to set up a ventilator circuit)	6 months	3 months
Specimen collection – urine, faeces, sputum, swabs, blood	3 months	Entry level
Septic work-up	3 months	Entry level
Heel pricks for BGL/BSL, NST/NNST, cap gas (Performing capillary blood gas; Performing blood sugar level on Haemacue or gas machine; newborn screening)	3 months	Entry level
Perform an arterial blood gas (collecting blood samples from arterial line; Arterial gas; Arterial lines;)	6 months	6 months
UVC / central lines (Set up and assist insertion of umbilical lines, care of UVC/UAC; Assist with ling line insertion; Assisting at procedures and observations are required)	6 months	6 months
Support IV insertion & taping	3 months	Entry level
Insert PIV	12 months	3 months
ICC (Assist ICC insertion)	6 months	6 months
Assist with intubation	6 months	6 months
ETT Suction open/closed	6 months	6 months
Retaping ETT	6 months	6 months
Surfactant administration	9 months	6 months
Blood transfusion	6 months	3 months
Exchange transfusion	9 months	3 months
Position for x-ray	3 months	3 months
Set up Brainz (Brainz monitoring – supervised)	9 months	3 months
Cooling for HIE	9 months	6 months
Monitoring (Monitoring of infants O2 monitoring; Grasby)	3 months	3 months
Set alarm limits according to gestational age	Entry level	Entry level
Insert NGT	3 months	Entry level

10. Interpreting Clinical Investigations	Group response	Your response
Blood gas (ABG interpretation)	6 months	3 months
Principals of BSL monitoring	3 months	3 months
NNST	3 months	Entry level
CXR (X-ray – ETT placement, line placement, pneumothorax, different respiratory disease states; Be able to recognise landmarks and radiological signs of neonatal diseases)	6 months	6 months
ROP checks	6 months	6 months
Blood values (FBC / FBE)	3 months	3 months
Identify ventilation changes required for ABG	9 months	9 months

11. Neonatal Transfer	Group response	Your response
Referral for IPPV	6 months	3 months
Prepare for a retrieval (Newborn retrieval - awareness and developing)	6 months	3 months
Preparing a baby for a NETS transfer to a surgical centre (Transport Neocot)	6 months	3 months

12. Neonatal Admission	Group response	Your response
Able to admit a baby transferred by NETS (on CPAP or Hi Flow)	6 months	3 months
Admit to a level 2 nursery (Able to admit a SCN baby)	3 months	Entry level
Able to admit a baby transferred by NETS (Ventilated)	9 months	6 months
Admitting an infant to Level 3	9 months	3 months
Able to admit a ventilated baby from labour ward	9 months	6 months

13. Respiratory Support	Group response	Your response
Maintain airway (T-piece and self-inflating bag for IPPV; Perform bag & mask ventilation	3 months	Entry level
Oral / nasal suction	3 months	Entry level
Cot O2 (O2 therapy)	3 months	Entry level
Nasal O2 (Low flow O2)	3 months	Entry level
HFNC	3 months	3 months
Stable CPAP (Intro into respiratory support CPAP	3 months	3 months
Able to care for a ventilated baby (with support)	6 months	6 months
Stable ventilated (Ventilated – SIMV/SIPPV – VG	6 months	6 months
>32 week stable vent	6 months	6 months
An introduction to care of the infant on ventilation	3 months	3 months
Care of a critically ill ventilated baby (Care of an unstable ventilated baby; Troubleshoot deteriorating ventilated neonate)	12 months	9 months
Advanced respiratory care (HFOV +- iNO – supervised)	12 months	9 months

14. Neurodevelopment	Group response	Your response
Developmental care (Positioning)	3 months	Entry level
Kangaroo care (Kanga cuddles)	3 months	Entry level

15. Medication Management	Group response	Your response
Knowledge of pharmacology (drug protocols/ how to look up protocols, side effects)	Entry level	Entry level
Administer IV medications	Entry level	Entry level
Management of Inotropes (Dopamine / Doputamine)	6 months	3 months
Insulin (Insulin infusion)	6 months	3 months
Dexamethasone	6 months	3 months
Morphine sedation	6 months	3 months

16. Fluids, Electrolytes & Nutrition	Group response	Your response
Breast feeding (breast feeding knowledge; breast feeding knowledge to assist; Breast feeding attachment & positioning)	3 months	Entry level
Nutrition calculation and calories	3 months	Entry level
Fluid calculation – nappy weigh	Entry level	Entry level
Nutritional needs (feeding regimes)	3 months	Entry level
Bottle feeding	Entry level	Entry level
OG/NG feeding	3 months	Entry level
IV fluid infusions	3 months	Entry level
Complex fluid management (advanced neonatal care fluid and nutrition management - central lines)	6 months	6 months

17. Neonatal Resuscitation	Group response	Your response
First response neoResus (ECC resus; CPR resuscitation; resus skills; basic resuscitation; the neonatal airway and basic resuscitation)	3 months	9 months
Attend high-risk resuscitation under supervision (Assist with neonatal resus)	6 months	3 months
Respond effectively to a neonatal emergency (Intervene using neonatal resus skills)	6 months	6 months
Advanced neonatal resuscitation (Capable of caring for babies who are unstable, managing resuscitations in the delivery suite/OT)	12 months	9 months
Able to perform mask ventilation with a bag and mask or Neopuff proficiently until more senior help arrives	3 months	Entry level

18. Palliative Care	Group response	Your response
Palliative Care - developing skills in supporting parents and show awareness of needs to support families	9 months	3 months
Palliative care awareness	6 months	3 months
Care for a baby being palliated	9 months	6 months

19. Teamwork & Leadership	Group response	Your response
Utilise team members (Ability to teamwork; Collaborate and initiate care)	Entry level	6 months
Work independently – consult with more experienced colleagues	6 months	9 months
Facility to work well with others within complex and changing environments (Effective MDT member)	6 months	6 months

20. Research	Group response	Your response
Awareness of quality improvement and research relevant to neonates	3 months	Entry level
Quality improvement and research relevant to neonates - developing ongoing EBP research skills	6 months	3 months
Involved in research.	12 months	3 months

Appendix D: eDelphi Level of Consensus 70%

eDelphi: Email from Sinead Keeney

I had a dilemma regarding the percentage for consensus. Due to the number of participants, a clear 70% could not be generated; in Round 2, the process would arrive are a score of 69.6%. I was unsure whether to round this up to 70%. As I could not find any reference to this in the literature, I emailed the Sinead Keeney, author of "the Delphi Technique in Nursing and Health Research" for her advice on this. Her response is documented in this copy of her email.

The same issue occurred in Round 3, where the score generated was 68.2%. I therefore decided for consistency to round this up as well.

From:	Keeney, Sinead
To:	Patricia Bromley
Subject:	RE: The Delphi Technique in Nursing and Health Research
Date:	Tuesday, 9 December 2014 10:52:57 PM
Attachments:	image001.png
	image002.png

Hi Patricia,

Good to hear from you and hear that your study is progressing well. Individual feedback is very time consuming!

Yes if it were me, I would round up responses at 69.6% to 70% and have them gain consensus.

Hope this helps
Sinead

From: Patricia Bromley [mailto:P.I.Bromley@utas.edu.au]
Sent: 05 December 2014 07:54
To: Keeney, Sinead
Subject: RE: The Delphi Technique in Nursing and Health Research

Dear Sinead,
Hello once again, I hope this email finds you well.
I am still plodding along with my Delphi study – I am finding round 3 is very time consuming as i have to provide the individual feedback via individual emails, and then send out the online survey for the final round.
I am sorry to disturb your busy schedule again but I have another question for you regarding the level of consensus.
I have set mine at 70%. However I have a few responses that come to 69.6%.
Would you round this up to 70% and consider that has reached consensus or is the process strict and 69.6% means that consensus has not been reached?
Look forward to hearing from you.

Cheers Trish

| **Patricia Bromley**
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| CRICOS Provider Code: 00586B |

From: Keeney, Sinead [mailto:sr.keeney@ulster.ac.uk]
Sent: Thursday, 27 March 2014 9:06 PM
To: Patricia Bromley
Subject: RE: The Delphi Technique in Nursing and Health Research

No problem at all Patricia. You are very welcome.

Sinead

From: Patricia Bromley [mailto:P.I.Bromley@utas.edu.au]
Sent: 25 March 2014 22:36
To: Keeney, Sinead
Subject: RE: The Delphi Technique in Nursing and Health Research

Hi Sinead,
Thank you for your prompt reply to my email.
That clarifies things for me, thank you so much. Would you mind if I used your response in my thesis as a personal comment?
Once again I am sorry I had to email you and disturb your busy schedule.

Cheers Trish

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From: Keeney, Sinead [mailto:sr.keeney@ulster.ac.uk]
Sent: Tuesday, 25 March 2014 10:10 PM
To: Patricia Bromley
Subject: RE: The Delphi Technique in Nursing and Health Research

Hi Patricia,

Many thanks for your email.

You can use either the mean and the standard deviation or the median and standard deviation to feedback between rounds. It really depends on the study and the nature of the data being collected. Quite often, Delphi researchers use the median to feedback as it is easy for the participants to understand as the group response. You will find literature that advocates one or

the other. We have often used the median and the standard deviation for feedback between rounds and then used the mean to rank order the statements at the end of the process.

Hope this helps

Best wishes
Sinead

From: Patricia Bromley [mailto:P.I.Bromley@utas.edu.au]
Sent: 25 March 2014 01:02
To: Keeney, Sinead
Subject: The Delphi Technique in Nursing and Health Research

Dear Ms Keeney
I do hope you do not mind me contacting you, but I have a question related to your text "The Delphi Technique in Nursing and Health Research" (2011). I am using it and following it religiously to undertake a research project using the Delphi technique.
Firstly I would just like to congratulate you all on producing such a clear text to follow for a novice researcher undertaking Delphi technique.
I would just like to clarify the explanation to analysing the data on pages 87-88 subheading 'Statistical feedback to the panel' am a little confused with the mean and median.

I am using SPSS (also a novice with this, I have Julie Pallant's "SPSS Survival Manual" 4th ed) but I can't seem to work out whether you are referring to the mean and standard deviation or median and standard deviation to analyse the results from Round 2.
Once again I am really sorry to disturb you and I look forward to hearing from you.

Regards Trish

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| CRICOS Provider Code: 00586B |

eDelphi: Consensus - results of Rounds 2 and 3

Key to consensus table

Consensus not reached
Round 3 (R3) Consensus reached by converting tri to bi
Round 3 (R3) Consensus reached
Round 2 (R2) Consensus reached

Round 2: consensus level 69.6% (70%)

Round 3: consensus level 68.2% (70%)

1. Please indicate your agreement/disagreement as to whether neonatal nursing students need to have attained the particular prerequisite.				
PR1	R3	A	68.2	Midwifery desirable not essential
PR2	R3	A/SA	86.4	Completion of a transition course or similar education model
PR3	R3	A/SA	81.8	Clinical rotation beginning in Neonatal Special Care Nursery progressing to Neonatal Intensive Care Nursery
PR4	R3	A	86.4	6 - 9 months experience in High Dependency Nursery
PR5	R3	A	68.2	12 months experience in Neonatal Intensive Care Nursery
PR6	R3	D	18.2	1-2 year experience in Neonatal Intensive Care Nursery
		N	63.6	
		A/SA	18.1	

				2. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Attitudes & Values.
AV1	R3	3M	72.7	Critical thinking (Willingness to problem solve; Involved in problem-based learning able to apply to practice; Use methodical and logical thinking to achieve best outcomes)
AV9	R3	3M	68.2	Long term goals
AV10	R3	3M	77.3	Peer Appraisal
AV11	R3	6M	81.8	Creative (Courage to experiment – try new things)
AV14	R3	6M	72.7	Ability to work within dynamic and intense environment (Ability to adapt knowledge and competences to new and unfamiliar contexts; Objective skills to support changing cultures; Ability to adapt to changing circumstances; Confident in responding appropriately in varying circumstances
AV17	R3	6M	68.2	Confidence (Confidence in own skills and abilities; Belief in personal effectiveness)
AV18	R3	6M 9M	63.6 13.6	Understands the broader context of practice legislative requirements (Knowledge of nursing leaders)
AV15	R3	9M	68.2	Be clinically proficient, using evidence based care
AV2	R2	EL	82.6	Understanding nursing protocols
AV3	R2	EL	78.9	Reflective learner (Evaluate effectiveness of own practice)
AV4	R2	EL	73.9	Commitment to continued professional development (Able to develop own learning goals; Recognising own learning needs; Commitment to on-going professional development)
AV5	R2	EL	91.3	Integrity in character and work ethics (Accountable for own actions; Accountable for own practice)
AV6	R2	EL	95.7	Motivated (Desire to learn; Motivated, Positive attitude, personal interest; Self-directed learning)
AV7	R3	EL	86.4	Retain information (Knowing how to learn)
AV8	R3	EL	90.9	Short term goals
AV12	R3	EL	90.9	Awareness of own limitations
AV13	R3	3M	68.2	Demonstrate patience, persistence, determination and calm enthusiasm
AV16	R3	EL	81.8	Supportive personal network

				3. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Clinical Capacity.
CC1	R2	EL	73.9	Safe competent nursing skills
CC2	R2	EL	82.6	Supervision by others
CC3	R3	9M	68.2	Teach and support junior nurses (Teach less experienced nurses)
CC4	R3	3M	86.4	Able to care for SCN babies (Capable of caring for a patient load of babies requiring basic neonatal care; capable of patient load; basic neonatal care; basic nursing skills)
CC5	R3	3M	81.8	More independent with SCN infant
CC6	R3	6M	77.3	Understands complex needs at a beginning independent practitioner and able to care for special care babies unsupervised (Care of SCN babies unsupervised; Beginning independent practitioner)
CC7	R3	6M	77.3	Stabilisation of <32 week premature neonate in SCN
CC8	R3	6M	81.8	Able to care for premature/LBW/CNLD (comfortable with handling sick and preterm neonate)
CC9	R3	9M	77.3	Developing skills in advanced neonatal care (ability to care for more complex needs)
CC10	R3	9M	77.3	More acute patient load HFNC, chronic conditions, surgical conditions.
CC11	R3	9M	72.7	Able to care for surgical babies – minor – hernia, circumcision, cardiac
CC12	R3	9M	72.7	Developing skills in advanced neonatal care (ability to care for more complex needs ; advanced neonatal care surgical care; major surgical – omphalocoele)
CC13	R3	12M	95.5	Independent NICU (Able to care for critically ill neonates; Critically ill ventilated; Capable of caring for babies who are unstable)
CC14	R3	3M	81.8	Able to care for NAS
CC15	R3	9M	72.7	Able to care for HIE – seizures
CC16	R3	6M 9M 12M	18.2 63.6 13.6	Able to care for cardiac – PDA
CC17	R3	9M	68.2	Able to care for >28 week ventilated care for sick neonate
CC18	R3	12M	77.3	Able to care for Microprems <28 weeks
CC19	R3	9M	77.3	Attend deliveries to >28 weeks with mentor
CC20	R2	12M	73.9	Confidently attend delivery of extreme premature / high risk term baby

				4. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Knowledge
K1	R2	EL	100	Infection control principles (aseptic technique; hand hygiene)
K2	R3	3M	90.9	Infection (advanced neonatal care infections control; sepsis – prophylactic treatment)
K3	R2	3M	73.9	Hypoglycaemia
K4	R2	3M	78.3	Jaundice
K5	R3	3M	86.4	Thermoregulation and temperature control (Understanding and demonstration of principals of thermoregulation of the neonate)
K6	R3	3M	90.9	Understanding and demonstration of principals of differing needs of the preterm or unwell neonate to the well and healthy infant
K7	R3	EL	81.8	Demonstrate understanding of BFHI principles
K8	R3	3M	81.8	Understanding principals of nutritional needs of infant in neonatal unit
K9	R3	3M	90.9	Knowledge of and competence with delivering care NAS and settling ,
K10	R3	3M	81.8	Immunizations
K11	R3	3M	77.3	Respiration physiology
K12	R3	6M	86.4	RDS and HMD
K13	R3	9M	77.3	PPHN
K14	R3	9M	77.3	Mec asp
K15	R3	6M 9M	63.6 27.3	Ventilation methods & principles
K16	R3	6M	90.9	Beginning to understand complexities of neonatal pathophysiology and relate to care
K17	R3	3M	86.4	Basic understanding of medical conditions
K18	R3	6M	77.3	Congenital abnormalities
K19	R3	3M	81.8	Understand maternal conditions (Antenatal steroids, Mg, maternal infections)
K20	R3	6M	81.8	Haemodynamics
K21	R3	9M 12M	63.6 31.8	Understands complex needs (Understands the biological plausibility of everything they practice)
COMMENT				This again depends on students prior knowledge

				5. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Care Planning
CP1	R3	EL	86.4	Time management (Time management - developing)
CP2	R3	6M	72.7	Time management skills (Time management – competent)
CP3	R3	3M	86.4	Formulate individual plan of care (Planning of care; Enable continuity of care; Able to plan and 'cluster' a baby's care; Care plan development; Implement plan provide direct care)
CP4	R3	6M	81.8	Plan care to incorporate aspects of condition - incorporate best practice (Ability to be flexible in terms of delivery of care; Integrate skill knowledge and trouble shoot problems)
CP5	R3	6M	72.7	Anticipate condition from antenatal/intrapartum data – anticipate management from this data
CP6	R3	6M	86.4	Suggestions for on-going care
CP7	R3	6M	90.9	Evaluate and revision of care based on response and anticipated outcomes (Evaluate care)
CP8	R3	9M	68.2	Proficient nursing care

6.				Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Family Centred Care
FCC1	R3	3M	81.8	Understanding of Family Centred care (Principles of shared care; Support family needs; Parental involvement)
FCC2	R3	3M	77.3	Education parent – bathing, feeding, positive touch, nappy changes,
FCC3	R3	3M	77.3	Educate breast expression by hand & pump
FCC4	R3	6M	77.3	Educate parents for home (Preparation for discharge – home care, SIDS, CPR, Home oxygen, orthopaedic splints)
FCC5	R3	3M	77.3	Advocate for parents (Understanding and supporting the additional family needs of an infant requiring admission to a Neonatal unit)
FCC6	R3	6M	59.1	Counselling (reassure parents)
		9M	31.8	

7.				Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Communication
C1	R2	EL	87	Written Communication (Documentation; plot weight, length, HC)
C2	R3	3M	77.3	Verbal communication – confidence to speak up within the NICU team (advise multidisciplinary team (MDT) of deterioration; Articulate care provided to parents and team; Ability to communicate with SCN/NICU areas)
C3	R3	3M	77.3	Verbal communication with families (Be able to competently deal with the parents, answer their questions within their scope of practice)
C4	R3	EL	36.4	Keep senior fully informed of changes & plans (The ability to verbally handover their assessment to a senior nurse with appropriate suggestions for ongoing care)
		3M	59.1	
		6M	4.5	

8.				Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Clinical Assessment
CA1	R3	3M	81.8	Physical assessment (Newborn assessment; Ability to do basic assessment; Examination of the newborn)
CA2	R3	3M	100	Responds to changes in condition (Identify and report deterioration of neonate; Recognise acute deterioration [bradycardia / pneumothorax]; Identify deterioration requiring escalating support; Able to recognise deterioration in neonate and bring it to medical attention)
CA3	R3	3M	100	Correctly identifying breathing problems
CA4	R3	3M	90.9	Recognise S&S of neonatal conditions
CA5	R3	3M	86.4	Distinguish normal / abnormal skin, stools, gastric asp
CA6	R3	6M	68.2	Comprehensive assessment – data gathering
CA7	R3	6M	81.8	Able to recognise subtle signs of a deteriorating baby (Recognising deteriorating resp/ NEC; Progress to increased appreciation of nuances of neonatal assessment)
CA8	R3	3M	77.3	Auscultate heart sounds (pulses; cardiac)
CA9	R3	3M	90.9	Observations (temperature, HR,RR, Oxygen saturation, BP, HC, L, normal/abnormal; Differentiate normal / abnormal; Deviation from normal)
CA10	R3	3M	81.8	Pain assessment

				9. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Technical Ability
TA1	R3	3M	81.8	Set up cot
TA2	R3	3M	68.2	Equipment – Vapotherm/HFNC
TA3	R3	3M	86.4	Competence in use of isolette, water bed and open care systems
TA4	R3	3M	72.7	Check suction and T-piece device (Neopuff set up)
TA5	R3	EL	77.3	Equipment function – IVAC/IMED/syringe drivers
TA6	R3	3M 6M 9M	18.2 63.6 9.1	Able to set up CPAP circuit (CPAP, how to trouble shoot the circuit, how to change the circuit.
TA7	R3	3M	77.3	Phototherapy (Knowledge of and competence with delivering care requiring phototherapy- bilisoft and phototherapy lights)
TA8	R3	3M 6M 9M	18.2 59.1 13.6	Set up ventilators (Able to set up a ventilator circuit)
TA9	R3	EL 3M	31.8 68.2	Specimen collection – urine, faeces, sputum, swabs, blood
TA10	R3	3M	81.8	Septic work-up
TA11	R3	3M	86.4	Heel pricks for BGL/BSL, NST/NNST, cap gas (Performing capillary blood gas; Performing blood sugar level on Haemacue or gas machine; newborn screening)
TA12	R3	6M	68.2	Perform an arterial blood gas (collecting blood samples from arterial line; Arterial gas; Arterial lines)
TA13	R3	6M	72.7	UVC / central lines (Set up and assist insertion of umbilical lines, care of UVC/UAC; Assist with ling line insertion; Assisting at procedures and observations are required)
TA14	R3	3M	72.7	Support IV insertion & taping
TA15	R3	12M	81.8	Insert PIV
TA16	R3	6M 9M	63.6 27.3	ICC (Assist ICC insertion)
TA17	R3	6M	68.2	Assist with intubation
TA18	R3	6M	77.3	ETT Suction open/closed
TA19	R3	6M 9M	54.5 27.3	Retaping ETT
TA20	R3	9M	77.3	Surfactant administration
TA21	R3	6M	72.7	Blood transfusion
TA22	R3	9M	77.3	Exchange transfusion
TA23	R3	3M	81.8	Position for x-ray
TA24	R3	9M	72.7	Set up Brainz (Brainz monitoring – supervised)
TA25	R3	9M 12M	63.6 22.7	Cooling for HIE
TA26	R2	12M	82.6	ECMO
TA27	R3	3M	77.3	Monitoring (Monitoring of infants O2 monitoring; Grasby)
TA28	R3	EL	90.9	Set alarm limits according to gestational age
TA29	R3	3M	81.1	Insert NGT

				10. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Interpreting Clinical Investigations
CI1	R3	6M	77.3	Blood gas (ABG interpretation)
CI2	R3	3M	90.9	Principals of BSL monitoring
CI3	R3	3M	86.4	NNST
CI4	R3	6M	77.3	CXR (X-ray – ETT placement, line placement, pneumothorax, different respiratory disease states; Be able to recognise landmarks and radiological signs of neonatal diseases)
CI5	R3	3M	13.6	ROP checks
		6M	63.6	
		9M	13.6	
CI6	R3	3M	77.3	Blood values (FBC / FBE)
CI7	R3	9M	68.2	Identify ventilation changes required for ABG

				11. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neonatal Transfer.
NT1	R3	6M	77.3	Referral for IPPV
NT2	R3	6M	72.7	Prepare for a retrieval (Newborn retrieval - awareness and developing)
NT3	R3	6M	68.2	Preparing a baby for a NETS transfer to a surgical centre (Transport Neocot)

				12. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neonatal Admission.
NA1	R3	6M	77.3	Able to admit a baby transferred by NETS (on CPAP or Hi Flow)
NA2	R3	3M	72.7	Admit to a level 2 nursery (Able to admit a SCN baby)
NA3	R3	9M	77.3	Able to admit a baby transferred by NETS (Ventilated)
NA4	R3	9M	72.7	Admitting an infant to Level 3
NA5	R3	9M	72.7	Able to admit a ventilated baby from labour ward

13.	Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Respiratory Support			
RS1	R3	3M	86.4	Maintain airway (T-piece and self-inflating bag for IPPV; Perform bag & mask ventilation
RS2	R3	3M	77.3	Oral / nasal suction
RS3	R3	3M	86.4	Cot O2 (O2 therapy)
RS4	R3	3M	86.4	Nasal O2 (Low flow O2)
RS5	R3	3M	63.6	HFNC
		6M	22.7	
RS6	R3	3M	63.6	Stable CPAP (Intro into respiratory support CPAP
		6M	27.3	
RS7	R3	6M	68.2	Able to care for a ventilated baby (with support)
RS8	R3	6M	72.7	Stable ventilated (Ventilated – SIMV/SIPPV – VG
RS9	R3	6M	68.2	>32 week stable vent
RS10	R3	3M	68.2	An introduction to care of the infant on ventilation
RS11	R3	12M	86.4	Care of a critically ill ventilated baby (Care of an unstable ventilated baby; Troubleshoot deteriorating ventilated neonate)
RS12	R3	12M	100	Advanced respiratory care (HFOV +- iNO – supervised)

14.	Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neurodevelopment			
ND1	R3	3M	81.8	Developmental care (Positioning)
ND2	R3	3M	81.8	Kangaroo care (Kanga cuddles)
ND3	R2	6M	73.9	Advanced neonatal care developmental care (Understanding and demonstration of principals of neurodevelopment of the neonate; Comfortable with neurodevelopmental care; Safe environment for infant and family)

15.	Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Medication Management			
MM1	R3	EL	100	Knowledge of pharmacology (drug protocols/ how to look up protocols, side effects)
MM2	R2	EL	82.6	Medication calculations (drug calculations)
MM3	R2	EL	82.6	Administer oral medications
MM4	R3	EL	90.9	Administer IV medications
MM5	R3	6M	54.5	Management of Inotropes (Dopamine / Doputamine)
		9M	36.4	
MM6	R3	6M	54.5	Insulin (Insulin infusion)
		9M	36.4	
MM7	R3	6M	72.7	Dexamethasone
MM8	R3	6M	72.7	Morphine sedation

16.				Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Fluids, Electrolytes & Nutrition
FEN1	R3	3M	77.3	Breast feeding (breast feeding knowledge; breast feeding knowledge to assist; Breast feeding attachment & positioning)
FEN2	R3	3M	90.9	Nutrition calculation and calories
FEN3	R3	EL	81.8	Fluid calculation – nappy weigh
FEN4	R3	3M	86.4	Nutritional needs (feeding regimes)
FEN5	R3	EL	68.2	Bottle feeding
FEN6	R3	3M	72.7	IV nutrition (TPN and Lipids)
FEN7	R3	3M	77.3	OG/NG feeding
FEN8	R3	3M	81.8	IV fluids infusions
FEN9	R3	6M	68.2	Complex fluid management (advanced neonatal care fluid and nutrition management - central lines)

17.				Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neonatal Resuscitation
NR1	R3	3M	86.4	First response neoResus (ECC resus; CPR resuscitation; resus skills; basic resuscitation; the neonatal airway and basic resuscitation)
NR2	R2	3M	73.9	Manage apnoea & bradycardia
NR3	R3	6M	72.7	Attend high-risk resuscitation under supervision (Assist with neonatal resus)
NR4	R3	6M	86.4	Respond effectively to a neonatal emergency (Intervene using neonatal resus skills)
NR5	R3	12M	86.4	Advanced neonatal resuscitation (Capable of caring for babies who are unstable, managing resuscitations in the delivery suite/OT)
NR6	R3	3M	90.9	Able to perform mask ventilation with a bag and mask or Neopuff proficiently until more senior help arrives

18.				Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Palliative Care
PC1	R3	9M	68.2	Palliative Care - developing skills in supporting parents and show awareness of needs to support families
PC2	R3	6M	86.4	Palliative care awareness
PC3	R3	6M 9M 12M	9.1 63.6 22.7	Care for a baby being palliated

				19. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Teamwork & Leadership
TL1	R3	EL	95.5	Utilise team members (Ability to teamwork; Collaborate and initiate care)
TL2	R3	6M	77.3	Work independently – consult with more experienced colleagues
TL3	R3	6M	72.7	Facility to work well with others within complex and changing environments (Effective MDT member)
TL4	R2	12M	91.3	Be in charge of the ward
TL5	R2	12M	73.9	Ward round management

				20. Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Research
R1	R3	3M	81.8	Awareness of quality improvement and research relevant to neonates
R2	R3	6M	81.8	Quality improvement and research relevant to neonates - developing ongoing EBP research skills
R3	R3	12M	81.8	Involved in research.

Appendix E: eDelphi Inferential Statistics

The Wilcoxon test was applied between Rounds 2 and 3 to evaluate stability of responses. The inference being, if there is stability between rounds then opinion will not change and this met the criterion for termination.

There are 28 items demonstrating statistical significance, this implies there was still instability between these two answers. However, the measure of central tendency indicated a median of 70% or more and therefore, despite the instability between the two rounds, the panel had drawn to a consensus on these items, which met the criterion for termination.

Interestingly there are 17 items where using the measure of central tendency (median 70%), consensus was not reached. However, there was no statistical significance between the two rounds. This stability between the two rounds on these items would suggest panel members were firm in their belief of this particular item and will not be persuaded or influenced by group opinion. Therefore, despite not reaching a consensus on these items, the stability met the criterion for termination.

Given the level of agreement between Rounds 2 and 3, the small amount of feedback or comments from panel members, and the potential panel burden to participate in another round, a fourth round was considered unjustified.

CR2: Attitudes and values

Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Attitudes & Values.				
0.634	No	3 months	Critical thinking (Willingness to problem solve; Involved in problem-based learning able to apply to practice; Use methodical and logical thinking to achieve best outcomes)	
0.559	No	Entry Level (EL)	Retain information (Knowing how to learn)	
0.212	No	EL	Short term goals	
0.127	No	3m	Long term goals	
0.130	No	3m	Peer Appraisal	
0.900	No	6m	Creative (Courage to experiment – try new things)	
0.004	Yes	EL	Awareness of own limitations	There was a difference between R2 and R3 to reach a consensus
0.075	No	3m	Demonstrate patience, persistence, determination and calm enthusiasm	
0.250	No	6m	Ability to work within dynamic and intense environment (Ability to adapt knowledge and competences to new and unfamiliar contexts; Objective skills to support changing cultures; Ability to adapt to changing circumstances; Confident in responding appropriately in varying circumstances	
0.500	No	9m	Be clinically proficient, using evidence based care	
0.026	Yes	EL	Supportive personal network	There was a difference between R2 and R3 to reach a consensus

| 0.582 | No | 6m | Confidence (Confidence in own skills and abilities; Belief in personal effectiveness) | |
| 0.522 | No | 6m-63.6% 9m-13.6% consensus not reached | Understands the broader context of practice legislative requirements (Knowledge of nursing leaders) | However, there was stability between R2 and R3 |

CR3: Clinical Capacity

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Clinical Capacity.				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.223	No	9m	Teach and support junior nurses (Teach less experienced nurses)	
0.739	No	3m	Able to care for SCN babies (Capable of caring for a patient load of babies requiring basic neonatal care; capable of patient load; basic neonatal care; basic nursing skills)	
0.035	yes	3m	More independent with SCN infant	There was a difference between R2 and R3 to reach a consensus
0.166	No	6m	Understands complex needs at a beginning independent practitioner and able to care for special care babies unsupervised (Care of SCN babies unsupervised; Beginning independent practitioner)	
0.791	No	6m	Stabilisation of <32 week premature neonate in SCN	
0.100	No	6m	Able to care for premature/LBW/CNLD (comfortable with handling sick and preterm neonate)	

1.00	No	9m	Developing skills in advanced neonatal care (ability to care for more complex needs)	
0.166	No	9m	More acute patient load HFNC, chronic conditions, surgical conditions.	
0.109	No	9m	Able to care for surgical babies – minor – hernia, circumcision, cardiac	
0.096	No	9m	Developing skills in advanced neonatal care (ability to care for more complex needs ; advanced neonatal care surgical care; major surgical – omphalocoele)	
0.053	No	12m	Independent NICU (Able to care for critically ill neonates; Critically ill ventilated; Capable of caring for babies who are unstable)	
0.004	yes	3m	Able to care for NAS	There was a difference between R2 and R3 to reach a consensus
0.564	No	9m	Able to care for HIE – seizures	
0.225	No	6m - 18.25 9m - 63.6% 12m - 13.6% Consensus not reached	Able to care for cardiac – PDA	However, there was stability between R2 and R3
0.593	No	9m	Able to care for >28 week ventilated care for sick neonate	
0.096	No	12m	Able to care for Microprems <28 weeks	
0.384	No	9m	Attend deliveries to >28 weeks with mentor	
	No	12m	Confidently attend delivery of extreme premature / high risk term baby	

CR4: Knowledge

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Knowledge				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.527	No	3m	Infection (advanced neonatal care infections control; sepsis – prophylactic treatment)	
0.059	No	3m	Thermoregulation and temperature control (Understanding and demonstration of principals of thermoregulation of the neonate)	
0.439	No	3m	Understanding and demonstration of principals of differing needs of the preterm or unwell neonate to the well and healthy infant	
0.034	Yes	EL	Demonstrate understanding of BFHI principles	There was a difference between R2 and R3 to reach a consensus
0.564	No	3m	Understanding principals of nutritional needs of infant in neonatal unit	
0.439	No	3m	Knowledge of and competence with delivering care NAS and settling ,	
0.782	No	3m	Immunizations	
0.020	yes	3m	Respiration physiology	There was a difference between R2 and R3 to reach a consensus
0.248	No	26m	RDS and HMD	
0.013	yes	9m	PPHN	There was a difference between R2 and R3 to reach a consensus
0.085	No	9m	Mec asp	
1.0	No	6m-63.6% 9m-27.3% Consensus not reached	Ventilation methods & principles	However, there was stability between R2 and R3
0.448	No	6m	Beginning to understand complexities of neonatal	

Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
			pathophysiology and relate to care	
0.088	No	3m	Basic understanding of medical conditions	
0.763	No	6m	Congenital abnormalities	
0.287	No	3m	Understand maternal conditions (Antenatal steroids, Mg, maternal infections)	
0.951	No	6m	Haemodynamics	
0.564	No	9m-63.6% 12m-31.8% Consensus not reached	Understands complex needs (Understands the biological plausibility of everything they practice)	However, there was stability between R2 and R3
COMMENT	This again depends on students prior knowledge			

CR5: Care Planning

Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Care Planning				
0.059	No	EL	Time management (Time management - developing)	
0.138	No	6m	Time management skills (Time management – competent)	
0.052	No	3m	Formulate individual plan of care (Planning of care; Enable continuity of care; Able to plan and 'cluster' a baby's care; Care plan development; Implement plan provide direct care)	
0.854	No	6m	Plan care to incorporate aspects of condition - incorporate best practice (Ability to be flexible in terms of delivery of care; Integrate skill knowledge and trouble shoot problems)	
1.00	No	6m	Anticipate condition from antenatal/intrapartum data – anticipate	

			management from this data	
0.816	No	6m	Suggestions for on-going care	
0.825	No	6m	Evaluate and revision of care based on response and anticipated outcomes (Evaluate care)	
0.150	No	9m	Proficient nursing care	

CR6: Individualised Family Centred Care

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Family Centred Care				
Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
0.014	yes	3m	Understanding of Family Centred care (Principles of shared care; Support family needs; Parental involvement)	There was a difference between R2 and R3 to reach a consensus
0.058	No	3m	Education parent – bathing, feeding, positive touch, nappy changes,	
0.059	No	3m	Educate breast expression by hand & pump	
0.030	Yes	6m	Educate parents for home (Preparation for discharge – home care, SIDS, CPR, Home oxygen, orthopaedic splints)	There was a difference between R2 and R3 to reach a consensus
0.134	No	3m	Advocate for parents (Understanding and supporting the additional family needs of an infant requiring admission to a Neonatal unit)	
0.149	No	6m-59.1% 9m-31.8% Consensus not reached	Counselling (reassure parents)	However, there was stability between R2 and R3

CR 7: Communication

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Communication				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.038	Yes	3m	Verbal communication – confidence to speak up within the NICU team (advise multidisciplinary team (MDT) of deterioration; Articulate care provided to parents and team; Ability to communicate with SCN/NICU areas)	There was a difference between R2 and R3 to reach a consensus
0.123	No	3m	Verbal communication with families (Be able to competently deal with the parents, answer their questions within their scope of practice)	
0.475	No	EL-36.4% 3m-59.1% 6m-4.5% Consensus not reached	Keep senior fully informed of changes & plans (The ability to verbally handover their assessment to a senior nurse with appropriate suggestions for ongoing care)	However, there was stability between R2 and R3

CR8: Clinical Assessment

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Clinical Assessment				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.157	No	3m	Physical assessment (Newborn assessment; Ability to do basic assessment; Examination of the newborn)	
0.480	No	3m	Responds to changes in condition (Identify and report deterioration of	

Significance level	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
			neonate; Recognise acute deterioration [bradycardia / pneumothorax]; Identify deterioration requiring escalating support; Able to recognise deterioration in neonate and bring it to medical attention)	
0.739	No	3m	Correctly identifying breathing problems	
0.132	No	3m	Recognise S&S of neonatal conditions	
0.257	No	3m	Distinguish normal / abnormal skin, stools, gastric asp	
0.397	No	6m	Comprehensive assessment – data gathering	
0.603	No	6m	Able to recognise subtle signs of a deteriorating baby (Recognising deteriorating resp/ NEC; Progress to increased appreciation of nuances of neonatal assessment)	
0.305	No	3m	Auscultate heart sounds (pulses; cardiac)	
0.083	No	3m	Observations (temperature, HR,RR, Oxygen saturation, BP, HC, L, normal/abnormal; Differentiate normal / abnormal; Deviation from normal)	
0.852	No	3m	Pain assessment	

CR 9: Technical Ability

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Technical Ability				
Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
0.005	Yes	3m	Set up cot	There was a difference between R2 and R3 to reach a consensus
0.153	No	3m	Equipment – Vapotherm/HFNC	

0.942	No	3m	Competence in use of isolette, water bed and open care systems	
0.102	No	3m	Check suction and T-piece device (Neopuff set up)	
0.305	No	EL	Equipment function – IVAC/IMED/syringe drivers	
0.166	No	3m-18.2% 6m-63.6% 9m-9.1% Consensus not reached	Able to set up CPAP circuit (CPAP, how to trouble shoot the circuit, how to change the circuit.	However, there was stability between R2 and R3
0.058	No	3m	Phototherapy (Knowledge of and competence with delivering care requiring phototherapy- bilisoft and phototherapy lights)	
0.796	No	3m-18.2% 6m-59.1% 9m-13.6% Consensus not reached	Set up ventilators (Able to set up a ventilator circuit)	However, there was stability between R2 and R3
0.257	No	3m	Specimen collection – urine, faeces, sputum, swabs, blood	
0.124	No	3m	Septic work-up	
0.014	Yes	3m	Heel pricks for BGL/BSL, NST/NNST, cap gas (Performing capillary blood gas; Performing blood sugar level on Haemacue or gas machine; newborn screening)	There was a difference between R2 and R3 to reach a consensus
1.00	No	6m	Perform an arterial blood gas (collecting blood samples from arterial line; Arterial gas; Arterial lines)	
0.627	No	6m	UVC / central lines (Set up and assist insertion of umbilical lines, care of UVC/UAC; Assist with ling line insertion; Assisting at procedures and observations are required)	
0.248	No	3m	Support IV insertion & taping	

Significance level (Asymp.Sig. (2-tailaed))	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
0.136	No	12m	Insert PIV	
0.490	No	6m-63.6% 9m-27.3% Consensus not reached	ICC (Assist ICC insertion)	However, there was stability between R2 and R3
0.331	No	6m	Assist with intubation	
0.439	No	6m	ETT Suction open/closed	
0.593	No	6m-54.5% 9m-27.3% Consensus not reached	Retaping ETT	However, there was stability between R2 and R3
0.398	No	9m	Surfactant administration	
0.592	No	6m	Blood transfusion	
0.695	No	9m	Exchange transfusion	
0.642	No	3m	Position for x-ray	
0.221	No	9m	Set up Brainz (Brainz monitoring – supervised)	
0.225	No	9m-63.6% 12m-22.7% Consensus not reached	Cooling for HIE	However, there was stability between R2 and R3
0.257	No	3m	Monitoring (Monitoring of infants O2 monitoring; Grasby)	
0.005	No	EL	Set alarm limits according to gestational age	
0.014	No	3m	Insert NGT	

CR 10: Interpret Clinical Investigations

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Interpreting Clinical Investigations				
Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
0.614	No	6m	Blood gas (ABG interpretation)	
0.157	No	3m	Principles of BSL monitoring	
0.257	No	3m	NNST	
0.614	No	6m	CXR (X-ray – ETT placement, line placement, pneumothorax, different respiratory disease states; Be able to recognise landmarks and radiological signs of neonatal diseases)	

0.617	No	3m-13.6% 6m-63.6% 9m-13.6% Consensus not reached	ROP checks	However, there was stability between R2 and R3
0.331	No	3m	Blood values (FBC / FBE)	
0.035	Yes	9m	Identify ventilation changes required for ABG	There was a difference between R2 and R3 to reach a consensus

CR11: Neonatal Transfer/Transport

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neonatal Transfer.				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.739	No	6m	Referral for IPPV	
0.448	No	6m	Prepare for a retrieval (Newborn retrieval - awareness and developing)	
0.776	No	6m	Preparing a baby for a NETS transfer to a surgical centre (Transport Neocot)	

CR12: Neonatal Admission

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neonatal Admission.				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.210	No	6m	Able to admit a baby transferred by NETS (on CPAP or Hi Flow)	
0.405	No	3m	Admit to a level 2 nursery (Able to admit a SCN baby)	
0.039	Yes	9m	Able to admit a baby transferred by NETS (Ventilated)	There was a difference between R2 and R3 to reach a consensus
0.022	Yes	9m	Admitting an infant to Level 3	There was a difference between R2 and R3 to reach a consensus
0.163	No	9m	Able to admit a ventilated baby from labour ward	

CR13: Respiratory Support

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Respiratory Support				
Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
0.967	No	3m	Maintain airway (T-piece and self-inflating bag for IPPV; Perform bag & mask ventilation	
0.157	No	3m	Oral / nasal suction	
0.132	No	3m	Cot O2 (O2 therapy)	
0.020	Yes	3m	Nasal O2 (Low flow O2)	There was a difference between R2 and R3 to reach a consensus
0.782	No	3m-63.6% 6m-22.7% Consensus not reached.	HFNC	However, there was stability between R2 and R3
0.739	No	3m-63.6% 6m-22.7% Consensus not reached.	Stable CPAP (Intro into respiratory support CPAP	However, there was stability between R2 and R3
0.627	No	6m	Able to care for a ventilated baby (with support)	
0.197	No	6m	Stable ventilated (Ventilated – SIMV/SIPPV – VG	
0.439	No	6m	>32 week stable vent	
0.285	No	3m	An introduction to care of the infant on ventilation	
0.035	Yes	12m	Care of a critically ill ventilated baby (Care of an unstable ventilated baby; Troubleshoot deteriorating ventilated neonate)	There was a difference between R2 and R3 to reach a consensus
0.004	Yes	12m	Advanced respiratory care (HFOV +- iNO – supervised)	There was a difference between R2 and R3 to reach a consensus

CR14: Neurodevelopmental Care

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neurodevelopment				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.059	No	3m	Developmental care (Positioning)	
0.014	Yes	3m	Kangaroo care (Kanga cuddles)	There was a difference between R2 and R3 to reach a consensus

CR15: Medication Management

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Medication Management				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.007	Yes	EL	Knowledge of pharmacology (drug protocols/ how to look up protocols, side effects)	There was a difference between R2 and R3 to reach a consensus
0.014	Yes	EL	Administer IV medications	There was a difference between R2 and R3 to reach a consensus
0.527	No	6m-54.5% 9m-36.4% Consensus not reached.	Management of Inotropes (Dopamine / Doputamine)	However, there was stability between R2 and R3
0.644	No	6m-54.5% 9m-36.4% Consensus not reached.	Insulin (Insulin infusion)	However, there was stability between R2 and R3
0.627	No	6m	Dexamethasone	
0.782	No	6m	Morphine sedation	

CR16: Fluid, Electrolytes, and Nutrition

Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Fluids, Electrolytes & Nutrition				
0.527	No	3m	Breast feeding (breast feeding knowledge; breast feeding knowledge to assist; Breast feeding attachment & positioning)	
1.00	No	3m	Nutrition calculation and calories	
0.033	Yes	EL	Fluid calculation – nappy weigh	There was a difference between R2 and R3 to reach a consensus
0.029	Yes	3m	Nutritional needs (feeding regimes)	There was a difference between R2 and R3 to reach a consensus
0.317	No	EL	Bottle feeding	
0.763	No	3m	IV nutrition (TPN and Lipids)	
0.014	Yes	3m	OG/NG feeding	There was a difference between R2 and R3 to reach a consensus
0.059	No	3m	IV fluids infusions	
0.796	No	6m	Complex fluid management (advanced neonatal care fluid and nutrition management - central lines)	

CR17: Neonatal Resuscitation

Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Neonatal Resuscitation				
0.461	No	3m	First response neoResus (ECC resus; CPR resuscitation; resus skills; basic resuscitation; the neonatal airway and basic resuscitation)	

0.218	No	6m	Attend high-risk resuscitation under supervision (Assist with neonatal resus)	
0.646	No	6m	Respond effectively to a neonatal emergency (Intervene using neonatal resus skills)	
0.021	Yes	12m	Advanced neonatal resuscitation (Capable of caring for babies who are unstable, managing resuscitations in the delivery suite/OT)	There was a difference between R2 and R3 to reach a consensus
0.054	No	3m	Able to perform mask ventilation with a bag and mask or Neopuff proficiently until more senior help arrives	

CR18: Palliative Care

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Palliative Care				
Significance level (Asymp.Sig. (2-tailaed)	Statistical significance	Consensus	Capability Requisite	Stability of responses between R2 & R3
0.031	Yes	9m	Palliative Care - developing skills in supporting parents and show awareness of needs to support families	There was a difference between R2 and R3 to reach a consensus
0.953	No	6m	Palliative care awareness	
0.448	No	6m-9.1% 9m-63.6% 12m-22.7% Consensus not reached.	Care for a baby being palliated	However, there was stability between R2 and R3

CR19: Teamwork and Leadership

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Teamwork & Leadership				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.003	Yes	EL	Utilise team members (Ability to teamwork; Collaborate and initiate care)	There was a difference between R2 and R3 to reach a consensus
0.801	No	6m	Work independently – consult with more experienced colleagues	
0.890	No	6m	Facility to work well with others within complex and changing environments (Effective MDT member)	

CR20: Research

Question: Please indicate when you believe the neonatal nursing student should achieve each particular Capability related to Research				
Significance level (Asymp.Sig. (2-tailaed)	**Statistical significance**	**Consensus**	**Capability Requisite**	**Stability of responses between R2 & R3**
0.818	No	3m	Awareness of quality improvement and research relevant to neonates	
0.082	No	6m	Quality improvement and research relevant to neonates - developing ongoing EBP research skills	
0.017	Yes	12m	Involved in research.	There was a difference between R2 and R3 to reach a consensus

Appendix F: Interview Participant Information and Consent

This appendix contains documentation related to Stage 3 of the research, namely using interviews to identify how mentors recognise Capability in PG Cert NIC nursing students.

- Interviews: Letter to the ACNN Re: Interviews
- Interviews: Cover letter outlining to previous stages of the research and situates this third stage
- Interviews: Invitation to Participate
- Interviews: Participant Information Sheet
- Interviews: Consent Form
- Interviews: Capability Framework with Capability Requisites to be discussed highlighted

UNIVERSITY OF TASMANIA

The Professional Officer
Australian College of Neonatal Nurses

21/09/15

Dear Karen,

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate at the University of Tasmania exploring the concept of competence in postgraduate nursing students of Neonatal Intensive care in Australia. My supervisors are Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck.

This project seeks to better understand how we assess capability in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia.

The study will be conducted in three stages:

1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability*, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

For **Stage 3** of my research I am seeking participation from neonatal nurse clinicians to participate in person-to-person interviews to determine what it is that students ***demonstrate*** that ***provides evidence*** of *Capability* in registered nurses undertaking any PG Cert NIC in Australia.

The inclusion criteria for this study are:
- Must possess a neonatal intensive care qualification and
- Have ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load to nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

I have enclosed a Participant Information Statement which explains the research in more detail, and a consent form. I was wondering if it would be possible to distribute this information to members of the ACNN?

Neonatal Nurses who meet the inclusion criteria and are interested in participating please return the signed consent form to me at the following email address. Upon receiving this I will then contact them and provide further details regarding the Interview.

Interested participants may contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

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Cover letter outlining the working of the previous stages of this research and situates this third stage.

Assessment of *Capability* of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load, and who wish to participate in a person-to-person interview via electronic media (Skype/Lync/telephone conference call) to identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

Dear Experienced Neonatal Nurse
Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.
Thank you for responding to my email, indicating you meet the inclusion criteria and would like to participate in this study.

Much of the problem with evaluating clinical competence in nursing has been the confusion as to the definition of competence (Buckingham, 2000). The terms *competent*, *competence*, *competency* and *competencies* have often been interpreted as the same thing. It has been implied that competency 'is', whereas competencies are the skills to be assessed and, if successful in demonstrating these competencies, the nurse can be deemed competent (Tzeng, 2004). This ambiguity in terminology has had an influence on the *measurement* of competence and led to the emergence of unsystematic, unreliable and un-validated evaluation tools (Calman, 2006; Evans, 2008; Redfern, Norman, Calman, Watson, & Murrells, 2002; Watson, Stimpson, Topping, & Porock, 2002; Wilkinson, 2013). It is important to provide students with clear expectations in order to develop well-prepared postgraduate specialist nurses.

Specialty clinical areas, such as neonatal intensive care, require proficient nurses with skills specific to the job. Stephenson (1992, p. 1) refers to this as "fitness *of* and *for* purpose", where education delivers *Capable* graduands. He stresses that higher education is more than the acquisition of "knowledge and intellectual skill", it also:
  a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
  b) Prepares the student to be personally effective within the circumstances of their lives and work; and
  c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Stephenson (1992) describes a potential problem with defining capability as "it is easier to recognise than to measure" (1992, p. 1), and explains that in the past, in an attempt to measure capability

educationists have been tempted to reduce capability to "separately measurable competences" (1992, p. 1). As a consequence he has developed a working definition for *Capability*:

> ### *Capable people have confidence in their ability to*
> - *Take effective and appropriate action,*
> - *Explain what they are about,*
> - *Live and work effectively with others, and*
> - *Continue to learn from their experience*
>
> ### *as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).*

Stephenson (1998) concept of capability allows for periods of great change, where people are required to have the ability to work effectively and efficiently in new and demanding contexts. Nursing education requires the preparation of graduates who are able to actively and effectively participate in changing circumstance. Not just competent graduates (dealing with the here and now, confident in dealing with familiar problems with learnt familiar solutions, which may or may not require high level knowledge and technical skill) but capable graduates who are forward looking, confidently working in unfamiliar contexts, solving unfamiliar problems.

The preceding stage of this project employed the Delphi process to identify experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability requisites* of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia. The aim of Stage 3 of this research is to identify how these *Capabilities* are evidenced in nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia in clinical practice.

Participation in this interview will be taken as consenting to participate however participants may withdraw at any time during the process.

Please contact the researcher by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692 if you require any further clarification.

Thank you for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

REFERENCES:
Buckingham, S. (2000). Review : Clinical competency: the right assessment tools? *Journal of Child Health Care, 4*(1), 19-22. doi: 10.1177/136749350000400103
Calman, L. (2006). Patients' views of nurses' competence. *Nurse Education in Practice, 6*(6), 411-417.
Evans, A. (2008). Competency Assessment in Nursing: A summary of literature published since 2000 (pp. 75): National Education Framework Cancer Nursing (EdCaN).
Redfern, S., Norman, I., Calman, L., Watson, R., & Murrells, T. (2002). Assessing competence to practise in nursing: a review of the literature. *Research Papers in Education, 17*(1), 51-77. doi: 10.1080/02671520110058714
Stephenson, J. (1992). Quality in Learning: A Capability Approach in Higher Education. from Kogan Page Ltd http://www.johnstephenson.net/qinlintro.htm
Stephenson, J. (1998). The Concept of Capability and its Importance in Higher education. In J. Stephenson & M. Yorke (Eds.), *Capability and Quality in Higher Education.* (pp. 1-13). London: Kogan Page.
Tzeng, H.-M. (2004). Nurses' self-assessment of their nursing competencies, job satisfaction and job performance in the Taiwan hospital system. *International Journal of Nursing Studies, 41*, 487-496. doi: 10.1016/j.ijnurstu.2003.12.002
Watson, R., Stimpson, A., Topping, A., & Porock, D. (2002). Clinical competence assessment in nursing: a systematic review of the literature. *Journal of Advanced Nursing, 39*(5), 421-431. doi: 10.1046/j.1365-2648.2002.02307.x
Wilkinson, C. A. (2013). Competency Assessment Tools for Registered Nurses: An Integrative Review. *The Journal of Continuing Education in Nursing, 44*(1), 31-37.

21/09/15

Invitation to Participate

Assessment of *Capability* of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate at the University of Tasmania exploring the concept of *Capability* in nursing students undertaking any Postgraduate Certificate of Neonatal Intensive Care in Australia. My supervisors are Dr Sharon Fraser, Dr Kim Beswick, and Dr Doug Colbeck.

This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia.

The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability*, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

For **Stage 3** of my research I am seeking participation from neonatal nurse clinicians to participate in person-to-person interviews to determine what it is that students *demonstrate* that *provides evidence* of *Capability* in registered nurses undertaking any PG Cert NIC in Australia.

The inclusion criteria for this study are:
- Must possess a neonatal intensive care qualification and
- Have ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load to student nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care

The study will be carried out using person-to-person interviews.

The amount of time necessary for completion of each interview will vary, but should be approximately 60 minutes. The project is seeking your expert opinion. I think you will find the process interesting and results will be made available at the conclusion of the study.

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It is important you understand that your participation in this project is entirely voluntary. If you do not wish to take part in the study it will not affect your employment or service provided. In addition, any information that you provide will be confidential and when results of the study are reported, you may not be identifiable in the findings. Your name will not be recorded instead, you will be allocated a unique code that can only be identified by the researcher. You will remain anonymous to the other participants (or experts) throughout the study and only the researcher will be able to identify your specific answers.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

For your information I have enclosed a Participant Information Statement which explains the research in more detail and a consent form. If you are interested in participating and you meet the inclusion criteria please return the signed consent form to me at the following email address. Upon receiving this I will then contact you with further details regarding a suitable time for the interview.

If you have any further questions please contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
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FACULTY OF EDUCATION

SCHOOL OF EDUCATION

Participant Information Sheet

Assessment of *Capability* of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load, and who wish to participate in a person-to-person interview via electronic media (Skype/Lync/telephone conference call) to identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

Invitation
This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia.
The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability* requisites, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

This study is being conducted in partial fulfilment of a Doctor of Education for Patricia Bromley under the supervision of Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck

What is the purpose of this study?
The aim of this third stage of the study is to establish from the opinions of experts' (experienced neonatal nurse clinicians) what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

Why have I been invited to participate?
You have been identified through the Australian College of Neonatal Nurses (ACNN) as a member of this organisation, who possesses a neonatal intensive care qualification and are a neonatal nurse clinician with at least ten (10) years' experience employed within a Neonatal Intensive Care Unit / Special Care Baby Unit who also has responsibility for consigning patient load to students undertaking the PG Cert NIC.

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Participation is voluntary and you have the right to withdraw at any time. There are no disadvantages, penalties or adverse consequences for not participating or for withdrawing prematurely from the research.

What will I be asked to do?
If you agree to participate in this project:
1. You will be invited to participate in a person-to person semi-structured interview via electronic media (Skype/Lync/telephone conference call) between October and December 2015.
2. You will need to sign a consent form indicating that you have read and understood the participant information statement and consent form.
3. It is anticipated the interviews will take no longer than 60 minutes to complete.
4. Interviews will be recorded for the purpose of analysis of the data captured.
5. You will be able to access the final research at the completion of the project

Person-to-person semi-structured interviews are an innovative and interactive process where interviewer and participant explore interpretations of events, to create awareness of and make meaning of those events. Semi-structured interviews incorporate a number of open-ended questions which allows the researcher to explore the issues from the perspective of those involved (Hansen, 2006).

- Participants will be contacted by electronic media (Skype/Lync/telephone conference call) at a time and date to their suiting between October and December 2015
- Interviews will be recorded for the purpose of analysis of the data captured.
- Participants will be asked to engage in a discussion to elicit their views on the evidence they see which demonstrates *Capability* in students undertaking a Postgraduate Certificate in Neonatal Intensive Care Nursing at various stages in the program.
- Participants will be provided with a framework of *Capability Requisites,* which were identified in the previous stage of this research, prior to the interview to assist in clarifying thoughts.

Quotes may be used from this data however it will be de-identified to maintain participants' confidentiality.

Are there any possible benefits from participation in this study?
By participating in this person-to-person interview, you may be assisting in the establishment of *Capability Framework* for students in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Are there any possible risks from participation in this study?
No risk or harm is anticipated from participating in this stage of the project.

What if I change my mind during or after the study?
You are free to withdraw at any time without providing an explanation and request that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the interview. All you need do is notify the student investigator by email or telephone.

What will happen to the information when this study is over?

Consent forms, and other data will be kept in a locked filing cabinet in a locked room at the University of Tasmania, School of Health Sciences - Nursing and Midwifery Domain Campus. Computer files will be password protected. All data will be archived in a locked filing cabinet in the researcher's office within the University of Tasmania and according to NHMRC guidelines for five years from the date of first publication. After this time, raw data will be shredded and/or deleted from computer files.

All data will be treated in a confidential manner. There will be no deception of participants either by concealment or covert observation.

How will the results of the study be published?

At the end of the research project, the results of this project will appear in a EdD thesis and may appear in papers, journal articles and in presentations, but you or your organization will not be identified in any of these reports.

What if I have questions about this study?

Any questions regarding this project may be directed to:
Patricia Bromley: email patricia.bromley@utas.edu.au or telephone +61 6226 4692

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. [*HREC H0013429*].

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form and return it to the researcher. This information sheet is for you to keep.

Consent Form

Assessment of *Capability* of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load, and who wish to participate in a person-to-person interview via electronic media (Skype/Lync/telephone conference call) to identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

1. I agree to take part in the research study named above.
2. I have read and understood the Information Sheet for this study.
3. The nature and possible effects of the study have been explained to me.
4. I understand that the study involves participation in a person-to-person semi-structured interview via electronic means (telephone conference call/Skype/Lync).
5. I understand interviews will be recorded for the purpose of analysis of the data captured.
6. I understand that participation involves no foreseeable risk, discomfort or harm to participants
7. I understand that all research data will be securely stored on the University of Tasmania premises for five years from the publication of the study results, and will then be destroyed
8. Any questions that I have asked have been answered to my satisfaction.
9. I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.
10. I understand that the results of the study will be published so that I cannot be identified as a participant.
11. I understand that my participation is voluntary and that I may withdraw at any time without any effect.
    If I so wish, I may request that any data I have supplied be withdrawn from the research within four weeks of the interview.

Participant's name: _____

Participant's signature: _____

Date: _____

Statement by Investigator

☐   I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

✓   The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: _____Patricia Bromley _____

Investigator's signature: _____

Date: ___21/09/15_____

Questions will relate to the results of the Delphi study – the Capability Framework (see below).

Participants will be provided the framework document prior to interview to review and gather thoughts.

Questions will be aimed at teasing out:

1. *What is the evidence provided by the student that he/she has a particular capability?*
2. *When assigning patient load to students undertaking the Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC), what are the qualities you look for to match the student nurse to the patient?*

There are 20 capabilities identified in this research. Many of the capabilities are able to be recognised through clinical assessments such as specific questioning (Student NICU-BKAT perhaps?) and watching a student perform certain clinical activities.

However there are a number of capabilities that seem to have a more tacit understanding. These capabilities I would like to tease out a little more to try to make the tacit more subjective.

It is important to consider students you have worked with when thinking about the answers to these questions. I am trying to develop a clear understanding of the students' capabilities and how this develops over the 12 months. I am not expecting students to have the same capabilities as a qualified and/or experienced neonatal nurse.

NB: Clinical experience – questions related to this area will not be addressed, however after the participant has answered the questions related to the other Capabilities, I will explore with the participant their ideas on the identified prerequisites for Capability 1.

	Entry level requirements	Time to be achieved by
Capability 1: Clinical experience	**Prerequisite** • Midwifery desirable not essential • Completion of a transition course or similar educational model • 6-9 months experience in neonatal high dependency nursery • 12 months experience in neonatal intensive care nursery 1. **Considering your answers to the other Capabilities, how essential do you consider these prerequisites?**	• Clinical rotation beginning in neonatal special care nursery, to progress through high dependency and then to intensive care nursery 2. **Given the developing capability framework, do you consider a nurse without such experience could develop into a capable neonatal specialist nurse?** a. **What are your reasons for thinking this way?**

NB: Items that did not reach consensus

• 2 years prior experience in neonatal intensive care nursery: Consensus on this was neither agree nor disagree (n=14). Other responses split with as many disagreeing (n=4) as agreeing (n=4) this is important.

	Entry level requirements	Time to be achieved by	Evidence of achievement
Capability 2: Attitudes and Values	The neonatal student nurse is expected to bring these qualities to the course: • Understanding nursing protocols • Reflective learner (Evaluate effectiveness of own practice) • Commitment to continued professional development (Able to develop own learning goals; Recognising own learning needs; Commitment to on-going professional development) • Integrity in character and work ethics (Accountable for own actions; Accountable for own practice) • Motivated (Desire to learn; Motivated; Positive attitude, personal interest; Self-directed learning) • Retain information (Knowing how to learn) • Short term goals • Awareness of own limitations • Supportive personal network	**3months** • Demonstrate patience, persistence, determination and calm enthusiasm • Critical thinking (Willingness to problem solve; Involved in problem-based learning able to apply to practice; Use methodical and logical thinking to achieve best outcomes) • Peer Appraisal • Long term goals **6 months** • Creative (Courage to experiment – try new things) • Ability to work within dynamic and intense environment (Ability to adapt knowledge and competences to new and unfamiliar contexts; Objective skills to support changing cultures; Ability to adapt to changing circumstances; Confident in responding appropriately in varying circumstances • Confidence (Confidence in own skills and abilities; Belief in personal effectiveness) **9 months** • Be clinically proficient, using evidence based care **12months**	Attitudes and values is hard to define! I would like you to think about a really good student you have worked with. A student that you consider has the attitudes and values required for neonatal nursing. Can you tell me what the student did, or what they said, or how they acted that *showed* you the student had the right attitudes and values? Or, perhaps there is something the student demonstrates that suggests they *do not have the* required attitudes and values. What was it the student was sowing or demonstrating that made you have such concerns?

NB: Items that did not reach consensus

• Understands the broader context of practice legislative requirements (Knowledge of nursing leaders): this did not quite reach consensus, it drew towards 6 months (n=14). A number of panel members thought this was an entry level requirement (n=3) or should be achieved by 3 months (n=1) however, just as many felt is should be achieved by 9 months (n=3) or even 12 months (n=1).

	Entry level requirements	Time to be achieved by	Evidence of achievement
Capablity 3: Clinical Capacity	The neonatal student nurse is expected to bring these qualities to the course: • Safe competent nursing skills • Supervision by others	**3 months** • Able to care for SCN babies (Capable of caring for a patient load of babies requiring basic neonatal care; capable of patient load; basic neonatal care; basic nursing skills) • More independent with SCN infant • Able to care for NAS **6 months** • Understands complex needs at a beginning independent practitioner and able to care for special care babies unsupervised (Care of SCN babies unsupervised; Beginning independent practitioner) • Stabilisation of <32 week premature neonate in SCN • Able to care for premature/LBW/CNLD (comfortable with handling sick and preterm neonate) **9 months** • Developing skills in advanced neonatal care (ability to care for more complex needs) • More acute patient load HFNC, chronic conditions, surgical conditions. • Able to care for surgical babies – minor – hernia, circumcision, cardiac • Attend deliveries to >28 weeks with mentor • Teach and support junior nurses (Teach less experienced nurses) • Able to care for >28 week ventilated care for sick neonate **12 months** • Independent NICU (Able to care for critically ill neonates; Critically ill ventilated; Capable of caring for babies who are unstable) • Able to care for Microprems <28 weeks • Confidently attend delivery of extreme premature / high risk term baby	This question is related to the student's capability in providing the specific clinical care in the nursery. Think about a time when you have had two students undertaking the PG Cert NIC course, you are allocating the work load and you have an unstable ventilated baby, and a stable baby on CPAP. What tells you a particular student is capable of caring for the unstable ventilated patient whereas the other student is not? What is special about the student that is ready to take on the unstable baby? Or Perhaps you feel the students are not quite ready. What is it you notice that tells you this? Or Think about the changes that take place over the 12 months. What is it that tells you the student is able to care for a critically unwell baby such as a microprem or septic neonate? Can you tell me when you usually see these changes in the student?

NB: Items that did not reach consensus

• Able to care for cardiac – PDA: this didn't quite reach consensus, it drew towards 9 months (n= 14) however it was split towards 6 months (n=4) rather than 12 months (n=3)

	Entry level requirements	Time to be achieved by	Evidence of achievement
Capability 4: Knowledge	The neonatal student nurse is expected to bring these qualities to the course: • Infection control principles (aseptic technique; hand hygiene) • Demonstrate understanding of BFHI principles	**3 months** • Infection (advanced neonatal care infections control; sepsis – prophylactic treatment) • Hypoglycaemia • Jaundice • Thermoregulation and temperature control (Understanding and demonstration of principals of thermoregulation of the neonate) • Understanding and demonstration of principals of differing needs of the preterm or unwell neonate to the well and healthy infant • Understanding principals of nutritional needs of infant in neonatal unit • Knowledge of and competence with delivering care NAS and settling • Immunizations • Respiration physiology • Basic understanding of medical conditions • Understand maternal conditions (Antenatal steroids, Mg, maternal infections) **6 months** • RDS and HMD • Beginning to understand complexities of neonatal pathophysiology and relate to care • Congenital abnormalities • Haemodynamic status **9 months** • Persistent pulmonary hypertension of the newborn (PPHN) • Meconium aspiration syndrome (MAS) **12 months** •	This is objective information. This will not be addressed in the interview. This could be addressed through using the NICU BKAT (Basic Knowledge Assessment Tool) Perhaps this needs to be looked at for student progress Develop a "student NICU-BKAT"

NB: Items that did not reach consensus

• Ventilation methods & principles: this didn't quite reach consensus, it drew towards 6 months (n=14), with the next most agreed at 9 months (n=6).
• Understands complex needs (Understands the biological plausibility of everything they practice): This also did not reach consensus but trends were towards 9 months (n=14) and 12 months (n=7).

	Entry level requirements	Time to be achieved by	Evidence of achievement
Capability 5: **Care Planning**	The neonatal student nurse is expected to bring these qualities to the course: • Time management (Time management - developing)	**3 months** • Formulate individual plan of care (Planning of care; Enable continuity of care; Able to plan and 'cluster' a baby's care; Care plan development; Implement plan provide direct care) **6 months** • Time management skills (Time management – competent) • Plan care to incorporate aspects of condition - incorporate best practice (Ability to be flexible in terms of delivery of care; Integrate skill knowledge and trouble shoot problems) • Anticipate condition from antenatal/intrapartum data – anticipate management from this data • Suggestions for on-going care • Evaluate and revision of care based on response and anticipated outcomes (Evaluate care) **9 months** • Proficient nursing care **12 months**	This question is related to the student's ability to plan the care for their patient or patients and families. Very often in Special Care nursery the patient load is 3:1 or even 4:1. When you are allocating patients for the shift, what are the skills, qualities that you see in a student that tells you the nurse is able to manage such a load. Or What do you see that indicates the nurse is not managing such a load? As far as care planning goes, what do you see in the student that tells you the difference between managing a 4:1 special care patient load and a 1:1 intensive care patient load? Or What changes do you see in the student that indicates to you their care planning is developing beyond that of a beginner level neonatal nurse, to competent to proficient care planning?

Entry level requirements	Time to be achieved by	Evidence of achievement
Capability 6: Family Centred Care	**3 months** • Understanding of Family Centred care (Principles of shared care; Support family needs; Parental involvement) • Education parent – bathing, feeding, positive touch, nappy changes, • Educate breast expression by hand & pump • Advocate for parents (Understanding and supporting the additional family needs of an infant requiring admission to a Neonatal unit)	This question is related to the student's capabilities in providing family centred care. Think of a student who you remember was really family centred. What did the student 'do' or 'say' that showed you this?
	6 months • Educate parents for home (Preparation for discharge – home care, SIDS, CPR, Home oxygen, orthopaedic splints)	Did you gather from the way the family responded the student was effective? What did the family say or do, how did they respond to the student caring for them?
	9 months	Or
	12 months	Think of a student who you feel was not providing family centred care. What were the cues that told you the nurse was not quite there? Would you expect this to develop over time, if so can you explain how you might see this develop?

NB: Items that did not reach consensus

• Counselling (reassure parents): this did not reach consensus, it drew towards 6 months (n=13) with the next most popular choice being 9 months (n=7).

Capability 7: Communication	Entry level requirements	Time to be achieved by	Evidence of achievement
	The neonatal student nurse is expected to bring these qualities to the course: • Written Communication (Documentation; plot weight, length, HC)	**3 months** • Verbal communication – confidence to speak up within the NICU team (advise multidisciplinary team (MDT) of deterioration; Articulate care provided to parents and team; Ability to communicate with SCN/NICU areas) • Verbal communication with families (Be able to competently deal with the parents, answer their questions within their scope of practice) **6 months** **9 months** **12 months**	**This question is related to communications.** **Firstly I would like to explore the professional communication between the different members of the neonatal team.** **Think back to a situation where you have been in a multi-disciplinary team meeting, (either a formal meeting or a ward round or a conference with parents)** **Can you think of a student that really shined in the meeting? What did the student do/say/act that showed you the student was able to manage such meetings?** **Now I would like explore the communication with families. It does not matter if you feel you have answered this for a previous question.** **Have you ever listened in on a conversation the nurse is having with the family. What sort of things told you the student is communicating well with the family?** **Again was there a response from the family that was encouraging? Can you tell me more about this response?**

NB: Items that did not reach consensus

• Keep senior fully informed of changes & plans (The ability to verbally handover their assessment to a senior nurse with appropriate suggestions for ongoing care): this did not reach consensus, it drew towards 3 months (n=13), however many panel members indicated it should be an entry level requirement (n=8)

		Entry level requirements	Time to be achieved by	Evidence of achievement
Capability 8: Clinical Assessment			**3 months** • Physical assessment (Newborn assessment; Ability to do basic assessment; Examination of the newborn) • Responds to changes in condition (Identify and report deterioration of neonate; Recognise acute deterioration [bradycardia / pneumothorax]; Identify deterioration requiring escalating support; Able to recognise deterioration in neonate and bring it to medical attention) • Correctly identifying breathing problems • Recognise S&S of neonatal conditions • Distinguish normal / abnormal skin, stools, gastric asp • Auscultate heart sounds (pulses; cardiac) • Observations (temperature, HR,RR, Oxygen saturation, BP, HC, L, normal/abnormal; Differentiate normal / abnormal; Deviation from normal) • Pain assessment **6 months** • Comprehensive assessment – data gathering • Able to recognise subtle signs of a deteriorating baby (Recognising deteriorating respiratory/ NEC; Progress to increased appreciation of nuances of neonatal assessment) **9 months** **12 months**	This is objective information. This will not be addressed in the interview. This is related to knowledge could be incorporated into a "student" NICU BKAT

	Entry level requirements	Time to be achieved by	Evidence of achievement
Capability 9: Technical Ability	The neonatal student nurse is expected to bring these qualities to the course: • Equipment function – IVAC/IMED/syringe drivers • Set alarm limits according to gestational age	**3 months** • Set up cot • Equipment – Vapotherm/HFNC • Competence in use of isolette, water bed and open care systems • Check suction and T-piece device (Neopuff set up) • Phototherapy (Knowledge of and competence with delivering care requiring phototherapy- bilisoft and phototherapy lights) • Specimen collection – urine, faeces, sputum, swabs, blood • Septic work-up • Heel pricks for BGL/BSL, NST/NNST, cap gas (Performing capillary blood gas; Performing blood sugar level on Haemacue or gas machine; newborn screening) • Support IV insertion & taping • Position for x-ray • Monitoring (Monitoring of infants O2 monitoring; Grasby) • Insert NGT **6 months** • Perform an arterial blood gas (collecting blood samples from arterial line; Arterial gas; Arterial lines;) • UVC / central lines (Set up and assist insertion of umbilical lines, care of UVC/UAC; Assist with ling line insertion; Assisting at procedures and observations are required) • Assist with intubation • ETT Suction open/closed • Blood transfusion **9 months** • Surfactant administration • Exchange transfusion • Set up Brainz (Brainz monitoring – supervised) **12 months** • Insert PIV • ECMO	This is objective information. This will not be addressed in the interview. Student NICU BKAT

NB: Items that did not reach consensus:

- Able to set up CPAP circuit (CPAP, how to trouble shoot the circuit, how to change the circuit: almost reached a consensus at 6 month (n=14) but there was a trend to earlier at 3 months (n=4).

- Set up ventilators (Able to set up a ventilator circuit): again this did not reach consensus, there was a trend towards 6 months (n=13) however the rest of the panel members were splint between 3 (n=4), 9 (n=3) and 12 (n=2) months.

- Cooling for HIE: this trended towards 9 months (n=14) however a significant number of participants indicated this would not be expected to be achieved until 12 months (n=5).

- Retaping ETT: the results for this item was quite diverse with a number indicating 6 months (n=12) but significant is the trend towards later attainment at 9 months (n=6) and 12 months (n=3).

- ICC (Assist ICC insertion): this was trending towards 6 months (n=14) and 9 months (n=9)

Capability 10: Clinical Investigations

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months • Principals of BSL monitoring • NNST • Blood values (FBC / FBE) **6 months** • Blood gas (ABG interpretation) • CXR (X-ray – ETT placement, line placement, pneumothorax, different respiratory disease states; Be able to recognise landmarks and radiological signs of neonatal diseases) **9 months** • Identify ventilation changes required for ABG **12 months**	**This is objective information. This will not be addressed in the interview.** **Student NICU BKAT**

NB: Items that did not reach consensus:

- ROP checks did not reach a consensus, it was trending towards 6 months (n=14) however opinions ranged from entry level (n=2), to 3 months (n=3), through to 9 months (n=3)

Capability 11: Neonatal Transfer

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months **6 months** • Referral for IPPV • Prepare for a retrieval (Newborn retrieval - awareness and developing) • Preparing a baby for a NETS transfer to a surgical centre (Transport Neocot) **9 months** **12 months**	**This is objective information. This will not be addressed in the interview.**

Capability 12: Neonatal Admission

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months • Admit to a level 2 nursery (Able to admit a SCN baby) **6 months** • Able to admit a baby transferred by NETS (on CPAP or Hi Flow) **9 months** • Able to admit a baby transferred by NETS (Ventilated) • Admitting an infant to Level 3 • Able to admit a ventilated baby from labour ward	**This is objective information. This will not be addressed in the interview.**

Capability 13: Respiratory Support

Entry level requirements	Time to be achieved by	Evidence of achievement
	12 months	This is objective information. This will not be addressed in the interview.
	3 months • Maintain airway (T-piece and self-inflating bag for IPPV; Perform bag & mask ventilation • Oral / nasal suction • Cot O2 (O2 therapy) • Nasal O2 (Low flow O2) • An introduction to care of the infant on ventilation	
	6 months • Able to care for a ventilated baby (with support) • Stable ventilated (Ventilated – SIMV/SIPPV – VG • >32 week stable vent	
	9 months •	
	12 months • Care of a critically ill ventilated baby (Care of an unstable ventilated baby; Troubleshoot deteriorating ventilated neonate) • Advanced respiratory care (HFOV +- iNO – supervised)	

NB: Items that did not reach consensus:
- HFNC almost reached consensus at 3 months (n=14) but trending towards 6 months (n=5)
- Stable CPAP (Intro into respiratory support CPAP again almost reached consensus at 3 months (n=14)with trend towards 6 months (n=6)

Capability 14: Neurodevelopment

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months • Developmental care (Positioning) • Kangaroo care (Kanga cuddles)	This question is related to the student's ability to deliver care that is protective of their neurodevelopment. Think of a student that you can remember was really good at developmental care. What did you see the student doing/saying/acting that told you they had a good understanding of neurodevelopmental care?
	6 months • Advanced neonatal care developmental care (Understanding and demonstration of principals of neurodevelopment of the neonate; Comfortable with neurodevelopmental care; Safe environment for infant and family)	
	9 months	Was this student really good at this from the beginning? When did you notice the student had it, was there a gradual development over time? Can you put it on a time-line?
	12 months	

Capability 15: Medication Management	Entry level requirements	Time to be achieved by	Evidence of achievement
	The neonatal student nurse is expected to bring these qualities to the course: • Medication calculations (drug calculations) • Administer oral medications • Administer IV medication • Knowledge of pharmacology (drug protocols/ how to look up protocols, side effects)	**3 months** • **6 months** • Dexamethasone • Morphine sedation **9 months** **12 months**	This is objective information. This will not be addressed in the interview. Correct calculations, documentation etc.

NB: Items that did not reach consensus:

- Management of Inotropes (Dopamine / Doputamine) – trend towards 6 months (n=12) but significant opinion around 9 months also (n=8)
- Insulin (Insulin infusion) - trend towards 6 months (n=12) but significant opinion around 9 months also (n=8)

Capability 16: Fluids, Electrolytes & Nutrition	Entry level requirements	Time to be achieved by	Evidence of achievement
	The neonatal student nurse is expected to bring these qualities to the course: • Fluid calculation – nappy weigh • Bottle feeding	**3 months** • Breast feeding (breast feeding knowledge; breast feeding knowledge to assist; Breast feeding attachment & positioning) • Nutrition calculation and calories • Nutritional needs (feeding regimes) • IV nutrition (TPN and Lipids) • OG/NG feeding • IV fluids infusions **6 months** • Complex fluid management (advanced neonatal care fluid and nutrition management - central lines) **9 months** **12 months**	This question is related to breast feeding in particular. Think of a student that was really good at supporting parents at breast feeding. What did you see the student doing that told you they were good? What about the parent's responses? This is objective information: Nutritional need etc. - correct calculations, documentation etc.

Capability 17: Neonatal Resuscitation

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months • First response neoResus (ECC resus; CPR resuscitation; resus skills; basic resuscitation; the neonatal airway and basic resuscitation) • Manage apnoea & bradycardia • Able to perform mask ventilation with a bag and mask or Neopuff proficiently until more senior help arrives	This is objective information. This will not be addressed in the interview. NeoResus
	6 months • Attend high-risk resuscitation under supervision (Assist with neonatal resus) • Respond effectively to a neonatal emergency (Intervene using neonatal resus skills)	
	9 months	
	12 months • Advanced neonatal resuscitation (Capable of caring for babies who are unstable, managing resuscitations in the delivery suite/OT)	

Capability 18: Palliative Care

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months	This question is related to the student's ability to support parents in palliative care. Think of a student that you remember supporting a family when their baby was terminally ill. What was it about the student that showed you they were doing a good job? What about the family's response? This is question is related to the nurses ability for self-care: What about during and after the experience, how did the student react or respond that showed you they were managing the situation emotionally?
	6 months • Palliative care awareness	
	9 months • Palliative Care - developing skills in supporting parents and show awareness of needs to support families	
	12 months	

NB: Items that did not reach consensus:

• Care for a baby being palliated – almost reached consensus at 9 months (n=14) but trend towards 12 months (n=5)

Capability 19: Teamwork & Leadership	Entry level requirements	Time to be achieved by	Evidence of achievement
	The neonatal student nurse is expected to bring these qualities to the course: • Utilise team members (Ability to teamwork; Collaborate and initiate care)	**3 months** **6 months** • Work independently – consult with more experienced colleagues • Facility to work well with others within complex and changing environments (Effective MDT member) **9 months** • **12 months** • Be in charge of the ward • Ward round management	This question has two focuses teamwork and leadership. Again it does not matter if you feel you have already answered this in previous questions. Recall a time when you realised a student was able to work independently. What are the cues/signs that told you this? Do your students ever take charge of shift? Think about a student that has been in charge, what was it that you saw in the student that told you they were managing this? Probes: How did the student show her capabilities in people management? How did the student show capabilities in care for team? What bout knowing when things are outside of their scope of practice and asking for advice?

Entry level requirements	Time to be achieved by	Evidence of achievement
	3 months • Awareness of quality improvement and research relevant to neonates	**This question is related to the students' capabilities in research.** **Tell me about a student that you thought was really engaged in research during the 12 months.**
	6 months • Quality improvement and research relevant to neonates - developing ongoing EBP research skills	**What did the student do or say that indicated they were engaged in research?**
	9 months	
Capability 20: **Research**	**12 months** • Involved in research.	**Was the student like this from the start of the course?** **Explain to me how you saw this developing over the 12 months?** **Probes:** **How did the student show they were applying research into practice?** **Did the student provide any opinions on professional development and ongoing learning?** **What about quality matters?**

Appendix G: Ethics Amendments:

This appendix contains documentation related to ethics amendments during the research.

- Amendment 1: To include a Delphi Method trial
- Amendment 2: Changes in position descriptor and Capability terminology
- Amendment 3: Changes to research method from online survey to interviews

SOCIAL SCIENCE HREC
AMENDMENT TO APPROVED PROJECT

This form should be completed to apply for amendments to all types of applications previously approved by the Social Science HREC.

Important: Please send an electronic version of this form as a Word document along with the attachments indicated below to **katherine.shaw@utas.edu.au**.
A signed copy of this form also needs to be forwarded electronically.

If you have any questions, please call: 6226 2763

Ethics Reference Number	H0013429	Date: 03/03/14	

1. Title of approved project
Assessment of clinical competence of neonatal intensive care student nurses: How do we recognise and assess competence in neonatal intensive care nursing students?

2. Investigator names	
Chief Investigator	**Sharon Fraser**
Phone:	**+61 3 6324 3083**
Email:	**Sharon.Fraser@utas.edu.au**
Other Investigator	**Kim Beswick**
Phone:	**+61 3 6324 3167**
Email:	**Kim.Beswick@utas.edu.au**
Other Investigator	**Douglas Colbeck**
Phone:	**+61 3 6324 3379**
Email:	**doug.colbeck@utas.edu.au**
Other Investigator	**Patricia Bromley**
Phone:	**+61 3 6226 4692**
Email:	**Patricia.Bromley@utas.edu.au**

3. Requested changes to project

(These may include, for example, changes in procedure or direction of the project, changes to research personnel, changes in the source or manner of recruitment, or changes in the number of subjects.)

Stage 2: Inclusion of Method Trial of Delphi Technique

Participants will include Lecturers, Teachers and Clinical Facilitators involved in the support and education of undergraduate nursing students in the Bachelor of Nursing at the University of Tasmania.

4. Justification / reasons for the changes

The Researcher wishes to undertake a method trial of Delphi using participants who are teaching into the Bachelor of Nursing, in the School of Health Sciences Nursing & Midwifery, University of Tasmania.

This particular study is important to undertake as the Trial of Delphi:

- Will inform the researcher in operational details associated with the Delphi Technique.
- Results may be used by the UTAS Nursing & Midwifery School of Health Sciences, to inform and support assessment development within the curriculum for the Bachelor of Nursing.

5. Do the changes raise any ethical issues?   Yes ☐   No ☒

If you answered 'YES', please identify these issues below:

6. Do the information sheet and/or consent form need to be changed? Yes ☒ No ☐

If you answered 'YES', please attach new information sheets and consent forms. Track changes must be used when making changes to previously approved documentation. Your amendment can not be assessed if Track Changes is not used.

Please see Appendices for inclusions of:
- Appendix 1: Invitation to participate,
- Appendix 2: Participant Information Sheet,
- Appendix 3: Consent Form,
- Appendix 4: Cover letter outlining the working of the Delphi for round one
- Appendix 5: Instructions for the first-round Delphi questionnaire:
- Appendix 6: Cover letter outlining the working of the Delphi for round two
- Appendix 7: Instructions for the second-round Delphi questionnaire:
- Appendix 8: Cover letter outlining the working of the Delphi for round three
- Appendix 9: Instructions for the third-round Delphi questionnaire:

7. Signatures:

Chief Investigator Name:

Sharon Fraser

Chief Investigator Signature:

Date: 4/3/14

Invitation to Participate

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Lecturer, Teacher, Clinical Facilitator
Nursing & Midwifery
School of Health Sciences
University of Tasmania

Date

Dear Colleague,

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate within the Faculty of Education at the University of Tasmania. My supervisors are Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck.

The development of the new BN curriculum, is an opportune time to review the assessment process for student nurses as they progress through the BN, in particular whether hurdle/sentinel assessment could be used more judiciously throughout the BN.

I am conducting a Delphi study with the aim of identifying what could be sentinel/hurdle assessments for nursing students to progress through the BN.

The inclusion criteria for this study are as follows:

- Must be working as a teacher/academic within the School of Health Sciences, Nursing & Midwifery; or
- Clinical Facilitator of UTAS students as they progress through the BN; and
- Willing to participate

If you meet the inclusion criteria and would be willing to participate in the study, I would be very grateful if you could respond to this email by [insert date]

The study will be carried out using the Delphi technique consisting of 3 questionnaires (known as rounds) aiming to achieve consensus. The questionnaires will be emailed to you with a link to Survey Monkey™. Simple and specific instructions will be provided with each questionnaire.

The amount of time necessary for completion of each questionnaire (round) will vary, but should be approximately 15 – 30 minutes for round 1, 10 – 20 minutes for round 2, and 20-30 minutes for round 3. The whole study should be completed with one month. There are no right or wrong answers to the questions. The project is seeking you expert opinion. I think you will find the process interesting and results will be made available at the conclusion of the study.

It is important you understand that your participation in this project is entirely voluntary. If you do not wish to take part in the study it will not affect your employment or service provided. In addition, any information that you provide will be confidential and when results of the study are reported, you may not be identifiable in the findings. Your name will not be recorded in any rounds; instead, you will be allocated a unique code that can only be identified by the researcher. You will remain anonymous to the other participants (or

experts) throughout this Delphi study and only the researcher will be able to identify your specific answers. Return of the Delphi round questionnaires imply your ongoing consent to participate.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

I have enclosed a Participant Information Statement which explains the research in more detail. If you are interested in participating in this study please contact ne via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

Participant Information Sheet

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

This information sheet is for Lecturers/Teachers and/or Clinical Facilitators employed within the School of Health Sciences, Nursing & Midwifery, who wish to participate in a Delphi Technique study to identify possible Hurdle/Sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing at the University of Tasmania.

This study is being conducted in partial fulfilment of a Doctor of Education for Patricia Bromley under the supervision of Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck

Invitation
The study will be carried out using the Delphi technique consisting of 3 questionnaires (known as rounds) aiming to achieve consensus. The questionnaires will be emailed to you with a link to Survey Monkey™. Simple and specific instructions will be provided with each questionnaire.

What is the purpose of this study?
The aim of this study is to establish consensus from the opinions of experts' (Lecturers, Teachers and/or Clinical Facilitators) on what could be sentinel/hurdle assessments for nursing students to progress through the BN.

Why have I been invited to participate?
You have been invited to participate as you are actively involved in the education and support of UTAS students as they progress through the Bachelor of Nursing. Participation is voluntary and you have the right to withdraw at any time. There are no disadvantages, penalties or adverse consequences for not participating or for withdrawing prematurely from the research.

What will I be asked to do?
If you agree to participate in this project:
1. You will be invited to participate in a Delphi Technique research during March/April 2014
2. You will need to sign a consent form indicating that you have read and understood the participant information statement and consent form
3. You will review the feedback and responses from the final questionnaire for comment
4. Participants will have one week to complete and return each round of the survey, it is anticipated no more than three rounds will be required to complete the Delphi.
5. You will be able to access the final research at the completion of the project

Delphi Technique is a research methodology designed to achieve agreement among experts on certain issues where none has previous existed or where there is uncertainty or a lack of empirical evidence. Conducting a Delphi study will include selecting a panel of experts to undertake a multi-staged process through sequential questionnaires or 'rounds' where feedback from the preceding round transforms group opinion into a consensus. A consensus is usually reached in two or three rounds.

1. Round One: the first questionnaire
   - Once a signed consent form is received by the researcher, participants will receive an email with a link to the first questionnaire. This questionnaire will request demographic information. It will also ask participants questions relating to what, in their opinion, could be sentinel/hurdle assessments for nursing students to progress through the BN.
2. Round Two: the second questionnaire
   - The content of this second questionnaire will be formulated from the responses to the first. The participants' responses will be transcribed verbatim from round one. The participants will be asked to score their agreement to each response using a Likert scale from one to five.
3. Round Three: the third and (potentially) final questionnaire
   - This round provides the participants the opportunity to compare their responses with those of other members. They are invited to change their score or respond with further comments if they wish.

Quotes may be used from this data however it will be de-identified to maintain participants' confidentiality.

Are there any possible benefits from participation in this study?
By participating in this Delphi study, you may be assisting in the establishment judicious hurdle/sentinel assessments for nursing students undertaking the Bachelor of Nursing within the School of Health Sciences, Nursing & Midwifery, UTAS.

Are there any possible risks from participation in this study?
No risk or harm is anticipated from participating in this stage of the project. Anxiety of discomfort may be experienced if conflicting opinions are expressed and unresolved. This will be mitigated by thorough training of the researcher facilitating the discussion in how to identify and manage scenarios in which a participant may feel uncomfortable in a focus group environment. The approach and philosophy underlying the Delphi rounds will be directed towards constructive problem solving.

Participants who experience difficulty or discomfort may talk privately with the researcher or seek counselling support.

What if I change my mind during or after the study?
You are free to withdraw at any time without providing an explanation and request that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the final round. All you need to do is notify the researcher by email or telephone.

What will happen to the information when this study is over?
Consent forms, and other data will be kept in a locked filing cabinet in a locked room at the University of Tasmania, School of Health Sciences, Nursing and Midwifery, Domain Campus. Computer files will be password protected. All data will be archived in a locked filing cabinet in the researcher's office within the University of Tasmania and according to NHMRC guidelines for five years from the date of first publication. After this time, raw data will be shredded and/or deleted from computer files.
All data will be treated in a confidential manner. Due to the nature of such a small specialist expert panel confidentiality cannot be guaranteed. However, during the process, participants will be asked to keep their opinions confidential. There will be no deception of participants either by concealment or covert observation.

How will the results of the study be published?
At the end of the research project, the results of this project will appear in a EdD thesis and may appear in papers, journal articles and in presentation, but you will not be identified in any of these reports.

What if I have questions about this study?
Any questions regarding this project may be directed to:
Patricia Bromley: email patricia.bromley@utas.edu.au or telephone +61 6226 4692

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. You will need to quote [*H0013429*].

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form.
This information sheet is for you to keep.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

Consent Form

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

This consent form is for Lecturers/Teachers and/or Clinical Facilitators employed within the School of Health Sciences, nursing & Midwifery, who wish to participate in a Delphi Technique study to identify possible Hurdle/Sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing at the University of Tasmania.

1. I agree to take part in the research study named above.

2. I have read and understood the Information Sheet for this study.

3. The nature and possible effects of the study have been explained to me.

4. I understand that the study involves participation in a Delphi Technique, this is a multi-staged process achieved through sequential questionnaires or 'rounds' where feedback from the preceding round transforms group opinion into a consensus.

5. I understand that participation involves no foreseeable risk, discomfort or harm to participants

6. I understand that all research data will be securely stored on the University of Tasmania premises for five years from the publication of the study results, and will then be destroyed

7. Any questions that I have asked have been answered to my satisfaction.

8. I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.

9. I understand that the results of the study will be published so that I cannot be identified as a participant.

10. I understand that my participation is voluntary and that I may withdraw at any time without any effect.

    If I so wish, I may request that any data I have supplied be withdrawn from the research within four weeks of the final round.

Participant's name: _____

Participant's signature: _____

Date: _____

Statement by Investigator

☐ I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

☐ The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: _____

Investigator's signature: _____

Date: _____

Cover letter outlining the working of the Delphi for round one

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Dear Expert Panel Member
Re: Sentinel/hurdle assessments for nursing students to progress through the BN
Dear [participant]

Thank you for responding to my email, indicating you meet the inclusion criteria and would like to participate in this study.

The aim of this project is to generate ideas, using Delphi Technique, to identify *What could be sentinel/hurdle assessments for nursing students to progress through the BN?*

It has been identified students in the BN may progress through the BN program and/or enter on PEP without achieving requisite attributes (knowledge, skill, attitude). As the new BN curriculum will be accredited in 2015, this may be an opportune time to reconsider assessments that may be more valid and reliable in evaluating student attributes and learning outcomes, and highlight learning needs to be addressed

The Delphi process is a multi-staged survey to achieve a group consensus from a panel of 'experts' on an important issue (Butterworth & Bishop, 1995; Duffield, 1993; Hasson, Keeney, & McKenna, 2000; Holloway, 2012; Keeney, Hasson, & McKenna, 2006, 2011; Mannix, 2011; McKenna, 1994; Powell, 2003). The technique uses the premise that "group opinion is considered more 'valid' and 'reliable' than individual opinion"(Keeney, et al., 2011). Delphi Technique produces valid expert opinion based on the Lockean notion that "an empirical generalization (or communication) is judged 'objective', 'true' or 'factual' if there is 'sufficient widespread agreement' on it by a group of 'experts'" (Mitroff & Turoff, 2002).

Consensus is usually reached within three rounds, time commitment, it is anticipated that each round should take no more than one hour of your time. Responses will be submitted via the online survey…

The researcher will know the origin of individual responses; however confidentiality of individual's opinions will be maintained by ensuring that any identifying features are omitted.

Participation in this survey will be taken as consenting to participate and, although, it would be judicious to complete the three rounds, it is by no means compulsory. Participants may withdraw at any time during the process.

Please contact the researcher by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692 if you required any further clarification.

Thank you for your participation and assistance in this project.

Regards Trish Bromley
School of health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the first-round Delphi questionnaire:

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Delphi Round one: Identification of sentinel/hurdle assessments for Bachelor of Nursing Students

Please list your answers to the following question. You can list as many as you wish and they do not have to be in any particular order.

Question: *What could be sentinel/hurdle assessments for nursing students to progress through the BN?*

Please complete this questionnaire by [insert date]

The results from this round will be categorised to form the basis for the second-round questionnaire.

Cover letter outlining the working of the Delphi for round two

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Dear Expert Panel Member

Re: Sentinel/hurdle assessments for nursing students to progress through the BN

Thank you for returning the first round Delphi questionnaire. You will now find the second round questionnaire which includes all the responses from your profession in relation to sentinel/hurdle assessments for nursing students to progress through the BN.

The second-round questionnaire is different from the first round and I have provided instructions for completing this round.

If you could complete and return the questionnaire by [insert date] I would be most grateful. If you wish to discuss any aspect of this further, please contact me by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you once again for your participation and assistance in this project.

Regards Trish Bromley
School of health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the second-round Delphi questionnaire:

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Delphi Round two: **Ranking importance of sentinel/hurdle assessment**

The second round of this Delphi lists all the responses from panel members in Round 1. These responses have been content analysed and similar responses grouped together to ensure that the questionnaire is not repetitive and easily completed. The meaning of the responses has not been changed.

You will see a scale beside each sentinel/hurdle assessment. This scale is numbered 1 to 5. Please indicate which you feel best describes whether you agree the sentinel/hurdle should be included in the Bachelor of Nursing. These numbers correspond to a response as below:

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly disagree

Once you have completed the questionnaire click 'submit'

Please complete this questionnaire by [insert date]

Appendix 8

Cover letter outlining the working of the Delphi for round three

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Dear Expert Panel Member

Re: Sentinel/hurdle assessments for nursing students to progress through the BN

Thank you for returning the second round Delphi questionnaire. You will now find a link to the third round Delphi questionnaire which includes details on the sentinel/hurdle assessments for nursing students to progress through the BN that you have been involved in identifying and rating on relation to agreement. You will also find a list of sentinel/hurdle assessments for nursing students to progress through the BN that have reached consensus.

The third round Delphi questionnaire is slightly different from the previous questionnaire; please read the instructions carefully and complete the Delphi questionnaire as fully as you can.

If you could complete and return the questionnaire by [insert date] I would be most grateful. If you wish to discuss any aspect of this further, please contact me by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you for your continued participation in this project.

Regards Trish Bromley
School of health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the third-round Delphi questionnaire:

Hurdle/Sentinel Assessments for the Bachelor of Nursing: What are the experts' (Lecturers, Teachers and/or Clinical Facilitators) views of possible hurdle/sentinel assessments that could be used for nursing students as they progress through the Bachelor of Nursing?

Delphi Round three: **Reaching consensus**

The third round of this Delphi includes those sentinel/hurdle assessments that have not yet reached agreement from the panel. You will see three columns beside each statement.

Column one shows the group response to the sentinel/hurdle assessment. This will appear as a number which corresponds to the same scale as in Round 2 and which is outlined below. Column two shows your own individual response to the sentinel/hurdle assessment. Again this will appear as a number which corresponds to the scale below:

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly disagree

Column three is blank and is provided as an opportunity for you to reconsider your responses since Round 2. I would appreciate it if you would reconsider your original responses in the context of the group responses to each sentinel/hurdle assessment and if you wish to change your response, please do so by indicating clicking the appropriate response beside each sentinel/hurdle assessment. Please note that you do not have to change your original response if you do not wish to.

Once you have completed the questionnaire click 'submit'

Please complete this questionnaire by [insert date]

REFERENCES

Butterworth, T., & Bishop, V. (1995). Identifying the characteristics of optimum practice: findings from a survey of practice experts in nursing, midwifery and health visiting. *Journal of Advanced Nursing, 22*(1), 24-32. doi: 10.1046/j.1365-2648.1995.22010024.x

Duffield, C. (1993). The Delphi technique: a comparison of results obtained using two expert panels. *International Journal of Nursing Studies, 30*(3), 227-237. doi: http://dx.doi.org/10.1016/0020-7489(93)90033-Q

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015. doi: 10.1046/j.1365-2648.2000.t01-1-01567.x

Holloway, K. (2012). Doing the E-Delphi: using online survey tools. *Computers Informatics Nursing, 30*(7), 347-350.

Keeney, S., Hasson, F., & McKenna, H. (2006). Consulting the oracle: ten lessons from using the Delphi technique in nursing research. *Journal of Advanced Nursing, 53*(2), 205-212. doi: 10.1111/j.1365-2648.2006.03716.x

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi Technique in Nursing and Health Research*. Oxford: Wiley-Blackwell.

Mannix, T. (2011). Using the Delphi technique to develop standards for neonatal intensive care nursing education. *Neonatal, Paediatric & Child Health Nursing, 14*(3), 25-36.

McKenna, H. P. (1994). The Delphi technique: a worthwhile research approach for nursing? *Journal of Advanced Nursing, 19*(6), 1221-1225. doi: 10.1111/j.1365-2648.1994.tb01207.x

Mitroff, I., & Turoff, M. (2002). 11. B. Philosophical and Methodological Foundations of Delphi.

Powell, C. (2003). The Delphi technique: myths and realities. *Journal of Advanced Nursing, 41*(4), 376-382. doi: 10.1046/j.1365-2648.2003.02537.x

SOCIAL SCIENCE HREC
AMENDMENT TO APPROVED PROJECT

This form should be completed to apply for amendments to all types of applications previously approved by the Social Science HREC.

Important: Please send an electronic version of this form as a Word document along with the attachments indicated below to **katherine.shaw@utas.edu.au**.

A signed copy of this form also needs to be forwarded electronically.

If you have any questions, please call: 6226 2763

Ethics Reference Number	H0013429	Date: 12/05/14	

1. Title of approved project	
Assessment of clinical competence of neonatal intensive care student nurses: How do we recognise and assess competence in neonatal intensive care nursing students?	

2. Investigator names	
Chief Investigator	**Sharon Fraser**
Phone:	**+61 3 6324 3083**
Email:	**Sharon.Fraser@utas.edu.au**
Other Investigator	**Kim Beswick**
Phone:	**+61 3 6324 3167**
Email:	**Kim.Beswick@utas.edu.au**
Other Investigator	**Douglas Colbeck**
Phone:	**+61 3 6324 3379**
Email:	**doug.colbeck@utas.edu.au**
Other Investigator	**Patricia Bromley**
Phone:	**+61 3 6226 4692**

Email:	Patricia.Bromley@utas.edu.au

3. Requested changes to project

(These may include, for example, changes in procedure or direction of the project, changes to research personnel, changes in the source or manner of recruitment, or changes in the number of subjects.)

1. Change in position descriptor from "neonatal clinical practitioner" to "neonatal nurse clinician"
2. Change in terminology to use "capability" instead of "competence"

4. Justification / reasons for the changes

1. The term "Nurse Practitioner" is a protected title. As my target audience is practitioners of neonatal nursing in general, the ACNN National Committee have advised me to use "neonatal nurse clinician" consistently throughout the documentation.

2. Specialty clinical areas, such as neonatal intensive care, require proficient nurses with skills specific to the job. Stephenson (1992, p. 1) refers to this as "fitness for purpose", where education delivers *Capable* graduands. He stresses that higher education is more than the acquisition of "knowledge and intellectual skill" rather it:

   a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
   b) Prepares the student to be personally effective within the circumstances of their lives and work; and
   c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

   Given the problem with defining competence, by adopting a nomenclature around the concept of *Capability* (capital C) it may be clearer to understand what is meant and what is required.

5. Do the changes raise any ethical issues?   Yes ☐   No ☒

If you answered 'YES', please identify these issues below:

6. Do the information sheet and/or consent form need to be changed? Yes ☒ No ☐

If you answered 'YES', please attach new information sheets and consent forms. Track changes must be used when making changes to previously approved documentation. Your amendment can not be assessed if Track Changes is not used.

Please see Appendices for inclusions of:
- Appendix 1: Invitation to participate,
- Appendix 2: Participant Information Sheet,
- Appendix 3: Consent Form,
- Appendix 4: Cover letter outlining the working of the Delphi for round one
- Appendix 5: Instructions for the first-round Delphi questionnaire:
- Appendix 6: Cover letter outlining the working of the Delphi for round two
- Appendix 7: Instructions for the second-round Delphi questionnaire:
- Appendix 8: Cover letter outlining the working of the Delphi for round three
- Appendix 9: Instructions for the third-round Delphi questionnaire

7. Signatures:

Chief Investigator Name:

Sharon Fraser

Chief Investigator Signature:

Date: 13/5/14

Appendix 1
Invitation to Participate

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate at the University of Tasmania exploring the concept of *Capability* in nursing students undertaking any Postgraduate Certificate of Neonatal Intensive Care in Australia. My supervisors are Dr Sharon Fraser, Dr Kim Beswick, and Dr Doug Colbeck.

This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability*, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

For Stage 2 of my research I am seeking participation from neonatal nurse clinicians to participate in a Delphi Technique study to determine the *Capability* requisites for nursing students undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The inclusion criteria for this study are as follows:
- Must possess a neonatal intensive care qualification: and
- Have 5 or more years of experience at a senior level in Neonatal Intensive Care / Special Care Nursery: and/ or
- At least 5 years' experience as a Neonatal Nurse Educator teaching neonatal intensive care; and
- Be employed within a Neonatal Intensive Care Unit / Special Care Baby Unit or a Tertiary Education Institution in Australia.

The study will be carried out using the Delphi technique consisting of 3 questionnaires (known as rounds) aiming to achieve consensus. A link to each online questionnaire will be emailed to each participant. Simple and specific instructions will be provided with each questionnaire.

The amount of time necessary for completion of each questionnaire (round) will vary, but should be approximately 15 – 30 minutes for round 1, 10 – 20 minutes for round 2, and 20-30 minutes for round 3. The whole study should be completed with three months. There are no right or wrong answers to the questions. The project is seeking you expert opinion. I think you will find the process interesting and results will be made available at the conclusion of the study.

It is important you understand that your participation in this project is entirely voluntary. If you do not wish to take part in the study it will not affect your employment or service provided. In addition, any information that you provide will be confidential and when results of the study are reported, you may not be identifiable in the findings. Your name will not be recorded in any rounds; instead, you will be allocated a unique code that can only be identified by the researcher. You will remain anonymous to the other participants (or experts) throughout this Delphi study and only the researcher will be able to identify your specific answers. Completion of each round of Delphi questionnaires imply your ongoing consent to participate.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

For your information I have enclosed a Participant Information Statement which explains the research in more detail and a consent form. If you are interested in participating and you meet the inclusion criteria please return the signed consent form to me at the following email address. Upon receiving this I will then contact you with further details regarding the Delphi Study.

If you have any further questions please contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

Participant Information Sheet

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of *Capability requisites* of students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least 5 or more years of experience at a senior level in Neonatal Intensive Care / Special Care Nursery , and/or at least 5 years' experience as a Neonatal Nurse Educator teaching neonatal intensive care within Australia, who wish to participate in a Delphi Technique study to determine the *Capability requisites* for student nurses undertaking any Postgraduate Certificate in Neonatal Intensive Care within Australia.

Invitation

This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The study will be conducted in three stages:

1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability* requisites, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

This study is being conducted in partial fulfilment of a Doctor of Education for Patricia Bromley under the supervision of Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck

What is the purpose of this study?

The aim of this second stage of the study is to establish consensus from the opinions of experts' (experienced neonatal nurse clinicians and neonatal nurse educators) on *Capability* requisites of students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Why have I been invited to participate?

You have been identified through the Australian College of Neonatal Nurses (ACNN) as a member of this organisation, who possesses a neonatal intensive care qualification and are a neonatal nurse clinician with at least 5 years' experience at a senior level, or a neonatal nurse educator with at least 5 years teaching experience, and are employed within a Neonatal Intensive Care Unit / Special Care Baby Unit or within a Tertiary Education Institution in Australia.

Participation is voluntary and you have the right to withdraw at any time. There are no disadvantages, penalties or adverse consequences for not participating or for withdrawing prematurely from the research.

What will I be asked to do?

If you agree to participate in this project:

1. You will be invited to participate in a Delphi Technique research during June - August 2014
2. You will need to sign a consent form indicating that you have read and understood the participant information statement and consent form
3. Participants will have three weeks to complete and return each round of the survey, it is anticipated no more than three rounds will be required to complete the Delphi.
4. You will review the feedback and responses from the final questionnaire for comment
5. You will be able to access the final research at the completion of the project

A PARTNERSHIP PROGRAM BETWEEN THE DEPARTMENT OF HEALTH AND HUMAN SERVICES AND THE UNIVERSITY OF TASMANIA

Delphi Technique is a research methodology designed to achieve agreement among experts on certain issues where there is none has previous existed or where there is uncertainty or a lack of empirical evidence. Conducting a Delphi study will include selecting a panel of experts to undertake a multi-staged process through sequential questionnaires or 'rounds' where feedback from the preceding round transforms group opinion into a consensus. A consensus is usually reached in two or three rounds.

1. Round One: the first questionnaire
   - Once signed consent form is received by the researcher, participants will receive an email with a link to the first questionnaire. This questionnaire will request demographic information. It will also ask participants questions relating to what, in their opinion are the *Capability* requisites, for postgraduate nurses undertaking a certificate in neonatal intensive care.
2. Round Two: the second questionnaire
   - The participants' responses to round one will be transcribed and analysed to identify emerging themes. The content of the first questionnaire will form the basis of the second-round questionnaire. The participants will be asked to score their agreement with each response using a Likert scale from one to five.
3. Round Three: the third and (potentially) final questionnaire
   - This round provides the participants the opportunity to compare their responses with those of other members. They are invited to change their score or respond with further comments if they wish.

Quotes may be used from this data however it will be de-identified to maintain participants' confidentiality.

Are there any possible benefits from participation in this study?
By participating in this Delphi study, you may be assisting in the establishment of *Capability* requisites for students in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Are there any possible risks from participation in this study?
No risk or harm is anticipated from participating in this stage of the project. Anxiety or discomfort may be experienced if conflicting opinions are expressed and unresolved. This will be mitigated by thorough training of the researcher facilitating the discussion in how to identify and manage scenarios in which a participant may feel uncomfortable in a focus group environment. The approach and philosophy underlying the Delphi rounds will be directed towards constructive problem solving.

Participants who experience difficulty or discomfort may talk privately with the researcher or seek counselling support.

What if I change my mind during or after the study?
You are free to withdraw at any time without providing an explanation and request that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the final round. All you need do is notify the student investigator by email or telephone.

What will happen to the information when this study is over?
Consent forms, and other data will be kept in a locked filing cabinet in a locked room at the University of Tasmania, School of Health Sciences - Nursing and Midwifery Domain Campus. Computer files will be password protected. All data will be archived in a locked filing cabinet in the researcher's office within the University of Tasmania and according to NHMRC guidelines for five years from the date of first publication. After this time, raw data will be shredded and/or deleted from computer files.

All data will be treated in a confidential manner. Due to the nature of such a small specialist expert panel confidentiality cannot be guaranteed. However, during the process, participants will be asked to keep their opinions confidential. There will be no deception of participants either by concealment or covert observation.

How will the results of the study be published?

At the end of the research project, the results of this project will appear in a EdD thesis and may appear in papers, journal articles and in presentation, but you or your organization will not be identified in any of these reports.

What if I have questions about this study?

Any questions regarding this project may be directed to:

Patricia Bromley: email patricia.bromley@utas.edu.au or telephone +61 6226 4692

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. [*HREC H0013429*].

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form and return it to the researcher.
This information sheet is for you to keep.

Appendix 3

Consent Form

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of *Capability* requisites of students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

This consent form is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least 5 years of experience at a senior level in Neonatal Intensive Care / Special Care Nursery, and/or as a Neonatal Nurse Educator with at least 5 years' experience teaching neonatal intensive care, within Australia, who wish to participate in a Delphi Technique study to determine the Capability requisites for students undertaking any Postgraduate Certificate in Neonatal Intensive Care Nursing within Australia.

1. I agree to take part in the research study named above.
2. I have read and understood the Information Sheet for this study.
3. The nature and possible effects of the study have been explained to me.
4. I understand that the study involves participation in a Delphi Technique, this is a multi-staged process achieved through sequential questionnaires or 'rounds' where feedback from the preceding round transforms group opinion toward a consensus.
5. I understand that participation involves no foreseeable risk, discomfort or harm to participants
6. I understand that all research data will be securely stored on the University of Tasmania premises for five years from the publication of the study results, and will then be destroyed
7. Any questions that I have asked have been answered to my satisfaction.
8. I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.
9. I understand that the results of the study will be published so that I cannot be identified as a participant.
10. I understand that my participation is voluntary and that I may withdraw at any time without any effect. If I so wish, I may request that any data I have supplied be withdrawn from the research within four weeks of the date of the final round.

Participant's name: _____

Participant's signature: _____

Date: _____

Statement by Investigator

☐   I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

☐   The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: _____

Investigator's signature: _____

Date: _____

Cover letter outlining the working of the Delphi for round one

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Dear Expert Panel Member

Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Thank you for responding to my email, indicating you meet the inclusion criteria and would like to participate in this study.

Much of the problem with evaluating clinical competence in nursing has been the confusion as to the definition of competence (Buckingham, 2000). The terms *competent*, *competence*, *competency* and *competencies* have often been interpreted as the same thing. It has been implied that competency 'is', whereas competencies are the skills to be assessed and, if successful in demonstrating these competencies, the nurse can be deemed competent (Tzeng, 2004). This ambiguity in terminology has had an influence on the *measurement* of competence and led to the emergence of unsystematic, unreliable and un-validated evaluation tools (Calman, 2006; Evans, 2008; Redfern, Norman, Calman, Watson, & Murrells, 2002; Watson, Stimpson, Topping, & Porock, 2002; Wilkinson, 2013). It is important to provide students with clear expectations in order to develop well-prepared postgraduate specialist nurses.

Specialty clinical areas, such as neonatal intensive care, require proficient nurses with skills specific to the job. Stephenson (1992, p. 1) refers to this as "fitness *for* purpose", where education delivers *Capable* graduands. He stresses that higher education is more than the acquisition of "knowledge and intellectual skill", it also:

a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;

b) Prepares the student to be personally effective within the circumstances of their lives and work; and

c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Given the problem with defining competence, adopting the concept of *Capability* (capital C) it may be clearer to understand what is meant and what is required.

Stephenson (1992) describes a potential problem with defining capability such as "it is easier to recognise than to measure" (1992, p. 1), and explains that in the past, in an attempt to measure capability educationists have been tempted to reduce capability to "separately measurable competences" (1992, p. 1). As a consequence he has developed a working definition for *Capability*:

> ***Capable people have confidence in their ability to***
> - ***Take effective and appropriate action,***
> - ***Explain what they are about,***
> - ***Live and work effectively with others, and***
> - ***Continue to learn from their experience***
>
> ***as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).***

The aim of this project is to generate ideas, using Delphi Technique, to identify what are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

The Delphi process is a multi-staged survey to achieve a group consensus from a panel of 'experts' on an important issue (Hasson, Keeney, & McKenna, 2000; Keeney, Hasson, & McKenna, 2006, 2011; McKenna, 1994). The technique uses the premise that "group opinion is considered more 'valid' and 'reliable' than individual opinion"(Keeney, et al., 2011). Delphi Technique produces valid expert opinion based on the philosophy of Lockean Inquiry, in that "an

empirical generalization (or communication) is judged 'objective', 'true' or 'factual' if there is 'sufficient widespread agreement' on it by a group of 'experts'" (Mitroff & Turoff, 2002).

Consensus is usually reached within three rounds, time commitment, it is anticipated that each round should take no more than one hour of your time. Responses will be submitted online survey tool.

The researcher will know the origin of individual responses; however confidentiality of individual's opinions will be maintained by ensuring that any identifying features are omitted.

Participation in this survey will be taken as consenting to participate and, although, it would be judicious to complete the three rounds, it is by no means compulsory. Participants may withdraw at any time during the process.

Please contact the researcher by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692 if you require any further clarification.

Thank you for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the first-round Delphi questionnaire:

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Delphi Round one: **Identification of *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.**

Capable graduands:
Where higher education is more than the acquisition of "knowledge and intellectual skill", it also:
a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
b) Prepares the student to be personally effective within the circumstances of their lives and work; and
c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Definition for *Capability*:
Capable people have confidence in their ability to
- *Take effective and appropriate action,*
- *Explain what they are about,*
- *Live and work effectively with others, and*
- *Continue to learn from their experience*

as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).

Please list your answers to the following question. You can list as many as you wish and they do not have to be in any particular order.

Question 1: What are your views of *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Please complete this questionnaire by [insert date]

The results from this round will be categorised to form the basis for the second-round questionnaire.

Cover letter outlining the working of the Delphi for round two

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Dear Expert Panel Member
Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Thank you for returning the first round Delphi questionnaire.

The aim of this project is to generate ideas, using Delphi Technique, to identify what are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Capable graduands:
Where higher education is more than the acquisition of "knowledge and intellectual skill", it also:
  d) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
  e) Prepares the student to be personally effective within the circumstances of their lives and work; and
  f) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Definition for *Capability*:
  Capable people have confidence in their ability to
  - *Take effective and appropriate action,*
  - *Explain what they are about,*
  - *Live and work effectively with others, and*
  - *Continue to learn from their experience*
  as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).

You will now find the second round questionnaire which includes all the responses from your profession in relation to *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

The second-round questionnaire is different from the first round and I have provided instructions for completing this round.

If you could complete and return the questionnaire by [insert date] I would be most grateful. If you wish to discuss any aspect of this further, please contact me by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you once again for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

A PARTNERSHIP PROGRAM BETWEEN THE DEPARTMENT OF HEALTH AND HUMAN SERVICES AND THE UNIVERSITY OF TASMANIA

Instructions for the second-round Delphi questionnaire:

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Delphi Round two: **Ranking of *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care**

The second round of this Delphi lists the responses from panel members in Round 1. These responses have been content analysed and similar responses grouped together in themes to ensure that the questionnaire is not repetitive and easy to complete. The meanings of the responses have not been changed.

The purpose of this exercise is to generate an **agreement on the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care**

Round 2 has two steps: Firstly, please indicate which you feel best describes whether you agree the particular requisite should be included within the Postgraduate Certificate in Neonatal Intensive Care, and secondly, when would you expect the student to develop these *Capabilities*.

You will see a scale beside each sentinel/hurdle assessment. This scale is numbered 1 to 5.
These numbers correspond to a response as below:

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly disagree

Question 2: Within the 12 month course when would you expect the students to develop these *Capabilities?*

1. Prerequisite
2. Three months
3. Six months
4. Nine months
5. Graduation

Once you have completed the questionnaire click 'done' to submit your responses

Please complete this questionnaire by [insert date].

Cover letter outlining the working of the Delphi for round three

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Dear Expert Panel Member

Re: *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Thank you for returning the second round Delphi questionnaire.

Attached to this email you will find a PDF document for the third round Delphi questionnaire. It includes details on the *Capability* requisites you have identified and rated in relation to agreement. Within this document, the *Capability* requisites that have reached consensus are highlighted in yellow.

The third round Delphi questionnaire is slightly different from the previous questionnaire; please read the instructions carefully and complete the Delphi questionnaire as fully as you can.

Please print off the questionnaire to complete this final round of the Delphi survey. If you could email the completed questionnaire back to me by [insert date] I would be most grateful.

If you wish to discuss any aspect of this further, please contact me by email or telephone.

Thank you for your continued participation in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

Instructions for the third-round Delphi questionnaire:

Assessment of *Capability* of neonatal intensive care student nurses: Part 2 - What are the experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability* requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia?

Delphi Round three: **Reaching consensus**

The third round of this Delphi includes those *Capability* requisites that have not yet reached agreement from the panel. You will see three columns beside each statement.

Column one shows the group response to the *Capability* requisites. This will appear as a number which corresponds to the same scale as in Round 2 and which is outlined below. Column two shows your own individual response to the *Capability* requisite. Again this will appear as a number which corresponds to the scale below:

1. Strongly agree
2. Agree
3. Neither agree or disagree
4. Disagree
5. Strongly disagree

Column three is blank and is provided as an opportunity for you to reconsider your responses since Round 2. I would appreciate it if you would reconsider your original responses in the context of the group responses to each *Capability* requisite and if you wish to change your response, please do so by indicating in the appropriate response beside the identifies *Capability*. Please note that you do not have to change your original response if you do not wish to.

Once you have completed the questionnaire please email the complete questionnaire with your final responses to me at paticia.bromley@utas.edu.au

Please complete and return this questionnaire by [insert date]

REFERENCES

Buckingham, S. (2000). Review : Clinical competency: the right assessment tools? *Journal of Child Health Care, 4*(1), 19-22. doi: 10.1177/136749350000400103

Calman, L. (2006). Patients' views of nurses' competence. *Nurse Education in Practice, 6*(6), 411-417.

Evans, A. (2008). Competency Assessment in Nursing: A summary of literature published since 2000 (pp. 75): National Education Framework Cancer Nursing (EdCaN).

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015. doi: 10.1046/j.1365-2648.2000.t01-1-01567.x

Keeney, S., Hasson, F., & McKenna, H. (2006). Consulting the oracle: ten lessons from using the Delphi technique in nursing research. *Journal of Advanced Nursing, 53*(2), 205-212. doi: 10.1111/j.1365-2648.2006.03716.x

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi Technique in Nursing and Health Research*. Oxford: Wiley-Blackwell.

McKenna, H. P. (1994). The Delphi technique: a worthwhile research approach for nursing? *Journal of Advanced Nursing, 19*(6), 1221-1225. doi: 10.1111/j.1365-2648.1994.tb01207.x

Mitroff, I., & Turoff, M. (2002). 11. B. Philosophical and Methodological Foundations of Delphi.

Redfern, S., Norman, I., Calman, L., Watson, R., & Murrells, T. (2002). Assessing competence to practise in nursing: a review of the literature. *Research Papers in Education, 17*(1), 51-77. doi: 10.1080/02671520110058714

Stephenson, J. (1992). QUALITY IN LEARNING: A Capability Approach in Higher Education. from Kogan Page Ltd http://www.johnstephenson.net/qinlintro.htm

Tzeng, H.-M. (2004). Nurses' self-assessment of their nursing competencies, job satisfaction and job performance in the Taiwan hospital system. *International Journal of Nursing Studies, 41*, 487-496. doi: 10.1016/j.ijnurstu.2003.12.002

Watson, R., Stimpson, A., Topping, A., & Porock, D. (2002). Capability assessment in nursing: a systematic review of the literature. *Journal of Advanced Nursing, 39*(5), 421-431. doi: 10.1046/j.1365-2648.2002.02307.x

Wilkinson, C. A. (2013). Competency Assessment Tools for Registered Nurses: An Integrative Review. *The Journal of Continuing Education in Nursing, 44*(1), 31-37.

UTAS

SOCIAL SCIENCE HREC
AMENDMENT TO APPROVED PROJECT

This form should be completed to apply for amendments to all types of applications previously approved by the Social Science HREC.

Important: Please send an electronic version of this form as a Word document along with the attachments indicated below to **katherine.shaw@utas.edu.au**.
A signed copy of this form also needs to be forwarded electronically.

If you have any questions, please call: 6226 2763

Ethics Reference Number	H0013429	Date: 24/08/15	

1. Title of approved project	
Assessment of clinical competence of neonatal intensive care student nurses: How do we recognise and assess Capability in neonatal intensive care nursing students?	

2. Investigator names	
Chief Investigator	**Sharon Fraser**
Phone:	**+61 3 6324 3083**
Email:	**Sharon.Fraser@utas.edu.au**
Other Investigator	**Kim Beswick**
Phone:	**+61 3 6324 3167**
Email:	**Kim.Beswick@utas.edu.au**
Other Investigator	**Douglas Colbeck**
Phone:	**+61 3 6324 3379**
Email:	**doug.colbeck@utas.edu.au**
Other Investigator	**Patricia Bromley**
Phone:	**+61 3 6226 4692**
Email:	**Patricia.Bromley@utas.edu.au**

3. Requested changes to project

(These may include, for example, changes in procedure or direction of the project, changes to research personnel, changes in the source or manner of recruitment, or changes in the number of subjects.)

1. Change the research method for stage 3 from online survey to semi-structured person-to-person interview via electronic media (telephone conference call/Lync/Skype).

Person-to-person semi-structured interviews are an innovative and interactive process where interviewer and participant explore interpretations of events, to create awareness of and make meaning of those events. Semi-structured interviews incorporate a number of open-ended questions which allows the researcher to explore the issues from the perspective of those involved (Hansen, 2006).

1. Participants will be contacted by electronic media (Skype/Lync/telephone conference call) at a time and date to their suiting between October and December 2015
2. It is anticipated the interviews will take no longer than 60 minutes to complete.
3. Interviews will be recorded for the purpose of analysis of the data captured.
4. Participants will be asked to engage in a discussion to elicit their views on the evidence they see which demonstrates *Capability* in students undertaking a Postgraduate Certificate in Neonatal Intensive Care Nursing at various stages in the program.
5. Participants will be provided with a framework of *Capability Requisites,* which were identified in the previous stage of this research, prior to the interview to assist in clarifying thoughts.

Quotes may be used from this data however it will be de-identified to maintain participants' confidentiality.

Recruitment will be through purposive or *judgmental sampling* by selecting individuals who possess predetermined characteristics (Babbie, 2011). Qualitative research requires in-depth study and smaller sample sizes, and therefore the strength of purposive sampling lies in the quality of information obtained rather than the number to generalise the population (Hansen, 2006) . To avoid coercion the Australian College of Neonatal Nurses (ACNN) will facilitate the process by emailing potential participants the Participant Information Sheet and Consent Form. Interested participants who meet inclusion criteria are asked to return the signed consent form to the researcher. Upon receiving this the researcher will then contact the participant with further details regarding a suitable time for the interview.

Participants must possess a neonatal intensive care qualification and have ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load to nurses undertaking the PG Cert NIC

Anonymity: All data will be treated in a confidential manner. Due to the nature of such a small specialist expert panel confidentiality cannot be guaranteed. However, during the process, participants will be asked to keep their opinions confidential. There will be no deception of participants either by concealment or covert observation.

4. Justification / reasons for the changes

The results from the second stage of this research identified the need for more qualitative data to provide nuances in relation to the evidence that students provide of their Capability. It is considered that personal interviews would be more effective in probing for answers and to clarify any misunderstandings and would elicit rich in-depth data.

      a. Semi-structured interviews facilitate an in-depth understanding (Hansen, 2006)

      b. Sufficiency of numbers - Interviews are well suited to studies with small numbers of participants (Hansen, 2006)

5. Do the changes raise any ethical issues?   Yes ☐ No ☒

If you answered 'YES', please identify these issues below:

6. Do the information sheet and/or consent form need to be changed? Yes ☒ No ☐

If you answered 'YES', please attach new information sheets and consent forms. Track changes must be used when making changes to previously approved documentation. Your amendment can not be assessed if Track Changes is not used.

Please see Appendices for inclusions of:

- Appendix 1: Invitation to participate,
- Appendix 2: Participant Information Sheet,
- Appendix 3: Consent Form,
- Appendix 4: Cover letter outlining the working of the Previous stages of this research and situates the third stage.

7. Signatures:

Chief Investigator Name:

Sharon Fraser

Chief Investigator Signature:

Date: XX/XX/XX

Assessment of *Capability* of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

My name is Patricia Bromley; I am a lecturer in the School of Health Sciences, Nursing and Midwifery, University of Tasmania. I am an EdD candidate at the University of Tasmania exploring the concept of *Capability* in nursing students undertaking any Postgraduate Certificate of Neonatal Intensive Care in Australia. My supervisors are Dr Sharon Fraser, Dr Kim Beswick, and Dr Doug Colbeck.

This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia.

The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability*, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

For **Stage 3** of my research I am seeking participation from neonatal nurse clinicians to participate in person-to-person interviews to determine what it is that students ***demonstrate*** that ***provides evidence*** of *Capability* in registered nurses undertaking any PG Cert NIC in Australia.

The inclusion criteria for this study are:

- Must possess a neonatal intensive care qualification and
- Have ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load to nurses undertaking the Postgraduate Certificate in Neonatal Intensive Care

The study will be carried out using person-to-person interviews.

The amount of time necessary for completion of each interview will vary, but should be approximately 60 minutes. The project is seeking your expert opinion. I think you will find the process interesting and results will be made available at the conclusion of the study.

It is important you understand that your participation in this project is entirely voluntary. If you do not wish to take part in the study it will not affect your employment or service provided. In addition, any information that you provide will be confidential and when results of the study are reported, you may not be identifiable in the findings. Your name will not be recorded instead, you will be allocated a unique code that can only be identified by the researcher. You will remain anonymous to the other participants (or experts) throughout the study and only the researcher will be able to identify your specific answers.

This research has ethics approval from the University of Tasmania as well as Department of Health and Human Services Human Research Ethics Committee (Tasmania) Network (H0013429).

For your information I have enclosed a Participant Information Statement which explains the research in more detail and a consent form. If you are interested in participating and you meet the inclusion criteria please return the signed consent form to me at the following email address. Upon receiving this I will then contact you with further details regarding a suitable time for the interview.

If you have any further questions please contact me via email patricia.bromley@utas.edu.au or telephone: (03) 6226 4692.

Thank you very much in anticipation.

Yours sincerely

Patricia Bromley RN, NICU Cert, MEd
Lecturer, School of Health Sciences, Nursing and Midwifery,
University of Tasmania

Participant Information Sheet

Assessment of *Capability* of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load, and who wish to participate in a person-to-person interview via electronic media (Skype/Lync/telephone conference call) to identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

Invitation
This project seeks to better understand how we assess *Capability* in the student nurse undertaking any Postgraduate Certificate in Neonatal Intensive Care (PG Cert NIC) in Australia.
The study will be conducted in three stages:
1. To identify what might be the expected graduate attributes from postgraduate nurses of neonatal intensive care courses in Australia;
2. To reach consensus on *Capability* requisites, what is expected of postgraduate students of neonatal intensive care courses in Australia; and
3. To identify what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

This study is being conducted in partial fulfilment of a Doctor of Education for Patricia Bromley under the supervision of Dr. Sharon Fraser, Dr. Kim Beswick, and Dr. Doug Colbeck

What is the purpose of this study?
The aim of this third stage of the study is to establish from the opinions of experts' (experienced neonatal nurse clinicians) what it is that students demonstrate that provides evidence of *Capability* in neonatal intensive care units in Australia.

Why have I been invited to participate?
You have been identified through the Australian College of Neonatal Nurses (ACNN) as a member of this organisation, who possesses a neonatal intensive care qualification and are a neonatal nurse clinician with at least ten (10) years' experience employed within a Neonatal Intensive Care Unit / Special Care Baby Unit who also has responsibility for consigning patient load to students undertaking the PG Cert NIC. Participation is voluntary and you have the right to withdraw at any time. There are no disadvantages, penalties or adverse consequences for not participating or for withdrawing prematurely from the research.

What will I be asked to do?
If you agree to participate in this project:
1. You will be invited to participate in a person-to person semi-structured interview via electronic media (Skype/Lync/telephone conference call) between October and December 2015.
2. You will need to sign a consent form indicating that you have read and understood the participant information statement and consent form.
3. It is anticipated the interviews will take no longer than 60 minutes to complete.

4. Interviews will be recorded for the purpose of analysis of the data captured.
5. You will be able to access the final research at the completion of the project

Person-to-person semi-structured interviews are an innovative and interactive process where interviewer and participant explore interpretations of events, to create awareness of and make meaning of those events. Semi-structured interviews incorporate a number of open-ended questions which allows the researcher to explore the issues from the perspective of those involved (Hansen, 2006).

- Participants will be contacted by electronic media (Skype/Lync/telephone conference call) at a time and date to their suiting between October and December 2015
- Interviews will be recorded for the purpose of analysis of the data captured.
- Participants will be asked to engage in a discussion to elicit their views on the evidence they see which demonstrates *Capability* in students undertaking a Postgraduate Certificate in Neonatal Intensive Care Nursing at various stages in the program.
- Participants will be provided with a framework of *Capability Requisites,* which were identified in the previous stage of this research, prior to the interview to assist in clarifying thoughts.

Quotes may be used from this data however it will be de-identified to maintain participants' confidentiality.

Are there any possible benefits from participation in this study?
By participating in this person-to-person interview, you may be assisting in the establishment of *Capability Framework* for students in any Postgraduate Certificate in Neonatal Intensive Care in Australia.

Are there any possible risks from participation in this study?
No risk or harm is anticipated from participating in this stage of the project.

What if I change my mind during or after the study?

You are free to withdraw at any time without providing an explanation and request that data arising from your participation are not used in the research project provided that this right is exercised within four weeks of the interview. All you need do is notify the student investigator by email or telephone.

What will happen to the information when this study is over?
Consent forms, and other data will be kept in a locked filing cabinet in a locked room at the University of Tasmania, School of Health Sciences - Nursing and Midwifery Domain Campus. Computer files will be password protected. All data will be archived in a locked filing cabinet in the researcher's office within the University of Tasmania and according to NHMRC guidelines for five years from the date of first publication. After this time, raw data will be shredded and/or deleted from computer files.
All data will be treated in a confidential manner. There will be no deception of participants either by concealment or covert observation.

How will the results of the study be published?
At the end of the research project, the results of this project will appear in a EdD thesis and may appear in papers, journal articles and in presentations, but you or your organization will not be identified in any of these reports.

What if I have questions about this study?
Any questions regarding this project may be directed to:
Patricia Bromley: email patricia.bromley@utas.edu.au or telephone +61 6226 4692

This study has been approved by the Tasmanian Social Science Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study should contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. [*HREC H0013429*].

Thank you for taking the time to consider this study.
If you wish to take part in it, please sign the attached consent form and return it to the researcher.
This information sheet is for you to keep.

Appendix 3

Consent Form

Assessment of Capability of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load, and who wish to participate in a person-to-person interview via electronic media (Skype/Lync/telephone conference call) to identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

1. I agree to take part in the research study named above.
2. I have read and understood the Information Sheet for this study.
3. The nature and possible effects of the study have been explained to me.
4. I understand that the study involves participation in a person-to-person semi-structured interview via electronic means (telephone conference call/Skype/Lync).
5. I understand interviews will be recorded for the purpose of analysis of the data captured.
6. I understand that participation involves no foreseeable risk, discomfort or harm to participants
7. I understand that all research data will be securely stored on the University of Tasmania premises for five years from the publication of the study results, and will then be destroyed
8. Any questions that I have asked have been answered to my satisfaction.
9. I understand that the researcher(s) will maintain confidentiality and that any information I supply to the researcher(s) will be used only for the purposes of the research.
10. I understand that the results of the study will be published so that I cannot be identified as a participant.
11. I understand that my participation is voluntary and that I may withdraw at any time without any effect. If I so wish, I may request that any data I have supplied be withdrawn from the research within four weeks of the interview.

Participant's name: _____

Participant's signature: _____Date: _____

Statement by Investigator

☐ I have explained the project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he/she understands the implications of participation.

If the Investigator has not had an opportunity to talk to participants prior to them participating, the following must be ticked.

☐ The participant has received the Information Sheet where my details have been provided so participants have had the opportunity to contact me prior to consenting to participate in this project.

Investigator's name: _____

Investigator's signature: _____

Date: _____

A PARTNERSHIP PROGRAM BETWEEN THE DEPARTMENT OF HEALTH AND HUMAN SERVICES AND THE UNIVERSITY OF TASMANIA

Cover letter outlining the working of the previous stages of this research and situates this third stage.

Assessment of Capability of neonatal intensive care student nurses:

Part 3: To identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

This information sheet is for neonatal nurse clinicians who possess a neonatal intensive care qualification, who have at least ten (10) or more years of experience in Neonatal Intensive Care / Special Care Nursery with responsibility for consigning patient load, and who wish to participate in a person-to-person interview via electronic media (Skype/Lync/telephone conference call) to identify what it is that students demonstrate that provides evidence of Capability in neonatal intensive care units in Australia.

Dear Experienced Neonatal Nurse
Re: *Capability* **requisites of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia.**
Thank you for responding to my email, indicating you meet the inclusion criteria and would like to participate in this study.

Much of the problem with evaluating clinical competence in nursing has been the confusion as to the definition of competence (Buckingham, 2000). The terms *competent*, *competence*, *competency* and *competencies* have often been interpreted as the same thing. It has been implied that competency 'is', whereas competencies are the skills to be assessed and, if successful in demonstrating these competencies, the nurse can be deemed competent (Tzeng, 2004). This ambiguity in terminology has had an influence on the *measurement* of competence and led to the emergence of unsystematic, unreliable and un-validated evaluation tools (Calman, 2006; Evans, 2008; Redfern, Norman, Calman, Watson, & Murrells, 2002; Watson, Stimpson, Topping, & Porock, 2002; Wilkinson, 2013). It is important to provide students with clear expectations in order to develop well-prepared postgraduate specialist nurses.

Specialty clinical areas, such as neonatal intensive care, require proficient nurses with skills specific to the job. Stephenson (1992, p. 1) refers to this as "fitness *of* and *for* purpose", where education delivers *Capable* graduands. He stresses that higher education is more than the acquisition of "knowledge and intellectual skill", it also:
   a) Gives the students confidence and ability to take responsibility for their own continuing personal and professional development;
   b) Prepares the student to be personally effective within the circumstances of their lives and work; and
   c) Promotes the pursuit of excellence in the development, acquisition and application of knowledge and skills.

Stephenson (1992) describes a potential problem with defining capability as "it is easier to recognise than to measure" (1992, p. 1), and explains that in the past, in an attempt to measure capability educationists have been tempted to reduce capability to "separately measurable competences" (1992, p. 1). As a consequence he has developed a working definition for *Capability*:
   Capable people have confidence in their ability to
   - ***Take effective and appropriate action,***
   - ***Explain what they are about,***
   - ***Live and work effectively with others, and***
   - ***Continue to learn from their experience***
   as individuals and in association with others, in a diverse and changing society (Stephenson, 1992, p. 1).

Stephenson (1998) concept of capability allows for periods of great change, where people are required to have the ability to work effectively and efficiently in new and demanding contexts. Nursing education requires the preparation of graduates who are able to actively and effectively participate in changing circumstance. Not just competent graduates

(dealing with the here and now, confident in dealing with familiar problems with learnt familiar solutions, which may or may not require high level knowledge and technical skill) but capable graduates who are forward looking, confidently working in unfamiliar contexts, solving unfamiliar problems.

The preceding stage of this project employed the Delphi process to identify experts' (experienced neonatal nurse clinicians and neonatal nurse educators) views of the *Capability requisites* of nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia. The aim of Stage 3 of this research is to identify how these *Capabilities* are evidenced in nursing students enrolled in any Postgraduate Certificate in Neonatal Intensive Care in Australia in clinical practice.

Participation in this interview will be taken as consenting to participate however participants may withdraw at any time during the process.

Please contact the researcher by email: patricia.bromley@utas.edu.au or telephone: (03) 6226 4692 if you require any further clarification.

Thank you for your participation and assistance in this project.

Regards Trish Bromley
School of Health Sciences, Nursing & Midwifery
University of Tasmania

REFERENCES

Babbie, E. (2011). *The basics of social research* (5th ed.). Belmont, CA: Wadsworth Cengage Learning.

Buckingham, S. (2000). Review : Clinical competency: the right assessment tools? *Journal of Child Health Care, 4*(1), 19-22. doi: 10.1177/136749350000400103

Calman, L. (2006). Patients' views of nurses' competence. *Nurse Education in Practice, 6*(6), 411-417.

Evans, A. (2008). Competency Assessment in Nursing: A summary of literature published since 2000 (pp. 75): National Education Framework Cancer Nursing (EdCaN).

Hansen, E. C. (2006). *Successful qualitative health research: A practical introduction*. Crows Nest, Australia: Allen & Unwin.

Redfern, S., Norman, I., Calman, L., Watson, R., & Murrells, T. (2002). Assessing competence to practise in nursing: a review of the literature. *Research Papers in Education, 17*(1), 51-77. doi: 10.1080/02671520110058714

Stephenson, J. (1992). Quality in Learning: A Capability Approach in Higher Education. from Kogan Page Ltd http://www.johnstephenson.net/qinlintro.htm

Stephenson, J. (1998). The Concept of Capability and its Importance in Higher education. In J. Stephenson & M. Yorke (Eds.), *Capability and Quality in Higher Education.* (pp. 1-13). London: Kogan Page.

Tzeng, H.-M. (2004). Nurses' self-assessment of their nursing competencies, job satisfaction and job performance in the Taiwan hospital system. *International Journal of Nursing Studies, 41*, 487-496. doi: 10.1016/j.ijnurstu.2003.12.002

Watson, R., Stimpson, A., Topping, A., & Porock, D. (2002). Clinical competence assessment in nursing: a systematic review of the literature. *Journal of Advanced Nursing, 39*(5), 421-431. doi: 10.1046/j.1365-2648.2002.02307.x

Wilkinson, C. A. (2013). Competency Assessment Tools for Registered Nurses: An Integrative Review. *The Journal of Continuing Education in Nursing, 44*(1), 31-37.

Appendix H: Permission to Use Publications

Permission was sought from Elsevier to use the PDF copies of my published articles. The following is a copy of an email giving that permission.

Dear Patricia,

Thank you for your enquiry. Your email below has been forwarded to my attention at Elsevier. I can confirm that you do have permission to include the PDFs of the published journal articles listed in your email below in your thesis. Further information about authors' rights to share journal content are listed here: https://www.elsevier.com/about/our-business/policies/sharing#Published-article

Thank you for your contribution to the *Journal of Neonatal Nursing* and with all best wishes for the submission of your thesis.

Best regards,

Peter

Peter W Harrison PhD, Vice President | Health & Medical Sciences, STM Journals **| Elsevier |**
1600 John F. Kennedy Boulevard, Suite 1800, Philadelphia, PA 19103, USA **|**T (+1) 215-239-3309 **|** M (+1) 267-283-6353 **|**

On 13 Jan 2018, at 23:25, Patricia Bromley <p.i.bromley@utas.edu.au> wrote:

> Hi Dee,
> I hope this email find you well and you had an enjoyable Christmas and New Year.
>
> I am on the final stages of writing up my thesis with publications, I plan to submit 31st January 2018. I would like to insert PDFs of my published journal articles within the thesis.
> As part of this I am required to have written permission from the publishers. I am not sure where I need to go to seek this permission. I was wondering if you might be able to guide me here.
>
> I am seeking permission for the following journal articles:
> - Bromley, P. (2014). Clinical competence of neonatal intensive care nursing students: How do we evaluate the application of knowledge in students of postgraduate certificate in neonatal intensive care nursing? Journal of Neonatal Nursing, 20(4), 140-146. doi: http://dx.doi.org/10.1016/j.jnn.2014.02.002
> - Bromley, P. (2014). Using Nominal Group Technique (NGT) to reach consensus on Graduate Attributes for nurses undertaking Postgraduate Certification in Neonatal Intensive Care in Australia. Journal of Neonatal Nursing, 20(6), 245-252. doi: 10.1016/j.jnn.2014.08.002

Bromley, P. (2015). Using eDelphi to identify capability requisites for postgraduate certificate in Neonatal Intensive Care Nursing. Journal of Neonatal Nursing, 21(6), 224-236. doi: http://dx.doi.org/10.1016/j.jnn.2015.09.003

- Bromley, P. (2017). Capability: How is it recognised in student nurses undertaking postgraduate studies in neonatal intensive care? Journal of Neonatal Nursing. doi: 10.1016/j.jnn.2017.08.004

I look forward to hearing from you.

Kind Regards Patricia Bromley
Unit Coordinator Neonatal Specialty Stream Postgraduate
Studies

| **Patricia Bromley RN EdD Candidate, MEd, Midwifery, NICU, Paediatric Certs and Diploma in Tropical Nursing**
| **Unit Coordinator Postgraduate Neonatal Studies**
| **Content Lead Neonatal Specialist Studies**
| **Australian College of Neonatal Nurses Neonatal Nurse Education Special Interest Group**
| Lecturer |
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| Tel: +61 3 6226 4692 | Fax: +61 3 6226 4690 |
| Email: patricia.bromley@utas.edu.au | Web: www.utas.edu.au/health |
| CRICOS Provider Code: 00586B |