Exploring registered nurses’ attitudes to postgraduate education for specialty practice in Australia

Linda Chiew Hwoon Ng
LLB, BN, MN,
Postgraduate Certificate of Nursing Science (Intensive Care),
Graduate Certificate in Nursing (Neonatal Intensive Care Nursing)

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School of Nursing, Midwifery and Social Work
Abstract

Background
Nursing education is designed to prepare competent nurses to meet the current and future healthcare needs of society. Specialist nurses require advanced education to increase their ability to influence patient care positively, deliver optimal care and improve patient outcomes.

According to a study by the Australian Nursing Federation, there is evidence of a substantial link between nursing education levels, specifically critical thinking skills, and patient outcomes. Many studies have shown that advanced education for registered nurses increases the ability to influence patient care positively, which improves care delivery, by both reducing the risk of adverse events and evaluating therapies. Research has clearly shown that healthcare administration at all echelons, including business, medical, nursing, financial and legal aspects, would benefit from examining ways to facilitate nurses’ undertaking advanced nursing education.

The literature review undertaken as part of this PhD research showed that there are many issues affecting the decision by registered nurses to undertake postgraduate education, in particular their own experiences as well as the attitudes of others. The literature provides some insight into the facilitators and barriers faced by registered nurses in undertaking postgraduate education as well as the benefits they perceive as accruing from such study. By identifying barriers that nurses face in gaining further education, this research aimed to attain new knowledge that will lead to strategies to be used by nursing administration and higher education providers to promote the continuation of advanced education for nurses. The findings from this research may be useful for supporting and fostering working nurses’ experiences and attitudes.

Aim
The primary aim of this research was to explore registered nurses’ attitudes towards postgraduate education in Australia. This included identifying the facilitators of and barriers to postgraduate education and the effects of postgraduate education on registered nurses’ intention to remain in nursing. To advance the profession and provide excellent patient care, barriers that hinder nurses from participating in advanced education should be identified and then properly addressed. Identifying the factors that influence the reason nurses decide to advance their education will help health administrators and higher education providers to develop programs that will promote an environment that supports education advancement.
Research Design
This PhD research followed a sequential mixed-methods approach design that included development of an instrument (questionnaire), an online survey and telephone interviews. The instrument was developed using established methodology starting with a comprehensive literature review to generate an item pool for the Nurses’ Attitudes Towards Postgraduate Education (NATPGE) instrument to explore registered nurses’ attitudes towards postgraduate education in Australia. The validity and reliability of the NATPGE instrument were established by using face and content reliability, and a pilot test–retest for validity.

Phase One of this research (a survey) had two functions. One was the final stage of the instrument development that used data-reduction techniques and principal component analysis with varimax rotation. The second related to the results showing the nurses’ attitudes towards postgraduate education. Phase Two of this research (telephone interviews) was conducted to explore and contextualise the findings from Phase One. The participants were registered nurses from the Nurses and Midwives e-Cohort Study (NMeS). The NMeS was chosen because it is representative of the population of registered nurses in Australia with participants in all states and territories and who have consented to be contacted for other research. Eligible participants for the survey met the inclusion criterion—being a registered nurse working in Australia. Those who identified midwifery as their specialty practice were excluded.

Results
In Phase One: survey, factor extraction was performed on all 14 NATPGE items, using PCA with varimax rotation. Accounting for 52.5% of the variance of the scale, the analysis identified a three-factor solution for 14 items: ‘facilitators’; ‘barriers’; and ‘professional recognition’. The one higher-order factor that represented the facilitators of postgraduate education, accounted for 28.5% of the variance: (1) improves knowledge; (2) increases nurses’ confidence in clinical decision making; (3) enhances nurses’ careers; (4) improves critical thinking; and (6) increased job satisfaction. The subscale professional recognition accounted for 15.4% of the variance, and this high percentage was unexpected. This subscale suggests that professional requirements may influence registered nurses’ pursuit of postgraduate education.

Qualitative analysis of the data from Phase Two, the interpretative study, showed three broad conceptualisations of registered nurses’ attitudes towards postgraduate education: ‘facilitators’; ‘barriers’ and ‘professional recognition’. These interrelated themes provide
meaningful insights into participants’ experience and shared understanding of the reasons why they participate in postgraduate education.

**Conclusions**

This is the first study in Australia to develop an instrument to explore registered nurses’ attitudes towards postgraduate education (the NATPGE). Understanding the factors that affect registered nurses’ attitudes towards postgraduate education will help educators identify areas for change to attract registered nurses to pursue postgraduate education. The overall results from this research provide a composite understanding of the facilitators of and barriers to postgraduate education for Australian nurses. These may explain the gap between support from employers/organisations and Australian healthcare educators. Translating the research finding into recommendations will help to improve the uptake of postgraduate education by registered nurses and increase their ability to meet the demands of an evolving healthcare system and the changing needs of patients.
Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my research higher degree candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

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Publications during candidature

Peer-Reviewed Papers:

Conference Abstracts:
1. Ng, L., Tuckett, A., Fox-Young, S & Kain, V (2013) Content and face validity of the Nurses’ Attitudes towards Postgraduate Education (NATPGE) in Australian speciality nurses: a Pilot Study. 22nd Royal Brisbane and Women’s Hospital Annual Healthcare Symposium, Herston, October 2013
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None
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Keywords
Registered nurses, barriers, facilitators, professional recognition, instrument development, pilot test—retest, principal component analysis

Australian and New Zealand Standard Research Classifications (ANZSRC)
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Fields of Research (FoR) Classification
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# List of abbreviations used in the thesis

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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ANOVA</td>
<td>Analysis of variance</td>
</tr>
<tr>
<td>CFA</td>
<td>Confirmatory factor analysis</td>
</tr>
<tr>
<td>CVI</td>
<td>Content validity index</td>
</tr>
<tr>
<td>IPE</td>
<td>Inter-professional education</td>
</tr>
<tr>
<td>KMO</td>
<td>Kaiser-Meyer-Olkin</td>
</tr>
<tr>
<td>NATPGE</td>
<td>Nurses’ Attitudes Towards Postgraduate Education</td>
</tr>
<tr>
<td>NETP</td>
<td>Nursing entry to practice</td>
</tr>
<tr>
<td>NMeS</td>
<td>Nurses and Midwives e-Cohort Study</td>
</tr>
<tr>
<td>NPGE</td>
<td>No postgraduate education</td>
</tr>
<tr>
<td>PCA</td>
<td>Principal component analysis</td>
</tr>
<tr>
<td>PG</td>
<td>Postgraduate</td>
</tr>
<tr>
<td>PGE</td>
<td>Postgraduate education</td>
</tr>
<tr>
<td>RN</td>
<td>Registered nurse</td>
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Chapter 1  Introduction

1.1 Background
Nursing is no longer viewed as simply a practical occupation but as a profession that values higher education as a means to build competent practitioners at all levels (L. H. Aiken et al., 2012; L. H. Aiken et al., 2010; Australia Nursing Federation, 2009; Pelletier et al., 2000; Richardson & Gage, 2010). Higher education provides individual opportunities for learning and self-growth, and enables wider social and institutional change by bridging theory and practice through critical reflection and action (Tight, 2012). Arguably, nurses at all levels of education have experience that can significantly shape nursing practice. However, the body of evidence suggests that only those nurses who pursue postgraduate education gain the research and advanced skills required to take on higher-level positions in the nursing domains of research, leadership, clinical skills and education (Pelletier, Donoghue, Duffield, Adams, & Brown, 1998; Penz et al., 2007; Plunkett, Iwasiw, & Kerr, 2010; Porter & Porter, 1991; Robert Wood Johnson Foundation, 2013; Spence, 2004b). This conclusion is supported by the earlier findings of Aitken et al (2012), Dimitriadou–Panteka et al (2014); and Duff, Gardner, and Osborne (2012), who showed that clinicians with postgraduate qualifications are well prepared to meet the demands placed on today's nurse and can contribute to the advancement of patient care.

Postgraduate education enhances critical analysis of care (Kutney-Lee, Lake, & Aitken, 2009), clinical judgement (Kutney-Lee, McHugh, et al., 2009; Lucero, Lake, & Aiken, 2010), and attendant progression to a new level of proactive and autonomous practice (Drennan, 2010; Spence, 2004b). In addition, postgraduate education in nursing can help to contribute to increased professional behaviours of registered nurses and associated improvement in their clinical confidence (Cotterill-Walker, 2012). With this comes improved self-esteem and increased participation in professional activities which reflects changing attitudes towards nursing work (Dimitriadou–Panteka et al., 2014).

The evidence noted above supports the belief that postgraduate education in nursing is crucial for preparing advanced practice nurses. However, despite the strong evidence, there is a shortage of advanced qualified nurses (Plunkett et al., 2010), which may help to explain why higher-level nursing positions in administration and leadership are difficult to fill (Pittman, Horton, Keeton, & Herrera, 2012). As a consequence, nurses may be required to assume these roles when they do not hold the most appropriate educational preparation (Plunkett et al., 2010; Stanley et al., 2008).
The reasons for the low percentage of nurses with postgraduate qualifications should be considered in light of the need for appropriately trained personnel to fulfil advanced nursing roles for the purposes of conducting research, improving patient outcomes, and providing professional leadership. All of these roles are necessary to continue to advance the science of nursing.

**Postgraduate education in nursing**

For the purpose of this study, postgraduate education is defined as studies leading to recognised academic awards that are required for specialty practice such as a postgraduate certificate or diploma, masters and doctoral education programs. It does not include postgraduate courses that result in entry-level qualifications for nursing, hospital-based certificates, in-service/continuing education sessions, and refresher or re-entry courses.

The need for more advanced nursing knowledge in both the hospital and community healthcare environments is a driver for postgraduate nursing education. In Australia, changing demographics were increasing at an alarming rate with a growing elderly population. In this particular population, there were more chronic illnesses and a greater need for health care than any other age groups. Patients have more complex health conditions and a greater need for advanced nursing care. In addition, patients who were in the hospital generally would be more acutely ill and would also have a higher need for more specialised nursing care. As technology continues to advance and with the increased complexity of the patient population, nurses are challenged to adapt to an ever-changing healthcare environment. Postgraduate education provides registered nurses with the opportunity to acquire the theory and skills in critical thinking, leadership, case management and health promotion, and to practise across the variety of inpatient and outpatient settings as a specialist nurse in a variety of settings (Duff et al., 2012; Sherman, Bishop, Eggenberger, & Karden, 2007). Undergraduate nursing education may not be enough to prepare nurses for these increasingly complex roles providing care that is well researched and based on the most current literature (Girot & Albarran, 2012).

The nurse is a pivotal provider of care, which is increasingly evidence based. Therefore, it is important to understand registered nurses’ attitudes towards postgraduate education. To advance the profession and provide excellent patient care, barriers that hinder nurses from undertaking advanced education should be identified and then properly addressed. Identifying the facilitators that influence nurses to advance their education will help healthcare organisations and healthcare educators to develop programs that will promote an environment that supports education advancement.
The nursing profession is faced with the problem of how to entice an adequate number of nurses into higher education. However, there is very little research on registered nurses’ attitudes to the desirability of postgraduate education. This PhD research was conducted to contribute new information to help nursing leaders, healthcare organisations (employers) and healthcare educators (universities) understand the attitudes of registered nurses towards postgraduate education. Furthermore, it would add to the body of knowledge in this area and provide the basis for future research.

1.2 Aims and significance

The purpose of this PhD research was to identify and describe registered nurses’ attitudes towards postgraduate education in Australia. According to Richards and Potgleter (2010), the purpose of postgraduate education was to maintain knowledge and skills, to improve existing competencies and develop new competencies with the ultimate objective of improving patient care. As health care systems became more complex, nurses were required to embrace change; be more knowledgeable; and promote innovation. Therefore, it is important to identify these issues to determine why nurses are not pursuing postgraduate education, despite the evidence of a substantial link between nursing education levels and patient outcomes (Australia Nursing Federation, 2009; Cotterill-Walker, 2012; Dimitriadou–Panteka et al., 2014; Drennan, 2010; Institute of Medicine, 2011; Robert Wood Johnson Foundation, 2013).

The following four research questions were posed to address this purpose.

1. Do nurses in Australia believe that postgraduate education is necessary for specialty nursing practice?
2. Has postgraduate education been beneficial to nurses who have undertaken postgraduate studies?
3. Are there differences in the perceptions of facilitators of and barriers to postgraduate education between nurses with and without postgraduate education?
4. Do nurses in Australia who have undertaken postgraduate education for specialty practice intend to remain in nursing longer than those who have not?

1.3 Organisation of the thesis

This thesis is divided into seven chapters. Chapter 1 provides an introduction to the importance of postgraduate education in nursing. Nurses comprise about 50% of the global healthcare workforce and represent 55% of the Australian healthcare workforce (Australia Bureau of Statistics, 2013; Australian Institute of Health and Welfare, 2012).
Nurses also comprise the majority of healthcare professionals in acute care facilities, and the provision of safe and appropriate health care relies on a sustainable and competent workforce to deliver optimum patient care. Technological advances requiring specialised nursing skills and economic demands have led to changes in the healthcare environment. These have been made in an effort to improve the effectiveness of the delivery of patient care whereas the quest for quality has led to seeking and applying the latest and most effective techniques to improve standards. In pragmatic terms, nurses must continue to advance their education to keep up with changes; those who do not will be unable to provide the very best and up-to-date patient care to the public they serve. Advanced education in nursing is crucial for preparing advanced practice nurses.

**Chapter 2** provides a critical review of the existing literature on issues relating to postgraduate education for specialty practice. The literature review examines the effect of undertaking postgraduate education on registered nurses’ attitudes towards postgraduate education, the facilitators of and barriers to postgraduate education, and the registered nurses' intention to remain in nursing and whether this is contingent on undertaking (or not) postgraduate education. This chapter covers three of the four research questions developed to address the aim of this study.

An evaluative framework that examines six different types of outcomes for inter-professional education (IPE) (Barr, Freeth, Hammick, Koppel, & Reeves, 1999), was used to structure and inform this literature review. Although Barr et al (1999) focused on IPE, the conceptual framework was the most robust identified in the search. The decision to use this framework was informed by a similar approach adopted by other studies that evaluated the impacts of postgraduate education (Brooker & Brabban, 2004; Gijbels, O’Connell, Dalton-O’Connor, & O’Donovan, 2010).

This literature review has been published in the peer-reviewed *Journal of Nursing Education and Practice* as the first paper of this thesis:


**Chapter 3** discusses and justifies the methodology adopted to answer the research questions. This chapter describes the research design, sampling methods and statistical methods used in the analysis of data. A two-phased approach was undertaken in this
study. Phase One comprised a survey, the Nurses’ Attitudes Towards Postgraduate Education (NATPGE) instrument developed for this research, which was given to a sample of registered nurses in Australia to explore the barriers to and facilitators of postgraduate specialty education. Phase Two comprised an interpretative study, which took a translational research approach in which qualitative data were collected through telephone interviews with registered nurses to contextualise the Phase One survey findings. The planned and deliberate synthesis of the findings, through discussion, from these two phases have direct implication to postgraduate education for specialty practice in Australia.

The NATPGE instrument, which was developed to examine nurses’ attitudes towards postgraduate education for specialty practice is described in Chapter 4. The gaps identified in the literature review were addressed to develop a sound knowledge base of registered nurses’ attitudes towards postgraduate education for specialty practice. The NATPGE instrument was developed and psychometrically tested to measure nurses’ attitudes towards postgraduate education. The instrument development has been published in the peer-reviewed Journal of Nursing Education and Practice as the second paper of this thesis:


Chapter 5 presents the findings of Phase One, which comprised a survey whose results were used in the development of the NATPGE instrument to explore registered nurses’ attitudes towards postgraduate education for specialty practice. Principal component analysis was used to describe the subscales of this instrument and to identify the facilitators of and barriers to nurses’ pursuit of postgraduate education for specialty practice in Australia. The Phase One survey has been published in the Nursing and Health Sciences Journal, as the third paper of this thesis:

Chapter 6 presents the findings of Phase Two, the interpretative study, and includes the qualitative component of this research, which explored and contextualised the Phase One survey findings. The Phase One survey analysis identified both facilitators of and barriers to registered nurses' attitudes towards postgraduate education for specialty practice as the available resources to support registered nurses participation in postgraduate education (subscale identified as ‘Facilitators’), the demands that prevented registered nurses from participating in postgraduate education (‘Barriers’) and the attitudes of the registered nurses towards postgraduate education and their profession (this construct is simplified to the term ‘Professional Recognition’). Each of these themes with attendant subthemes and supporting data is presented, followed by a discussion.

The concluding chapter, Chapter 7, presents a synthesis of the major findings from the Phase One survey and the Phase Two interpretative study. The findings from the quantitative and qualitative phases of this study are discussed in the context of knowledge about nurses’ attitudes towards postgraduate education. This chapter suggests future options such as policy directives that are relevant to nurses and further avenues for research.
Chapter 2    Literature Review

2.1 Introduction

The purpose of this chapter is to explore the literature and provide a comprehensive overview relating to registered nurses’ attitudes towards postgraduate education for specialty practice. The primary themes identified from this review were used to inform the content of an instrument to ask registered nurses about postgraduate education to identify the facilitators and barriers.

Nursing education is designed to prepare competent nurses to meet the current and future health care needs of society (L. M. Aiken, Currey, Marshall, & Elliott, 2006). The profession of nursing responds to changes in healthcare needs by exploring new methods for providing care, by changing educational emphases, and by establishing practice standards in new areas (Morris et al., 2007). Changes to nursing education, especially at the postgraduate level, are influenced by the ongoing developments in healthcare and socio-economic factors (Gijbels et al., 2010; Heller, Oros, & Durney-Crowley, 2007).

The transfer of Australian postgraduate specialty nursing education from hospitals to the tertiary (higher education) sector took place in the late 1990s (Chaboyer, Dunn, & Najman, 2000). Postgraduate education in nursing has continued to grow over the years, but the benefits to students, employers and patients and overall impact on practice remain unclear (Gijbels et al., 2010; Griscti & Jacono, 2006; Pelletier, Donoghue, & Duffield, 2005).

According to Larson (1990, pp. 24-50), the one central function of professions (or their counterparts) in most advanced societies is that of “organising the acquisition and certification of expertise in broad functional areas, on the basis of formal educational qualifications held by individuals”. To work as a professional involves the educational process of acquiring the necessary qualification(s) and then undertaking postgraduate courses to continue to fulfil the professional registration requirements (Bines & Watson, 1992). However, this literature review focused on postgraduate education for specialty practice rather than for continuing competence or professional development more broadly.

The purpose of this literature review was to provide an overview of issues relating to postgraduate education for specialty practice, in particular the effects of the experience of postgraduate education on registered nurses’ attitudes towards the need for postgraduate education for specialty practice, the perception of facilitators of and barriers to postgraduate education for specialisation, and the registered nurses’ intention to remain in nursing. It also identifies the gaps in research findings that should be addressed to
develop a knowledge base about registered nurses’ attitudes towards postgraduate education for specialty nursing practice, and the barriers they encounter in accessing it.

2.2 Literature search methodology

Computerised databases, including CINAHL, PubMed, Medline, Embase, Scopus, ERIC, BERA, Cochrane Database of Systematic Reviews and PsycINFO were used to identify journal articles, books and book chapters using key search terms in various combinations (Table 2-1).

There was no time limit imposed upon this search, but the guiding evaluation framework and specific criteria purposefully delimited the review. This boundary setting for the review is explained below and is wholly consistent with the research objectives.

Table 2-1 Key search terms

| Search terms: | Nurs*  
Post-graduate education  
Postgraduate education  
Post graduate education  
Post basic education  
Post-basic education  
Post registration nur* education  
Continuing education  
Continuing professional education  
Continuing professional development  
Masters  
Doctora*  
Post doctora*  
Special*  
Specialty Nurs* education  
Specialty Nurs*  
Outcome  
Impact  
Benefits  
Barriers  
Challenges  
Staff retent*  
Evaluat* |

This search focused on postgraduate education leading to recognised academic awards such as postgraduate certificate or diploma, masters and doctoral education programs. Continuing professional development programs and in-service programs were excluded. However, papers with ‘Continuing education’, ‘Continuing professional education’ and ‘Continuing professional development’ were analysed because these terms are used
interchangeably and their meanings are not always clear. In some articles, this was interpreted as post-registration and postgraduate education delivered by higher education institutes.

The search was also broadened to include the ‘grey’ literature and internet search engines, such as Google Scholar, to identify key words in reports. This was followed by a literature search of relevant references in the studies, which were then retrieved and included in the literature review if relevant. The primary themes deduced from the guiding framework and additional themes identified from the review were used to inform the content of the instrument to explore registered nurses’ attitudes towards postgraduate education and specialty practice.

An evaluative framework that examines six different types of outcomes for interprofessional education (IPE) (Table 2-2) (Barr et al., 1999) was used to structure this literature review. This framework builds on earlier thinking about a patient-centred approach to learning in the nursing professions and describes the intersections of nursing education with basic education, post graduate education, and continuing education; it also captures the understanding that point-of-care learning is a key component of lifelong learning (Josiah Macy Jr. Foundation, 2010). This framework became the basis for the study’s consideration of more complex concepts than those generally used. These concepts include the developmental stages of a registered nurse’s career across the learning continuum, and the incorporation of postgraduate education across the developmental stages of a career. Although Barr et al. (1999) focused on IPE, the conceptual framework was the most robust identified in the search. The decision to use this framework was informed by a similar approach adopted by other studies that examined the evaluation of education (Brooker & Brabban, 2004; Gijbels et al., 2010).

Barr et al (1999) evaluated the outcomes of IPE on healthcare participants independently, and they grouped the outcomes into six levels to separate the effects on attitudes from those on knowledge and skills. In their study, they evaluated health professionals’ experiences participating in IPE (Learner’s reaction), including their satisfaction with the delivery of IPE. They also considered the participants’ attitudes towards other professions (Changes in attitudes and perceptions), including their knowledge of and attitudes towards other professions. Barr et al (1999) identified changes that resulted from participation in IPE (Acquisition of knowledge and skills) such as knowledge and team work. Changes in professional practice (Changes in behaviour) following IPE is another outcome in the evaluative framework of Barr et al (1999). Changes in organisational practice examine the effect of IPE on the wider community of health and social care. Finally, Barr et al (1999)
also included the direct benefit to patients and carers (Benefits to patients and carers). The ‘results’ level was expanded to differentiate between the effects on those that the training is designed to benefit (i.e., patients and healthcare providers), and the effect on practice within healthcare organisations.

### Table 2-2 Evaluative Framework of Barr et al (1999)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner’s reaction</td>
<td>the learners’ views of their learning experience and satisfaction with their training and education</td>
</tr>
<tr>
<td>Changes in attitudes and perceptions</td>
<td>changes in attitudes and perceptions towards patients and carers, their needs, circumstances, care and treatment</td>
</tr>
<tr>
<td>Acquisition of knowledge and skills</td>
<td>the acquisition of concepts, procedures and principles of working with specific patient groups, and the acquisition of critical thinking and problem-solving, intervention skills, and team-working skills</td>
</tr>
<tr>
<td>Changes in behaviour</td>
<td>implementation of learning in the workplace, as a result of changes in attitudes and perceptions, or the application of newly acquired knowledge and skills</td>
</tr>
<tr>
<td>Changes in organisational practice</td>
<td>wider changes in healthcare delivery</td>
</tr>
<tr>
<td>Benefits to patients and carers</td>
<td>improvements in the health and well-being of patients and carers</td>
</tr>
</tbody>
</table>

#### 2.3 Modified evaluative framework of Barr et al (1999)

Because this PhD research aimed to explore registered nurses’ attitudes towards postgraduate education for specialty practice and the facilitators of and barriers to postgraduate education, the evaluative framework of Barr et al (1999) was modified (Table 2-3). Thus, the literature search was informed by studies that assessed only participants’ acquisition of knowledge and skills as well as changes in attitudes and behaviours. Studies outside the parameters noted above were excluded from the review. Benefits to patients/clients were also not included because of the inherent difficulties in measuring these (Duffield, Aitken, O’Brien-Pallas, & Wise, 2004; Ewens, Howkins, & McClure, 2001). Similarly, the effects of education on quality of care were excluded because there is insufficient research in this area to provide reliable data. Changes in organisational practice (wider changes in health care delivery) were also not explored because they were not part of the research objectives. Moreover, it is difficult to quantify the impact of postgraduate education on care delivery because a reliable tool for measuring nursing practice is lacking (Waddell, 1992).
Table 2-3 Modified Evaluative Framework of Barr et al (1999)

| **Changes in attitudes and perceptions:** positive and negative changes in attitudes from postgraduate education, including attitudes to postgraduate education as a prerequisite for specialty practice and intention to remain in nursing |
| **Acquisition of knowledge and skills:** outcomes of postgraduate education on knowledge and skills, including research skills |
| **Changes in behaviour:** changes in professional practice following postgraduate education |

In addition to the modification of evaluative framework of Barr et al (1999), the literature search was also guided by the following inclusion and exclusion criteria (Table 2-4).

Table 2-4 Inclusion and exclusion criteria

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Continuing professional education’, 'continuing professional development' and 'continuing education' studies, which included postgraduate education delivered by higher education institutes</td>
<td>‘Continuing professional education’, 'continuing professional education' and 'continuing education' where the terms were not clearly identified and studies included in-service training and hospital training</td>
</tr>
<tr>
<td>Studies that explored post-registration education that awards an undergraduate degree upon completion</td>
<td></td>
</tr>
</tbody>
</table>

The articles and reports were extracted through the initial literature search and subjected to the exclusion criteria shown in Table 2-4 were then reviewed and categorised according to the three themes developed from the modification of the evaluative framework of Barr et al (1999) (Table 2-3). This reduced the number of papers from 176 to 59 (Figure 2-1). Aspects of specialty postgraduate education identified in these articles and reports beyond the three themes (changes in attitudes, acquisition of knowledge and skills, and changes in behaviour) that were still relevant to the research questions are reported separately in a section at the end of the themes (section 2.4.4).
It should be noted that the three themes are not mutually exclusive. For example, changes in attitudes, such as increased confidence, often depend on increased knowledge and skills, and changes in behaviour are often based on both changes in attitudes and increased knowledge or skill.

2.4 Literature review themes

2.4.1 Changes in attitudes

This section of the literature review discusses the changes in attitudes of registered nurses following postgraduate education. This theme incorporates changes in the nurses’ attitudes to nursing, confidence and commitment based on their participation in postgraduate education, as well as their beliefs about the value of postgraduate education for specialist practice. The literature reviewed here also addresses the nurses’ intention to remain in nursing as a consequence of postgraduate education.

In a study of a postgraduate critical care course, students reported a change in attitudes to nursing and stated that they have a “much wider view of the whole picture” in critical care nursing (Armstrong & Adam, 2002, p. 173). Pelletier et al (1998b) also reported that nurses felt that postgraduate education expanded their outlook on nursing.
In a descriptive phenomenological study using focus groups to obtain data about the perceptions, values and feelings of a group of 12 students enrolled in a postgraduate certificate in critical care nursing, many of the participants reported increased confidence and feeling more assertive after completing the course (Armstrong & Adam, 2002). Increased confidence is thought to greatly influence a person’s ability to perform satisfactorily at work (Pelletier et al., 1994). Wood (1998) also reported increased confidence and nurses’ perception that they were better able to challenge practice. Several other studies have also reported that postgraduate education enables nurses to challenge and accept challenges in practice (Spence, 2004a; Wilson-Barnett, Barriball, Reynolds, Jowett, & Ryrie, 2000). Hardwick and Jordan (2002) studied a group of nurses enrolled in a masters level program to identify how their practice had changed as a result of the knowledge and skills acquired from the course. Although only 17 of 25 responded, the finding was consistent with a previous study on postgraduate education (McCarthy & Evans, 2003) demonstrating nurses felt more confident about their professional contribution to patient care by applying their graduate knowledge (John & Copnell, 2002).

By contrast, Pelletier et al (1998) identified a small number of students who reported a reduction in self-esteem. Pelletier et al (1998) suggested that these students may have been older, may not have studied for a number of years or may have held senior positions. Pelletier et al (1998) also suggested that senior nurses may have felt that they lose ‘seniority status’ when they are studying with junior staff. In a qualitative study of stressors experienced by 15 critical care nursing students, Taylor et al (1999) reported that students were stressed by the ‘conflicting aspects of their roles’ as well as by the content covered in the course.

Rassool and Oyefeso (2007) surveyed a group of 46 nurses enrolled in a postgraduate diploma in addictive behaviour. The students perceived improvements in knowledge acquisition, skills and attitudes based on the post-course questionnaire. This finding is consistent with that of an earlier North American study by Hagemaster, Handley, Plumlee, Sullivan and Stanley (1993), which reported on changes in attitude towards substance abuse as a result of postgraduate education.

Only 12 studies were identified that specifically reported the attitudes of registered nurses to postgraduate education being a prerequisite for specialty nursing practice (Armstrong & Adam, 2002; Duffield & Franks, 2001; Duffield & O’Brien-Pallas, 2002; Hardwick & Jordan, 2002; McCarthy & Evans, 2003; Pelletier, Donoghue, Duffield, & Adams, 1998a; Pelletier, Donoghue, et al., 1998b; Pelletier, Donoghue, Duffield, Adams, et al., 1998; Pelletier et al.,
Johnson and Copnell (2002) interviewed paediatric nurses undertaking a postgraduate course and found that significant numbers did not see having a paediatric postgraduate qualification as a necessary aspect of competent practice. In their longitudinal descriptive and correlational study of postgraduate nursing students on completion of their studies and 6 years afterwards, Pelletier et al (2005) found that 8–29% of respondents felt that the postgraduate education did not influence their success in their careers at all.

In their study of a group of registered nurses enrolled in a masters degree program, Watson and Wells (1987) reported that postgraduate education increased the nurses’ ability for autonomous nursing practice. From their interviews with 12 students enrolled in the critical care course, Armstrong and Adam (2002) noted that the students reported that postgraduate education gave them work autonomy, which increased their job satisfaction. This finding resonates with that of an earlier study by Boyle, Bott, Hansen, Woods and Taunton (1999) of a group of critical care nurses on completion of their postgraduate education.

Job satisfaction is considered to be the strongest influence on the intention to remain in nursing longer (Girot, 2000; Reid, Nellis, & Boore, 1987; Sourdif, 2004; Wong, 1988). In a descriptive phenomenological study of 12 critical care course participants, Armstrong and Adam (2002) also found that nurses who complete postgraduate education tend to stay longer in nursing. In a study of job satisfaction of Australian nurses and midwives, Skinner, Madison and Humphries (2011) found that job dissatisfaction is an important reason why nurses leave the profession; this finding supports the earlier findings reported by Edwards and Burnard (2003) and Lu, While and Barriball (2005).

Staff turnover is induced by dissatisfaction (Alexander, Lichtenstein, Oh, & Ullman, 1998), promotional opportunities (Yin & Yang, 2001), autonomy (Alexander et al., 1998; Yin & Yang, 2001) and professional commitment (Fang, 2001). Skinner et al (2011) also found that younger nurses are more dissatisfied with their job compared with older nurses. Due to the “graying” or aging of current of the nursing workforce (Buerhaus, Staiger, & Auerbach, 2000), these findings are utmost important in ensuring that the appropriate organisations and professional bodies develop strategies for retaining the nursing workforce.
2.4.2 Acquisition of knowledge and skills

This second section of the literature review explores the outcomes of postgraduate education across a range of specialty areas including cardiac, critical care, accident and emergency, paediatrics, palliative care and addictive behaviour, as well as postgraduate courses for which the specialty was not specified. This includes knowledge and skill that nurses acquired from postgraduate education.

Increased knowledge and skills are outcomes of postgraduate education, and there is professional support for the importance of postgraduate education (Jordan, 1998; Meretoja & Leino-Kilpi, 2001). A national Delphi study of Australian cardiac educators and clinicians clearly identified that inadequate educational preparation was one of the many reasons, which raises concerns about the lack of focus on quality of care issues (Pelletier et al., 2000). As the national voice for graduate nursing, the American Association of Colleges of Nursing (AACN) believes “education has a significant impact on the knowledge and competencies of the nurse clinician” (ACCN, 2014 para 1). The growing demand for qualified professionals to fill leadership and management positions in nursing has increased attention on graduate education (Iava, 1994). As technology continues to advance and the status of hospitalised patients becomes increasingly complex, nurses are challenged to adapt rapidly to an ever-changing health care environment (Stevenson, 2003).

Several studies indicate that the main reason for undertaking postgraduate education is improvement of professional knowledge (Chaboyer & Retsas, 1996; Johnson & Copnell, 2002; Lumsden, Copnell, & Somers, 1998; Pelletier et al., 1994). Carlisle (1991) also identified improving knowledge and skills as an attraction for many to study and gain postgraduate qualification.

Armstrong and Adam (2002) used a descriptive phenomenological study to explore the impact of a postgraduate certificate in critical care nursing on nursing knowledge. The students reported that the course had added to their knowledge of management, leadership, teaching and clinical skills in the speciality. Wood (1998) and Jordan (1998) conducted similar descriptive phenomenological studies on post-registration courses in accident and emergency nursing; the participants in their studies reported an improvement in clinical practice, specifically in the integration of theory with practice.

Johnson and Copnell (2002) reported that most (64%) graduates of a paediatric postgraduate course identified the ability to link theory to practice and an increase in self-confidence, presumably from additional knowledge and experience, as a benefit of undertaking postgraduate education.
According to a study by Richards and Potgieter (2010) with registered nurses, they found that the reasons nurses engaged in continuing formal education to improve the quality of nursing care to patients. Basically, nurses were prompted to engage in continuing formal education to develop the competency to meet their patients’ expectation, and attain advanced knowledge and skills. The results revealed in that study (Richards & Potgieter, 2010) that the beneficial aspects of continuing formal education as 1) the financial and promotional prospects, 2) increased knowledge base, and 3) the development of leadership skills.

Adriaansen, van Achterberg and Brom (2005) conducted a quasi-experimental study of 57 registered nurses who had completed a postgraduate qualification in palliative care. Because of the difficulty in measuring the effects of a course on palliative care on patients, a pre-test and post-test questionnaire was used to measure the effects on course participants. Knowledge was strongly correlated with quality of care. The authors concluded that this relationship suggests that there was an increase in the actual skills of the registered nurses who completed the course.

Rassool and Oyefeso (2007) surveyed a group of 46 nurses enrolled in a postgraduate diploma on addictive behaviour. The findings from the post-course questionnaire showed that the students perceived an improvement in their knowledge acquisition and skills. Most participants in a study in New Zealand identified that improved nursing skills as a result of postgraduate education benefits clients (Richardson & Gage, 2010). These participants described clients in the 21st century as “well read and better informed” and they felt they “owed it to their clients” to provide quality and up-to-date information (Richardson & Gage, 2010, p. 146). This suggests that there is a positive relationship between postgraduate education and practice (Hardwick & Jordan, 2002; Hogston, 1995; McCarthy & Evans, 2003; Pelletier, Donoghue, & Duffield, 2003; Wildman, Weale, Rodney, & Pritchard, 1999; Wyatt, 2007).

However, increased skills obtained from postgraduate education are not always seen to be sufficient. Johnson and Copnell (2002) surveyed 131 nurses with postgraduate diplomas in paediatric nursing, 8% of whom felt the course had not adequately prepared them to work in the clinical area.

Ewens, Howkins and McClure (2001) explored the experience of 21 newly qualified community nurses with one year of practice to determine whether the specialist course prepared them for the realities of practice. Significant findings of that study were that many felt unprepared for the ‘real world’ of practice, especially work place demands.
Specific clinical skills such as triage decisions, critical thinking, communication, use of research, and inter-professional collaboration, as well as those relating to more generic autonomous practice, professional development and broadening or deepening of knowledge, were also reported to be improved by postgraduate education. A correlational design study using survey methods to identify relationships between triage nurses’ decisions on triage category allocation and the type and length of nursing experience and the level of educational preparation of triage nurses showed a positive correlation between triage decisions and qualifications (Considine, Ung, & Thomas, 2001). This notion supports findings by del Bueno (1983), who stated that educational preparation is positively correlated with acceptable decision-making and that nurses with higher educational preparation had a higher incidence of correct decisions. Holl (1994) also stated that critical thinking ability and decision-making were better in nurses who had a higher standard of education. However, according to Girot (2000), although it is believed that critical thinking, clinical decision-making and problem-solving can be improved through postgraduate education, research has not identified significant differences in critical thinking in practice at different stages of their studies. On the other hand, Girot (2000) found a significant improvement in decision-making skills as a result of postgraduate education. Considine et al (2001) also suggested that instruction in these skills is a better preparation for clinical practice than simply imparting specific knowledge about specialist emergency nursing.

Interviews with a group of registered nurses enrolled in a masters degree program in an unspecified specialty area showed that they believed the degree improved their communication skills (Cooley, 2008; A. McCarthy & Evans, 2003; Nicholl & Timmims, 2005). In a study of the outcomes of a postgraduate critical care course, students reported that their practice is more research based following study (Armstrong & Adam, 2002, p. 173).

Registered nurses have reported that participation in postgraduate education broadens their knowledge base (Pelletier, Donoghue, Duffield, Adams, et al., 1998), enhances their ability to collaborate interprofessionally (Davis & Hughes, 1995) and contributes positively to their professional and personal development (McDonald, Willis, Fourie, & Hedgecock, 2009; S. Whyte & Sellick, 2000). Interviews with a group of registered nurses enrolled in a masters degree program in an unspecified specialty area showed that they believed the degree would give greater depth of knowledge in the specialty area (P. G. Watson & Wells, 1987).
Most of the studies that have explored nurses’ knowledge and skills are based on interviews and reports, not on actual measurement of change. The extent of knowledge and skills gained from postgraduate education is difficult to quantify. Similarly, it would seem that the effects of postgraduate education on actual practice are difficult to quantify and to generalise. However, the themes that emerged from most of these studies seemed consistent, and there is therefore scope to uncover the extent to which the knowledge and skills gained from postgraduate education are integrated into practice demonstrated through changes in clinical behaviour.

2.4.3 Changes in behaviours
This section of the literature review explores the changes in professional practice and application of graduates’ newly acquired knowledge that occur as a result of postgraduate education in the workplace. Although it is often assumed that increased knowledge, and changes in skills and attitudes will result from postgraduate studies, these do not automatically translate into behaviour changes in practice (Francke, Garssen, & Abu-Saad, 1995). It is common to try to measure the impact of education on an individual personally or professionally, but it is more difficult to quantify any impact on their care delivery behaviour (Pelletier et al., 2003).

It is thought that nurses who undertake post-registration degrees in nursing benefit the profession in the sense that they acquire a broader, more questioning approach to their responsibilities, the care they provide is research based, and they are better able to support the new graduate entrant into the profession (Scott-Wright, 1987). Additionally, registered nurses have reported that their expectations for their own practice had increased following study (C. Taylor et al., 1999).

Findings from an Irish study on post-registration nursing programs (Cooley, 2008) support those of earlier findings (Hogston, 1995; Hoover, 2002; S. Whyte & Sellick, 2000) that nurses feel they are more questioning and interested in their clinical practice, and more likely to share newfound knowledge with fellow nurses following graduation.

Pelletier et al (1994) found that over half the nurses enrolled in graduate-level nursing courses perceived an increase in their self-esteem and confidence as a consequence of undertaking these types of courses. Increased confidence, self-esteem and motivation attributed to postgraduate studies have also been reported to lead to improved clinical practice (Porter & Porter, 1991).

The application of learning for the benefit of patients that results in improvements in clinical care lies in the individual nurse (Hogston, 1995). Boore (1996) surveyed a group of 25
students enrolled in a doctor of nursing science program to explore students’ expectations and motivations. Most of the registered nurses were motivated by the course’s potential to increase their competence in practice. Literature from North America also identified that clinical nurse specialists, who usually have a master qualification, have a positive effect on the quality of patient care (Ahrens & Padwojski, 1990; Fenton, 1985; Gurka, 1991; Hylka & Beschle, 1995). These studies show that the positive effect on the quality of patient care is highly associated with the knowledge attained by graduates.

Rolls (2005) suggested that well-educated nurses are deemed to be capable of finding solutions to health problems more comprehensively, promptly and efficiently than others, thus providing the best possible care to patients. Similarly, a group of 42 students who undertook postgraduate critical care course reported an improvement in the care they provided (Chaboyer, Dunn, Theobald, Aitken, & Perrott, 2001). In an explorative, descriptive study of 23 masters students, 67% of the graduates reported a change in practice and that the new knowledge acquired during their studies had been used in the workplace (Hardwick & Jordan, 2002). This suggests that there is a positive relationship between postgraduate education and practice (Hardwick & Jordan, 2002; Hogston, 1995; A. McCarthy & Evans, 2003; Pelletier et al., 2003; Spence, 2004b; Wildman et al., 1999; Wyatt, 2007).

However, students also acknowledge that changes in practice occur slowly and that the process can be blocked in several ways (Armstrong & Adam, 2002). Hardwick and Jordan (2002) found that, despite many nurses reporting that they acquired and used research skills, none of them mentioned improved clinical knowledge or cited any examples of improved care.

**2.4.4 Beyond the themes: Other effects of postgraduate education**

The literature review identified other recurring effects of postgraduate education that did not fit into the three themes extracted from the modified evaluative framework of Barr et al (1999) but that were relevant to the purposes of this study. These effects relate mainly to the facilitators of and barriers to undertaking postgraduate education. Facilitators included career advancement and increased credibility, whereas barriers were more wide ranging and included difficulties with work–study life balance and family relationships, negative reactions in job interviews, an imbalance between expectations of promotions and reality, negative impact on job satisfaction and a sense that more senior nurses did not value the graduates’ qualifications.

In addition to the increase in knowledge and skills, and changes in practice noted above, many studies have quoted career advancement (A. Johnson & Copnell, 2002; Lumsden et
al., 1998; Pelletier et al., 2005; Pelletier, Donoghue, et al., 1998a) as one reason why nurses undertake postgraduate education. Similarly, interviews with a group of registered nurses enrolled in a masters degree program found that they believed the degree would increase their credibility in the employment setting (P. G. Watson & Wells, 1987).

McDonald et al (2009) conducted a cross-sectional survey of a group of 51 new graduates undertaking postgraduate education within a nursing entry to practice (NETP) program. One of the biggest challenges experienced by the new graduates in the study of McDonald et al (2009) in relation to their education was time management. Most of the participants found it difficult to balance work, study and life stresses (McDonald et al., 2009), which resonates with earlier studies (A. McCarthy & Evans, 2003; Nicholl & Timmins, 2005; Penz et al., 2007; Spencer, 2006) that reported disruptions to family and work life. In one Australian study of postgraduate education, students noted that study significantly altered their personal relationships and social life (Chaboyer & Retsas, 1996).

In a small Irish study by Reid, Nellis and Boore (1987), the respondents reported occasional negative reactions to their educational qualifications during job interviews. This finding was also reported by Wong (1988) and Carlisle (1991). Johnson and Copnell (2002) interviewed a group of nurses who had completed a postgraduate diploma in paediatrics. This group cited a lack of increased employment opportunities and “no opportunity for career advancement” and therefore “no direct remuneration” upon acquisition of a postgraduate qualification (A. Johnson & Copnell, 2002, p. 123). This finding is consistent with another study that found that nurses with a postgraduate qualification do not have any advantage over nurses without this qualification in term of promotion (Simson & Holyroyd, 1997).

Negative impacts on work role and job satisfaction have also been reported (Pelletier, Donoghue, et al., 1998a), as well as difficulty in instigating change and apathy from colleagues (Hardwick & Jordan, 2002).

Johnson and Copnell (2002) reported that many believed their employers did not value the qualification. According to Johnson and Copnell (2002), this may be explained by the large number of senior nurses in that study who did not have a postgraduate paediatrics qualification; hence, the participants’ perceptions that the employers did not value the qualification.
2.5 Summary

The findings of the review can be summarised as follows.

- There is little evidence of change of attitudes of registered nurses with regard to the desirability of postgraduate education for specialty practice.
- There is some evidence of that increased knowledge and skills are developed through postgraduate education.
- There is little evidence of measurable change in practice resulting from postgraduate education.
- The barriers to and facilitators of postgraduate education for specialty nursing practice have not been clearly identified.
- The links between postgraduate education and intent to remain in nursing have not been fully defined.

From this literature review, it can be concluded that there are a multitude of issues associated with registered nurses’ attitudes to postgraduate education for specialty practice, in particular their own experiences and the attitudes of others. The literature provides some insight into the facilitators and barriers faced by registered nurses in undertaking postgraduate education as well as the benefits they perceive as accruing from such study. Given the paucity of research in nurses’ attitudes towards postgraduate education and the effects of postgraduate education on increasing knowledge, skills and change in practice, further work is needed to develop a knowledge base about registered nurses’ attitudes towards postgraduate education for specialty nursing practice, the facilitators and barriers they encounter in accessing it, and its effect on retention in nursing.

The next chapter presents the overall design of the current mixed methods research.
Chapter 3  Methodology

3.1  Introduction

This chapter presents a discussion and justification of the methodology adopted to fulfil the research aims. The research design is examined, sampling methods are described and the study procedure is outlined. Development of the instrument used in this study is discussed in full detail in Chapter 4.

Following a sequential mixed-methods approach (Creswell, 2014), the current research used quantitative and qualitative methods to investigate registered nurses’ attitudes towards postgraduate education in Australia. Firstly, the rationale of a sequential mixed-methods research design is discussed, followed by a description of the research design. Strategies used to increase the rigour of the quantitative and qualitative studies are discussed. Finally, statistical methods used in the analysis of data are described.

3.2  Study aims and hypotheses

According to the literature review (Chapter 2), many issues influence registered nurses’ attitudes to postgraduate education for specialty practice, in particular their own experiences as well as the attitudes of others. The literature provides some insights into the facilitators and barriers faced by registered nurses in undertaking postgraduate education as well as the benefits they perceive as accruing from such study. The ultimate aim of this study was to develop a knowledge base of registered nurses’ attitudes towards the need for postgraduate education for specialty nursing practice. This included identifying the facilitators of and barriers to postgraduate education and the effects of postgraduate education on their intention to remain in nursing. The findings are expected to assist the profession to evaluate more fully the facilitators of and barriers to postgraduate education for specialty practice. The following four research questions were developed to address these aims.

1. Do nurses in Australia believe that postgraduate education is necessary for specialty nursing practice?
2. Has postgraduate education been beneficial to nurses who have undertaken postgraduate studies?
3. Are there differences in the perception of facilitators of and barriers to postgraduate education between nurses with and without postgraduate education?
4. Do nurses in Australia who have undertaken postgraduate education for specialty practice intend to remain in nursing longer than those who have not?
Hypotheses of the study

The hypotheses for this study were that registered nurses who hold a postgraduate qualification in a specialty practice area will be more likely than those who do not to:

1. have positive attitudes to postgraduate education and consider it necessary for specialty nursing practice (research question 1 and 2)
2. believe that barriers to postgraduate education can be overcome (research question 3)
3. intend to remain in nursing longer (research question 4).

Figure 3-1 shows a representation of the study hypotheses. The aim of this study was to try to identify whether postgraduate education for specialty practice affects retention in nursing and to clarify attitudes to postgraduate education for specialty practice among registered nurses in Australia. If postgraduate education is found to increase retention, the results of the questionnaire may have implications for workforce planning.

Figure 3-1 Hypotheses of the study

The evaluative framework of Barr et al (1999) was modified as the framework to inform the literature review for this study. Barr et al (1999) evaluated the outcomes of inter-professional education on healthcare participants and grouped the outcomes into six levels.
by separating the impact on attitudes from that on knowledge and skills. Because this research aimed to explore registered nurses’ attitudes towards postgraduate education for specialist practice and barriers of and facilitators to postgraduate education in general, the evaluative framework of Barr et al (1999) was modified. Thus, the literature search was informed by studies that assessed only participants’ acquisition of knowledge and skills, and changes in their attitudes and behaviour (Table 3-1). Benefits to patients/clients were not included because of the inherent difficulties in measuring these (Bowling, 2002; McDowell & Newell, 1996).

Table 3-1 Modified evaluative framework of Barr et al (1999)

| Changes in attitudes and perceptions: positive and negative changes in attitudes as a result of postgraduate education, including attitudes to postgraduate education as a prerequisite for specialty practice and intention to remain in nursing |
| Acquisition of knowledge and skills: outcomes of postgraduate education and their effects on knowledge and skills, including research skills |
| Changes in behaviour: changes in professional practice following postgraduate education |

The literature review identified several themes that could present as either facilitators of or barriers to postgraduate education for specialist nursing. The primary themes identified by the literature review included changes in attitudes and perceptions, acquisition of knowledge and skills, and changes in behaviour (Table 3-1). As discussed in Chapter 2 (Literature Review), aspects of specialty postgraduate education relating mainly to facilitators of and barriers to postgraduate education beyond these three themes were identified, and were also considered relevant to the research questions and were therefore also used to inform the content and structure of the questionnaire.

3.3 Ethical considerations

Before the start of the study, formal ethical approval was obtained from The University of Queensland Behavioural and Social Sciences Ethical Review Committee (2011000884; Appendices I, II, III).

In addition, the research was guided by a number of ethical principles, specifically consent, autonomy, anonymity and confidentiality.

Consent

All participants for both the online surveys (Chapter 4 Instrument development and Chapter 5 Phase One: survey) were provided with a copy of the Participant Information
Sheet (Appendix IV) to ensure sufficient explanation of the study was facilitated. The survey instrument included a statement that the return of the survey form will be taken as implied consent to participate. Therefore, consent to participate was assumed for respondents of the online surveys (Chapter 4 Instrument development and Chapter 5 Phase One: survey) when the surveys were completed and returned. Participants also indicated whether or not they would consent to a follow-up interview on the survey. Before Phase Two (the interpretative study; see Chapter 6), informed consent was sought from each participant both verbally and through written documents.

**Autonomy**

The cornerstone of protecting autonomy in this study was strictly adhered to, with the researcher providing full disclosure about the nature of the study, the risks, benefits and alternatives, and an extended opportunity to ask questions before deciding whether or not to participate (Appendix IV). The researcher also stressed that participants ought not to feel coerced in any way to participate and that they were free to ‘refuse to participate’.

**Anonymity and confidentiality**

In both phases of the study, each participant’s right to privacy was ensured. Participants of Phase Two (the Interpretative Study; Chapter 6) were assured that their data will be ‘non-identifiable’ through the application of a code to protect an individual’s identity. All digitally recorded audio, transcribed data and completed questionnaires have been stored securely. Access was restricted to the primary researcher and the supervisory team. All reported data are presented so that participants cannot be identified. The confidentiality of the information was thus protected at all times and participants were assured that the information will not be released by the researcher to a third party unless required to do so by law.

**3.4 Rationale for the mixed-methods design**

Research methods can include a variety of techniques to study a given phenomenon and are planned and scientific (L. Cohen & Marion, 1980; Kumar, 1996). Research methods are deliberately used in a way that is designed to both maximise the accuracy of the results and answer the research questions (L. Cohen & Marion, 1980).

A two-phased approach was undertaken in this study. Phase One was a survey. In this phase, a pilot-tested instrument developed for the purpose of this study was administered to a population sample of registered nurses in Australia to explore the barriers to and facilitators of postgraduate specialty education. Phase Two used a translational research approach to translate the survey findings into recommendations. To contextualise the
survey findings, qualitative data were collected from a few participants to explore important quantitative results through face-to-face or telephone interviews (depending on the location of the participants) with registered nurses. The aim was to use the interface of data analyses from these two phases to develop research findings that would have direct implications for postgraduate education for specialty practice in Australia. The mixed-methods approach used in this research provides greater breadth of perspectives (Tashakkori & Creswell, 2007) associated with registered nurses’ attitudes towards postgraduate education. Mixed-methods research presents the best of both worlds: the comprehensive, contextualised, and natural but more time-consuming perceptions of qualitative research combined with the more proficient but less rich or convincing analytical power of quantitative research (Creswell & Tashakkori, 2007; Tashakkori & Creswell, 2007; R. K. Yin, 2006). Combining approaches helps overcome deficiencies in one method only (Creswell & Tashakkori, 2007). Using this methodological approach, the quantitative and qualitative data from this study were analysed and reported separately, but the results from each are considered together in the discussion of the study findings (Chapter 7).

Nursing research falls within the two broad worldviews: the positivist (Kumar, 1996) and the naturalistic (L. Cohen & Marion, 1980) paradigms. Quantitative research, which aligns with the positivist paradigm, is a formal, objective, deductive approach to problem solving (L. Cohen & Marion, 1980; Kumar, 1996). Quantitative research is the statistical representation and manoeuvring of observations for the purpose of telling and explaining the occurrences that those observations reveal (L. Cohen & Marion, 1980; Kumar, 1996). According to Kumar (1996), quantitative methods are less time consuming and complex than qualitative research.

A quantitative method was chosen for Phase One because the development and piloting of the questionnaire was a central feature of this research. It was thought that the first phase of a larger research plan would provide baseline data on the effect of postgraduate education on a range of attitudes, knowledge and behaviour. In the main study, the intention was to administer the questionnaire to a representative sample of Australian nurses (Phase One survey) and, to add scope and depth to our understanding of the issues, to explore their perceptions and experiences further through qualitative methods in Phase Two (the interpretative study).

Survey methods have been used for several years, are well defined, and have precise procedures that, when followed closely, yield valid and easily interpretable data (Baker, 1994; 2002; Dillman, 2000; Polit & Beck, 2010). Survey research is an important method of
measurement in applied social research (Dillman, 2000). The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents (Dillman, 2000). A survey approach will produce objective, quantifiable data that can be replicated but can be limited by not providing in-depth data about participants’ feelings toward the subject under study (Polit & Beck, 2010). Survey methods were identified as the most appropriate method to answer the research questions in this thesis research. According to some researchers, survey allow a large amount of data to be collected in a relatively short time (Dillman, 2000; Shaughnessy, Zechmeister, & Zechmeister, 2006) and are less expensive than other data collection methods (Dillman, 2000; Shaughness, Zechmeister & Zechmeister, 2006). A survey can access a greater variety of opinions and attitudes among registered nurses, particularly when research time is limited (Nie, Hillygus, & Erbring, 2002). The anonymity of survey responses also gives greater assurance of confidentiality (Dilman, 2000). A search of the relevant literature revealed no psychometrically tested instruments suited to answering the specific research questions. Therefore, an instrument was developed to answer these questions; the instrument is discussed in detail in Chapter 4. The analytical framework presented in Figure 3-2 illustrates the research steps undertaken in this study. This research approach was informed by the theoretical and empirical literature discussed in Chapter 2.
Figure 3-2 Analytical framework

Literature review

Instrument development:
- Development of items
- Content validity:
  - Expert panel
  - Convenience sample
- Reliability test: Pilot test–retest

The questionnaire:
- Nurses’ Attitudes Towards Post Graduate Education (NATPGE)

PHASE ONE: survey

Data analysis and reduction

IDENTIFICATION OF THREE FACTORS THAT INDICATE THE BARRIERS TO AND FACILITATORS OF POSTGRADUATE EDUCATION

PHASE TWO: interpretative study

Face-to-face OR telephone interviews
- Discuss and contextualise population study

Deductive analysis of interpretative data

DISCUSSION OF RESEARCH FINDINGS
3.5 Phase One: survey

3.5.1 Sample

The Nurses and Midwives e-Cohort Study (NMeS) is a longitudinal web-based study of 7,604 nurses and midwives in three countries: Australia, New Zealand and the United Kingdom. The population sample for this study was drawn from the NMeS, which was established with the aim for creating a longitudinal e-cohort for follow-up studies (Turner et al., 2008). The NMeS was chosen because it is representative of the registered nurse population in Australia (Huntington et al., 2009; Turner et al., 2008) with participants in all states and territories who have consented to be contacted for other research.

Participants who fit the inclusion criteria for the survey were drawn from the NMeS. Participants who agreed to take part in the pilot test-retest sample were excluded and not invited to participate in Phase: One. The inclusion criteria were registered nurses and working in Australia who did not identify midwifery as their speciality practice.

All eligible registered nurses were sent a personalised email introducing the study and inviting them to participate. Participation could be initiated by clicking a URL link within the email that directly transferred them to the study website.

All participant data were collected electronically using internet-based survey software and stored in the secure structured query language (SQL) database customised for the study. Participant details were stored in a registration database and survey responses were stored separately. The database was linked by a study ID, which was generated automatically upon registration and was accessible only to the primary investigator and the data manager. Once the study was closed, the data set was exported as an Excel file.

Initial cleaning of the data set was undertaken in Excel and the cleaned file was then imported into SPSS Version 21 (IBM Corp, 2012) for further cleaning and analysis.

3.5.2 Recruitment and data collection

An email invitation to participate in the study was sent to 1,632 registered nurses from the NMeS who fit the inclusion criteria. All information sent to the participants was concise and succinct (Appendix IV), and participants were informed that the survey would remain open for 3 months. Reminder emails were sent to the participants every 3 weeks after the first online questionnaire was opened (De Vaus, 2002) to allow potential participants who had not responded initially another opportunity to participate.

3.5.3 Data analysis

Initially, the survey results were exported as an Excel file. Data were prepared by identifying cases with missing data and screening for errors and irregularities. This was undertaken in a three-step process: examining the data for errors and identifying variables...
with scores that were out of range; when an error was detected, locating the file in which
the error had occurred and correcting the data file itself; and following this process,
repeating the frequencies to ensure that a second error had not occurred during the data-
cleaning process. The cleaned data file was then imported into SPSS Version 21 (IBM
Corp, 2012) for further analysis.
Before analysing the data in SPSS Version 21 (IBM Corp, 2012), the data set was again
screened for errors. The data cleaning process involved the following steps (Field, 2013;
Pallant, 2013; Tabachnick & Fidell, 2013):
1. Examining the data for errors made during entering of data and checking each of
the variables for values that are out of range i.e. not within the range of possible
values;
2. Finding and correcting the error in the data set by locating where in the data set this
error has occurred i.e. which case is involved and correct the value;
3. After correcting the errors, the frequencies were repeated again to double-check to
ensure that a second error had not occurred during the initial data cleaning process.

Demographic data were assessed using descriptive statistics to communicate an overall
picture of the 586 participants. The rationale for the use of descriptive statistics was
twofold. Firstly, descriptive statistics show or summarise data in a meaningful way such
that patterns might emerge from the data (Mann, 1995). Descriptive statistics are important
because presentation of raw data may make it difficult to merge raw data, especially for
large data sets (Trochim, 2006). Secondly, descriptive statistics allows simpler
interpretation of the data (Mann, 1995; Trochim, 2006). These items were not included in
the data reduction techniques.

Before data reduction, the data were prepared in three steps. In the first step, cases with
missing variables were deleted list-wise; that is cases (subjects) with a missing value on
any of the variables from the data set were removed to avoid reducing the quality of data
before the factor analysis procedures. Methods for imputing missing data have been
presented by Schafer (1997) and Little and Rubin (2002). Three procedures are commonly
used: mean replacement, pairwise deletion and list-wise deletion. In list-wise deletion, a
case is dropped from an analysis because it has a missing value in at least one of the
specified variables, and the analysis is run only on cases with a complete set of data. In
this study, list-wise deletion was chosen because the missing data were completely at
random (MCAR), meaning that the missing values were unrelated to the observed values
(Kamakura & Wedel, 2000). This resulted in the loss of 18 (3.1%) cases. Following this
process the sample size was 568. Opinion in the literature suggests deleting missing
variables before factor analysis (Field, 2013; Pallant, 2013; Tabachnick & Fidell, 2013), if the percentage of missing values is low (<5%) in a large sample of participants (Hair, Anderson, Tatham, & Black, 2005; Polit, 2010). In this study, the deletion of these cases made little difference to the adequacy of the sampling frame for factor analysis.

In the second step, before running the data reduction, items were reverse-coded for questions 5, 7, 9, 10 and 13 so that the high scores represented the highest or more positive end of the measure. It is common to include items in questionnaires that are phrased both positively and negatively to reduce acquiescent and extreme response bias (Nunnally & Berstein, 1994). Before data analysis, it is important to reverse-code these items so that they are all coded in the same direction (De Vaus, 2002; Pallant, 2013). The logic of reversing the wording of particular items and then recoding them to be consistent with the remaining items may increase the accuracy of the data being analysed (De Vellis, 2003; McCleary, 2002).

In the third step, correlational analysis was applied to the 14 attitude items as a crucial step before the data-reduction procedures. A basic requirement for data reduction is that there should be sizeable correlations between the variables in the matrix. If correlations among the variables are low, it does not make sense to search for an underlying construct that captures what the variables have in common (Pallant, 2013; Polit, 2010; Tabachnick & Fidell, 2013). It has been suggested that the average of correlation coefficients should be 0.30 or higher (Field, 2013; Pohlmann, 2004; Polit & Beck, 2010). In this study, all of the 14 attitudes items had correlation coefficients >0.30 with at least one other variable.

Following data preparation and correlational statistical processes, data reduction was undertaken using principal component analysis (PCA) to identify the constructs measured by the items.

### 3.5.4 Data reduction

Data reduction (e.g., PCA, exploratory factor analysis, confirmatory factor analysis, principal axis factoring) is a useful tool for investigating variable relationships for complex concepts such as socioeconomic status, dietary patterns or psychological scales (Matsunaga, 2010; Nunnally, 1978). It is a statistical data-reduction and analysis technique that strives to explain correlations among multiple outcomes as the result of one or more underlying explanations or factors. The technique involves data reduction in an attempt to represent a set of variables by a smaller number. As such “it is intimately involved with the question of validity and is at the heart of the measurement of psychological constructs” (Nunnally, 1978, pp. 112-113).
PCA was used in this study as a diagnostic tool for evaluating whether the collected data were consistent with the theoretically expected pattern or structure of the target construct and thereby to determine whether the measures used measured what they purported to measure (De Vaus, 2002; Matsunaga, 2010; Peat, Mellis, Williams, & Xuan, 2002). PCA can establish that sets of questionnaire items (observed variables) are in fact all measuring the same underlying factor (perhaps with varying reliability) and so can be combined to form a more reliable measure of that factor (Polit, 2010). PCA is the most frequently used multivariate statistical technique and is used by almost all scientific disciplines (Abdi & Williams, 2010; Matsunaga, 2010; Nunnally, 1978). It is a method of reducing a number of variables to groupings to aid interpretation of the underlying relationships between the variables while capturing as much of the variance in the data as possible (Abdi & Williams, 2010). PCA does not contain unique factors; that is, all of the variance of the observed variables is assumed to be attributable to the common factors so that the communality for each variable is one. Stevens (1996, pp. 362-363) and Tabachnick and Fidell (2013, p. 640) recommend using PCA to summarise a data set.

3.5.5 Evaluation of factorability
Before undertaking PCA, a preliminary evaluation of the data was performed to establish that a data-reduction technique made sense. This section describes the steps taken to determine the suitability of this study for PCA.

Sample size
There is no shortage of recommendations regarding the appropriate sample size to use when conducting a PCA. Suggested minimums for sample size include from 3 to 20 times the number of variables and absolute ranges from 100 to over 1,000 (MacCallum, Widaman, Preacher, & Hong, 2001; Pett, Lackey, & Sullivan, 2003; Polit, 2010; Williams, Brown, & Onsman, 2012). MacCallum, Widaman, Zhang and Hong (1999) show that samples in the range of 100–200 are acceptable, whereas Polit (2010) advises a sample size of at least 300. Moreover, there should be at least 10 cases per variable, and an even greater case-to-variable ratio is desirable (Pett et al., 2003; Polit & Beck, 2010). According to Tabachnick and Fidell (2013), correlation coefficients tend to be less reliable when estimated from small samples. In this study, the minimum amount of data for PCA was satisfied with a final sample size of 568 (using list-wise deletion), which yielded >12 cases per variable. However, according to Polit (2010), a large sample size does not necessarily provide a sufficient basis for PCA. In this study, the PCA was replicated. The sample was randomly divided in half, PCA was performed on the first subsample, and the results were then
cross-validated using PCA on the second subsample. Both analyses revealed similar factor structures. This highlights the importance of knowing how well a solution within one sample — even a very large, representative sample — can be generalised (Floyd & Widaman, 1995; Osbourne & Fitzpatrick, 2012; Thompson, 1999).

**Distributions**
Assumptions regarding distribution of variables are not in force in PCA and factor analysis (Pett et al., 2003; Polit, 2010; Tabachnick & Fidell, 2013). However, in this study, the data set was examined for skewness and kurtosis; and no substantial skewness or kurtosis was found. A spot check of some combination of variables was performed to ensure that the relationships between variables were linear.

**Correlational analysis**
A basic requirement for a PCA is that there should be a number of sizeable correlations between the variables in the matrix (Tabachnick & Fidell, 2013). Inspection of the sizes of coefficients in the correlation matrix provides preliminary clues about factorability (Polit, 2010). Studies recommend that an average correlation coefficient of 0.30 or higher (Nunnally & Berstein, 1994; Osborne & Costello, 2004; Pallant, 2013; Polit & Beck, 2010; Tabachnick & Fidell, 2013). This is to identify items that do not correlate at least moderately ($r = 0.3$ or greater) with other items because items with lower correlation coefficients would be likely to perform poorly in PCA (Field, 2013; Floyd & Widaman, 1995; Pallant, 2013; Tabachnick & Fidell, 2013).

**Bartlett’s test of sphericity and Kaiser–Meyer–Olkin test**
Sampling adequacy refers to the adequacy of sampling variables and was assessed using Bartlett’s test of sphericity (Bartlett, 1954). Bartlett’s (1954) test is a sensitive test of the hypothesis that the correlation matrix is an identity matrix; i.e., where all correlations between the variables are zero. Significance of the test ($P < 0.05$) supports evaluation of the factorability of the data. However, this test is highly influenced by sample size and so the test is always significant (Bowling, 1997; Pallant, 2013; Tabachnick & Fidell, 2013). The Kaiser–Meyer–Olkin (KMO) test provides a better measure of sampling adequacy (Kaiser, 1974). This test compares the sizes of correlation coefficients to those of the partial correlation coefficients. The KMO measure of sampling adequacy ranges from 0 to 1. The closer the value is to 1, the better the prospects for PCA. KMO values of 0.80 or higher are considered good, those in the 0.70–0.79 range are considered fair, and values <0.50 are considered unacceptable for PCA. The results of Bartlett’s and KMO tests in this study are displayed in Table 3-2. Based on Bartlett’s and KMO test results, this study was considered suitable for PCA.
### Table 3-2 KMO and Bartlett's Test Results

<table>
<thead>
<tr>
<th>KMO and Bartlett’s Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser–Meyer–Olkin Measure of Sampling Adequacy</td>
<td>0.816</td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. chi-square</td>
<td>1712.630</td>
</tr>
<tr>
<td>Df</td>
<td>91</td>
</tr>
<tr>
<td>Significance</td>
<td>0.000</td>
</tr>
</tbody>
</table>

#### 3.5.6 Numbers of factors to extract

Factor scores or factor loadings indicate how each hidden factor is associated with the observable variables used in the analysis. The overall goal is to explain as much variance as possible using the fewest factors as is reasonable in making the decision about the number of factors to extract, rotate and score (Costello & Osborne, 2005; Gorsuch, 1983). It is a balance between the extremes of losing too much information about the original variables on one hand and being left with too many factors on the other. Examinations of the factor loadings was undertaken to identify which items belonged to which factor, and items were considered to have loaded if they had a factor loadings of 0.40 or more (Kline, 2002; Pohlmann, 2004). Having a strong loading benefits the robustness of the analysis (Osborne & Costello, 2004). This section describes the steps taken in factor extraction.

**Eigenvalues and scree plot**

Various criteria have been suggested to determine the number of factors to extract (Kline, 2002; Pallant, 2013; Tabachnick & Fidell, 2013). This study used the standard criterion which is to keep all factors with an eigenvalue >1.0 in the original solution (Kaiser, 1970, 1974). This study also used a second approach, the scree test, which plots successive eigenvalues for the factors. Scree plots show declining values for the eigenvalues, and this pattern is consistent with the fact that each successive linear combination maximises the extracted variance (Cattell, 1966). A scree plot is typically interpreted to indicate that the number of factors appropriate for a particular analysis is the number of factors before the plotted line turns sharply to the right (Pallant, 2013; Tabachnick & Fidell, 2013).

**Rotation**

PCA involves a factor rotation phase that helps to understand the meaning of underlying factors. Most of the rationale for rotating factors comes from Thurstone (1934) and Cattell (1944) who argued for its use because this procedure simplifies the factor structure and therefore makes its interpretation easier and more reliable. According to Tabachnick and Fidell (2013), orthogonal rotation produces results that are easier to interpret and report. The most widely used orthogonal rotation is varimax rotation. This study used both orthogonal (varimax rotation) and oblique (direct oblimin rotation) rotations, as
recommended by Abdi (2003), Field (2013), Pallant (2013) and Tabachnick and Fidell (2013). Both approaches resulted in similar solutions. Therefore, the decision was made to use varimax rotation because it is clearer to interpret and easier to compare factor structures. Item loadings were then reviewed to determine their conceptual fit.

**Cronbach's alpha**

The question of reliability arises as the function of scales is stretched to encompass the realm of prediction. Cronbach's alpha coefficient is one of the most often used reliability statistics (Cronbach, 1951b). Cronbach's alpha indicates the internal consistency or average correlation between items in a survey instrument and can be used to gauge the instrument’s reliability (Cortina, 1993; Santos, 1999). Alpha is an important concept in the evaluation of assessments and questionnaires (Bland & Altman, 1997). It is mandatory that assessors and researchers estimate this quantity to ensure the validity and accuracy of the interpretation of their data. It is an unbiased estimator of reliability; that is, the components can have different means and different variances, but their covariances should all be equal. This implies that they have one common factor in PCA (Nunnally & Berstein, 1994; Schmitt, 1996). Cronbach’s alpha ranges from 0 to 1; the higher the value, the greater the reliability among indicators (Cortina, 1993; Hair, Black, Babin, & Anderson, 2009). As Clark and Watson (1995, p. 315) note, the issue of internal consistency reliability assessment is complicated by the fact that “there are no longer any clear standards regarding what level... is considered acceptable” for Cronbach’s alpha. Past criteria have ranged from 0.80 or 0.90 down to 0.60 or 0.70. Nunnally (1978) and De Vaus (2002) consider 0.70 to be an acceptable reliability coefficient, whereas Hair et al (2009) consider 0.60 to be acceptable in exploratory research. If alpha is too high, it may suggest that some items are redundant because they are testing the same question but in a different guise. A maximum alpha value of 0.90 has been recommended (Bland & Altman, 1997; Streiner, 2003).

**Validity: convergent, divergent and discriminant**

PCA is used to study construct validity (J. D. Brown, 2009; Jolliffe, 2002). If a series of tests are administered to a group of participants and those tests that logically should be related turn out to load on the same factor, while tests that would logically be less related load on different factors, the analysis can be used to argue for the convergent validity (i.e., the similar tests load together) and divergent validity (the unrelated tests load separately) (Jolliffe, 2002). To establish convergent validity, the variables within a single factor need to be highly correlated; i.e., measures that should be related are in reality related (Farrell, 2009). In this study, it was evident in the factor loadings on the matrix.
Discriminant validity refers to the extent to which factors are distinct and uncorrelated (Farrell, 2009; Lehmann, 1988). The rule is that variables should relate more strongly to their own factor than to another factor. Two primary methods are used to determine discriminant validity during PCA. The first method is to examine the pattern matrix. Variables should load significantly only on one factor. If cross-loadings do exist (variable loads on multiple factors), then they should differ by more than 0.2 (Hair et al., 2009; Lehmann, 1988). The second method is to examine the factor correlation matrix. Correlations between factors should not exceed 0.70 (Farrell, 2009; Hair et al., 2009). The factor correlation matrix was inspected in this study and suggested an adequate degree of convergent and discriminant validity.

3.5.7 Analysis of variance to compare groups

Analysis of variance (ANOVA), is a particular form of statistical hypothesis testing used often in the analysis of experimental data (Anderson, 2008; Tabachnick & Fidell, 2013). ANOVA is a general method for analysing data from designed experiments, whose objective is to compare two or more group means (Field, 2013; Pallant, 2013; Tabachnick & Fidell, 2013).

In general, the purpose of ANOVA is to test for significant differences between means (Bowling, 1997; Field, 2013). This is accomplished by analysing the variance; that is, by partitioning the total variance into the component related to true random error (i.e., within-group variance) and those related to differences between means. These latter variance components are then tested for statistical significance and, if significant, the null hypothesis of no difference between means will be rejected and the alternative hypothesis that the means (in the population) are different from each other accepted (Bowling, 1997; Field, 2013; Tabachnick & Fidell, 2013).

ANOVA was performed using a general linear model for each of the subscales identified. These statistical tests were performed to test the hypothesis that demographic groups would answer the questions in the same way regardless of their years of experience or postgraduate qualifications. The explanatory or independent variables used in these analyses were the demographic variables how many years a nurse has worked (Q2) and whether the nurse has postgraduate qualification in the specialty area (Q4), and the dependent variables were the subscale identified.
3.6 Phase Two: interpretative study

Phase One survey used quantitative exploratory research to identify the barriers to and facilitators of registered nurses' attitudes towards postgraduate education. Phase Two applied a qualitative method (interpretative interface) using face-to-face or telephone interviews to contextualise the Phase One survey findings. According to DiCicco-Bloom and Crabtree (2006), mixed methodology prevents losing the connection between the concept and the measure. Using both methods in this study produces greater faith in the findings (Curral & Towler, 2003; DiCicco-Bloom & Crabtree, 2006).

The results of both the quantitative and methods were integrated to answer the research questions from different angles and to verify them in the same context (Creswell, Clark, Gutmann, & Hanson, 2003). The convergence and integration of findings enhances the research (Bak, 2011; DiCicco-Bloom & Crabtree, 2006), diminishes other possible explanations for the conclusions based on the data (Tashakkori & Teddlie, 2003) and reveals different aspects of the phenomenon investigated (B. Johnson & Turner, 2003). This study followed a mixed-methods design, in which the initial quantitative hypothesis was test for general inferences and the findings moved from general inferences to deductive logic to narrow the focus of possible variables (Tashakkori & Teddlie, 2003). Questionnaires plus interviews may not reveal the complete picture but can provide a clearer picture than do questionnaires alone (DiCicco-Bloom & Crabtree, 2006). One feature of using sequential exploratory research in this study was that it required a long time for data collection, analysis and interpretation, as suggested by Bak (2011) and DiCicco-Bloom and Crabtree (2006).

There is increasing acknowledgment in nursing research that the findings from exploratory research can be interpreted to inform policy that will have both practical and theoretical applications (Gardner, 2006). This idea informed the aim of Phase Two of this research. Analysis of the NATPGE data identified both barriers to and facilitators of registered nurses' attitudes towards postgraduate education as follows: the available resources to support registered nurses participation in postgraduate education (subscale identified as 'Facilitators'), the demands that prevented registered nurses from participating in postgraduate education ('Barriers') and the attitudes of the registered nurses towards postgraduate education as well as to their profession (simplified here as 'Professional Recognition').

An interpretive approach emphasises the value of a detailed or 'thick' description of first-hand accounts collected in context and attempts to re-create the meaning of narrated experiences (Denzin, 2009; Maxwell, 2013). Meaningful understanding of
human behaviour requires a contextual approach to allow recontextualisation of a text to its original context during the reconstructive process of analysis and interpretation (Angen, 2000). The interpretative approach has been described as the fulcrum between language and the lived experience (Angen, 2000; Creswell, 2014; Denzin, 1989b; Maxwell, 2013).

The interpretative phase of this research provided insights into the phenomena not by establishing causality but by improving the overall comprehension of registered nurses’ attitudes towards postgraduate education. Figure 3-3 provides an overview of how this method was used as an interface to link the Phase One survey findings.
Figure 3-3 The interpretive design

PHASE ONE: survey

IDENTIFICATION OF THREE FACTORS THAT INDICATE THE BARRIERS TO AND FACILITATORS OF POSTGRADUATE EDUCATION

PHASE TWO: interpretative study

Face-to-face OR telephone Interviews → Discuss and contextualise Phase One: survey

DEDUCTIVE ANALYSIS OF INTERPRETATIVE DATA

DISCUSSION OF RESEARCH FINDINGS: INTERPRETATIVE INTERFACE OF QUANTITATIVE AND QUALITATIVE FINDINGS
3.6.1 Sample
All 568 (28.7%) registered nurses who participated in Phase One of the study were sent a personalised email introducing Phase Two and inviting their participation. This invitation was accepted through their reply to the primary investigator. This purposive sampling tends to ensure richness of the data gathered (Fossey, Harvey, McDermott, & Davidson, 2002) because the group share similarities related to the research question and are genuinely willing to take part and prepared to offer data freely. One hundred and fourteen participants responded, 15 of which had no postgraduate qualifications. The primary investigator decided to have the same percentage of participants for this phase as in Phase One and decided to interview 40 participants (28.5%). To ensure a thick and rich data set, the primary investigator decided to interview all 15 participants who did not have any postgraduate qualifications and 25 participants who had postgraduate qualifications to make up the total of 28.5%. According to Morse (2015), data quality is associated with the number of interviews and/or participants, and a lack of adequate sample is a validity issue. Participants included both men and women, aged between 31 and 62 years, each of whom had between 9 to 41 years of nursing experience. The interviews were conducted in English, in which all participants and the primary investigator were fluent. All participants were informed at the start of the interview that they had the right to withdraw from the interview at any time (Beauchamp & Childress, 2001). Participants were assured at the start of the interview that their identity would not be revealed, and the raw data collected not be released to a third party (Parahoo, 2006). All participants consented to recording of their interviews, and 40 interviews were conducted; a total of 26 hours and 7 minutes were digitally recorded.

3.6.2 Recruitment
Participants showed interest in participating by sending an email to the primary investigator, after which they were emailed the Information Sheet (Appendix V) and the Consent Form (Appendix VI). Sending these to each participant provided them a longer time to read through and make an informed decision about their participation (Beauchamp & Childress, 2001). Anonymity and confidentiality were assured to the participants and written consent for the interview was obtained. Participants tend to be honest and frank during interviews when the participant knows the purpose of the interview and complete anonymity is guaranteed with respect to his or her responses (Beauchamp & Childress, 2001; Bugher, 1980). Participants were instructed to return the Information Sheet and the Consent Form to the primary investigator once they had agreed to be interviewed. Further email correspondence with each participant was conducted to schedule appointments and
to arrange the mode of interview (face-to-face or telephone interview or other modalities such as Skype, Zoom), depending on the participant’s location. All participants requested the interview to be conducted over the telephone.

3.6.3 Data collection

Telephone interview

Methodology textbooks have traditionally advised that telephone is not suited to qualitative interviewing (Gillham, 2005; Legard, Keegan, & Ward, 2003; Rubin & Rubin, 2005) because of two main concerns:

1. The lack of face-to-face contact, which restricts rapport building (Shuy, 2003)
2. The loss of visual or non-verbal cues, which are thought to aid communication and to convey more subtle layers of meaning (Irvine, Drew, & Sainsbury, 2010).

The telephone is accepted as a mode of data collection in quantitative large-scale surveys (Aday, 1996; Dillman, 2007) and is the most widely used survey modality in industrialised nations (Bernard, 2002). In contrast to quantitative research and the quantitative research literature, few qualitative studies have used telephone interviews, and there is little discussion of the methodology when using this modality (Tausig & Freeman, 1988). The section below addresses the advantages and disadvantages, including the strategies undertaken in this study, for telephone interviews.

Advantages

Telephone interviews offer a range of potential advantages for qualitative research. The following were considered advantageous because they pertain to the practical procedures of conducting the interviews and data analysis within the parameters of a time-limited research project.

Time efficiency

According to Aday (1996) and Sturges and Hanrahan (2004), the most common reason cited by participants for choosing to be interviewed by telephone is not having the time to participate in a face-to-face interview. Harvey (2011) concludes that, if the researcher insists on a face-to-face interview, the result may be fewer interviews and a lower response rate. In this study, participants agreed to take part in the telephone interviews. They felt that telephone interviews would be less demanding than face-to-face interviews and would require less time and effort considering their busy schedule. The advantage of time efficiency is relevant because the researcher and participants were separated by considerable distance.
Geographical location
The participants were distributed throughout Australia: 12 from Queensland of which five were from Brisbane, two from Maryborough, three from Cairns and two from Townsville; 11 from New South Wales, five from Victoria, three from South Australia, three from Tasmania, four from Western Australia and two from the Northern Territory. It was not financially feasible to travel extensively to conduct enough face-to-face interviews to ensure rigorous qualitative outcomes. Therefore, the telephone represented a practical (Holt, 2010; Tausig & Freeman, 1988) and cost-effective (Harvey, 2011; Shuy, 2003; Stephens, 2007) mode for data collection for this study.

Rearrangement flexibility
According to Sturges and Hanrahan (2004), offering the flexibility of face-to-face or telephone interviews can increase participants’ willingness to be spoken with, thus increasing response rates. Holt (2010) states that, when an unexpected interruption occurs during a scheduled interview, it is much easier and more flexible to rearrange for another appointment if it is a telephone interview. With a face-to-face interview, it can be awkward and challenging to reschedule, especially if the researcher has come to the participant’s home or a jointly agreed location.

In this study, the participants were ready to reschedule missed interviews through telephone, text or email communication some time later. Some participants took their own initiative to organise new appointment. Participants also expressed relief that the interviews could be rearranged, voicing that they were in a better position to give their input at the postponed appointment. This clearly demonstrated the participants’ insight that the telephone interview provided flexibility and accessibility and did not result in a lesser commitment.

Sense of privacy, confidentiality and anonymity
Telephone interviews can create a neutralising distance that makes participants feel more comfortable disclosing information without feeling judged by the researcher (Sturges & Hanrahan, 2004). This latter phenomenon is, what Holt (2010, p. 115) terms “facing the professional gaze”. Telephone interviews also allow participants to remain more anonymous if desired (Sturges & Hanrahan, 2004; L. Sweet, 2002) and to feel less emotionally intense or intruded upon (Holt, 2010); there may be physical safety advantages for both researcher and participants (Bernard, 2002; Pridemore, Damphouse, & Moore, 2005). For the researcher, there is also the opportunity to take field notes unobtrusively (Carr & Worth, 2001; E. M. Smith, 2005; Sturges & Hanrahan, 2004; Tausig & Freeman, 1988). Telephone interviews allow participants to remain on ‘their own turf’
(McCoyd & Kerson, 2006), retain privacy (Greenfield, Midanik, & Rogers, 2000; Sturges & Hanrahan, 2004), and to feel less social pressure and increased rapport (McCoyd & Kerson, 2006). The rearrangement flexibility provides participants with control over their privacy by allowing them to choose the setting they are most comfortable with (Cachia & Millward, 2011; Holt, 2010). Most of the participants in this study chose to arrange an interview when they were at home or during their lunch break, which maximised privacy and may have enhanced their willingness to share their views and life events openly.

**Fewer interruptions**
Prasopoulou, Pouloudi and Panteli (2006) suggest that the telephone modality can reduce the number of interruptions to a conversation because Western cultures in general tend to give more urgency to a telephone conversation. Harvey (2011, p. 438) interviewed high-profile participants face-to-face and reported that they “often become distracted during the interview through for example their telephone ringing or their personal assistant entering the room”. Additionally, Miller (1995) contends that telephone interviews eliminate the distractions caused by the researcher’s taking notes during the interview.

**Disadvantages**
As a data collection tool, the telephone remains unappreciated in qualitative research because of the concerns raised above (Cachia & Millward, 2011). However, Tausig and Freeman (1988) recommend it as an appropriate tool to collect sensitive information, and Creswell (2014) contends that it is an accepted and useful data collection tool. The following section discusses the disadvantages and the strategies and countermeasures used in this study.

**Lack of rapport building**
Rapport is a concept that is difficult to measure. It involves trust and a respect for the participant and the information he or she shares. It is also the means of establishing a safe and comfortable environment for sharing the participant’s personal experiences and attitudes as they actually occurred. It is through the connection of many ‘truths’ that interview research contributes to our knowledge of the meaning of human experience (DiCicco-Bloom & Crabtree, 2006; C. Warren & Karner, 2005). Shuy (2002, p. 179), Gillham (2005, p. 103) and Chapple (1999, p. 90) suggested that rapport, which is considered important for generating rich qualitative data, may be more difficult to establish in telephone interviews,. However, Scott (2004) found that, when combining semi-structured interviews with previous communication such as email, individuals are more likely to avoid shyness and offer perceptive points of view on social life. This demonstrates
what Denzin (2009) views as the opportunity for interviews to reflect the performance of the self and society.

In this study, rapport was initiated through multiple email correspondence from the primary investigator to each participant to introduce the primary investigator to the participant, schedule appointments and create a sense of connectedness. By knowing the participants, the interviewer sought to capture a depth and scope of data as a mechanism to facilitate credible descriptions of the participants’ experiences.

Rapport can be assessed in a number of ways such as the inclination of the participants to recruit other participants, also known as the ‘snowball effect’ (Heckathorn, 2011). A few email communications (n=10) were received from friends of participants who had been interviewed in which they volunteered to be interviewed; these were declined by the primary investigator to prevent any bias because the sample could include an overrepresentation of individuals with the same views (Magnani, Sabin, Saidel, & Heckathorn, 2005; Sadler, Lee, Lim, & Fullerton, 2010). Moreover, there is no statistically reliable way to estimate whether saturation of the sample has been reached because, in qualitative research, saturation is defined as when no new information is forthcoming from the participants in the sample that has been recruited already (Heckathorn, 2011; Sadler et al., 2010).

**Lack of visual or nonverbal cues**

Absence of visual cues is said to have a number of effects, including the loss of informal communication and contextual information (Novick, 2008), the inability to develop rapport or to probe and the misinterpretation of responses (Chapple, 1999; Creswell, 1998; Opdenakker, 2006; Sturges & Hanrahan, 2004). However, nonverbal interview data contain intellectual or emotional matter and are thought to add to the richness of data and interpretation of participants’ verbal responses (Chapple, 1999; Fielding & Thomas, 2008; Fontana & Frey, 2005). It is argued that information expressed in gestures and actions could ensue from the absence of visual encounter which is the fundamental difference between face-to-face and telephone interviews. However, these composite data may not always be fundamental or helpful (Fontana & Frey, 2005; Sturges & Hanrahan, 2004).

There are ways to compensate for the absence of nonverbal responses, such as intonation (Opdenakker, 2006), hesitations and sighs (Sturges & Hanrahan, 2004). Tausig and Freeman (1988) found that careful listening enabled the telephone interviewer to hear affect that was conveyed with the content without the visual access by drawing on cues such as tension, anger, sarcasm, curtness, tears and rapid speech. Sweet (2002, p. 62), Stephens (2007) and Holt (2010, pp. 117-118) assert that it is possible to detect such
emotional states through auditory channels. The disadvantage of being unable to see the participant can lead to the loss of contextual data (Opdenakker, 2006). In response, not all qualitative designs include participant observations. Natural settings are sometimes discouraged for more formal interviews to decrease environmental distractions (Creswell, 1998), which suggests that context can sometimes obstruct the collection of interview data. According to Burnard (1994), the loss of contextual data may not always undermine the quality of qualitative findings. There is little evidence that data loss or interpretation or quality of findings is compromised when interview data is collected by telephone.

During the interviews reported here, the primary investigator (interviewer) asked for repetition or extension of responses when the interviewer was uncertain of what was happening in the participant’s environment (L. Sweet, 2002). Vocal responses by the interviewer were used to communicate the continued attention and interest to the participants (Miller, 1995; Tausig & Freeman, 1988). Plenty of ‘umms’, ‘aahs’ and ‘yes’ were used to compensate for the nod, which is used as an acknowledgement in face-to-face interviews (Shuy, 2003). The flow of the conversation was sometimes regulated by the participant asking whether his or her response was given in too much detail. This highlights the fact that people generally have an adequate level of skill, which is borne of experience, in communicating through this modality.

**Shorter interview time**

The use of telephone interview is thought to reduce the richness of qualitative data by restricting rapport (Shuy, 2003), preventing the use of visual cues (Garbett & McCormack, 2001) and requiring a shorter interview time (Irvine, Drew, & Sainsbury, 2013). Gillham (2005), Shuy (2002) and Tausig and Freeman (1988) maintain that telephone interviews tend to be shorter because they are more demanding and fatiguing than face-to-face interactions. Burke and Miller (2001) studied the optimum time for telephone interviews and reported a recommended duration of 15 to 20 minutes. Sturges and Hanrahan (2004) noted the lack of research comparing face-to-face and telephone interviews and conducted a study themselves. They found that data from telephone interviews were comparable to data from face-to-face interviews.

In this study, the participants were willing to engage in long telephone interviews, which were similar to the usual duration of face-to-face interviews (Irvine et al., 2013; Tausig & Freeman, 1988; Trier-Bieniek, 2012). It can be concluded that the participants were sufficiently motivated and rapport had been established successfully because the interviews ranged from 30 to 50 minutes. The participants were informed that they could take a couple of minutes to ponder the questions before responding. The few minutes’
silence facilitated the participants’ comfort during the rest of the interviews (Trier-Bieniek, 2012).

**Semi-structured interviews**

In this study, semi-structured interviews were selected as the means of data collection that was consistent with the research design and for the following methodological reasons.

1. The initial quantitative hypothesis used deductive logic to narrow the focus of possible variables. Semi-structured interviews are flexible enough to allow the inductive nature of interpretative analysis to take place (Smith, 2004)

2. Semi-structured interviews are well suited for the exploration of the perceptions and opinions of participants regarding complicated and sometimes sensitive issues, and for the exploration of more information and clarification of answers (Barriball & While, 1994)

3. The diverse educational and personal histories of the sample group impeded the use of a structured interview (Ritchie & Lewis, 2003)

Semi-structured interviews allow all participants to be asked the same questions within a flexible framework. Interviews of this kind are reasonably objective while still permitting a more thorough understanding of the participants’ opinions and the reasons behind them (Carruthers, 1990) and for obtaining comparable data across participants (Bogdan & Biklen, 1982).

Semi-structured interviews allow options in the wording of each question and in the use of probes (Barriball & While, 1994; Cachia & Millward, 2011; Carruthers, 1990). Probing can be an important tool for ensuring reliability of the data by allowing for clarification of interesting and relevant issues raised by participants (Hutchinson & Skodol-Wilson, 1992) and by allowing the interviewer to draw valuable and complete information (Barriball & While, 1994). Probing also increases the potential for interactive opportunities between the participant and the interviewer, which helps to establish a sense of rapport (Barriball & While, 1994; Rowley, 2012) and reduces the risk of socially desirable answers (Angen, 2000; Denzin, 1989b).

This study used open-ended prompts (Appendix VII). Consistent with the sequential mixed-method design, the questions were tailored to address the three components identified in Phase One (Table 3-3). According to Merton and Kendall (1946), and Schattner, Schmerling and Murphy (1993), data collected in interviews can be used to interpret survey responses when performed in mixed-methodology research. This study is an example of such an approach.
Table 3-3 Steps in the analytical process

Phase One: survey findings: three components

<table>
<thead>
<tr>
<th>Indicated facilitators</th>
<th>Indicated barriers</th>
<th>Professional recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specially postgraduate education improves nurses’ clinical skills (M = 2.12), specialist nurses’ critical thinking (M = 2.00) and nurses’ knowledge (M = 1.59)</td>
<td>The cost of postgraduate education is too high (M = 2.04)</td>
<td>A registered nurse needs to have a postgraduate qualification related to their specialty practice in order to be recognised by the profession as a specialist nurse (M = 2.09)</td>
</tr>
<tr>
<td>Specially postgraduate education increases nurses’ confidence in clinical decision making (M = 1.86) and enhances nurses’ careers (M = 1.86)</td>
<td>It is difficult to balance work, study and social life while undertaking postgraduate education (M = 1.76)</td>
<td>There is NO DIFFERENCE in clinical practice between a registered nurse with a specialty postgraduate qualification and a registered nurse without a specialty postgraduate qualification (M = 3.22)</td>
</tr>
<tr>
<td>A registered nurse with specialty postgraduate education experiences increased job satisfaction (M = 2.67)</td>
<td>Employer support (e.g., time off for study, financial assistance) is necessary for postgraduate study to be successful (M = 1.98)</td>
<td>A Registered Nurse needs to have BOTH a postgraduate qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse (M = 2.09)</td>
</tr>
</tbody>
</table>

Qualitative interpretative study

Face-to-face interview OR telephone interview → questions relate to the three components

<table>
<thead>
<tr>
<th>Addressing indicated facilitators</th>
<th>Addressing indicated barriers</th>
<th>Addressing professional recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nurses with postgraduate education (PGE):</strong></td>
<td><strong>Nurses with postgraduate education (PGE):</strong></td>
<td><strong>Nurses with postgraduate education:</strong></td>
</tr>
<tr>
<td>1. I am interested in how your practice has changed as a result of PGE. Can you speak to that?</td>
<td>1. What, if any challenges did you encounter in undertaking PGE?</td>
<td>1. Did you find postgraduate education a necessity?</td>
</tr>
<tr>
<td>2. Which aspects of postgraduate education have impacted on your practice?</td>
<td>2. What strategies did you employ to address these challenges?</td>
<td>2. Do you intend to remain in nursing?</td>
</tr>
<tr>
<td>3. I am also interested in how postgraduate education has impacted on you personally. Can you speak to that?</td>
<td>3. What would have made it easier for you to deal with those challenges?</td>
<td><strong>Nurses without postgraduate education:</strong></td>
</tr>
<tr>
<td>4. When did you last complete your postgraduate education? Can you tell me how your career changed since then?</td>
<td></td>
<td>1. Do you think postgraduate education is necessary?</td>
</tr>
<tr>
<td><strong>Nurses without postgraduate education:</strong></td>
<td></td>
<td>2. Do you intend to remain in nursing?</td>
</tr>
<tr>
<td>1. If you could influence the policymakers/employers, what do they have to change to encourage you to undertake postgraduate education?</td>
<td></td>
<td><strong>Nurses with postgraduate education:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Did you find postgraduate education a necessity?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Do you intend to remain in nursing?</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Nurses without postgraduate education:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Do you think postgraduate education is necessary?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Do you intend to remain in nursing?</td>
</tr>
</tbody>
</table>
Recording the interviews

All interviews were digitally recorded with the permission of the participants. At the beginning of the interview, the consent form was read to the participant and the participant was asked to confirm his or her agreement. The audio recording ensured that an identical replication of the contents of each interview was available to facilitate analysis. Audio recording was chosen as a tool for record keeping because it can greatly increase the quality of field observations (Markle, West, & Rich, 2011) by allowing the researcher to analyse, interpret and report the participants’ own words. The audio data enhanced the transferability of this study and created an audit trail (Denzin & Lincoln, 2003). The audio recordings were also used by the primary investigator as a self-evaluation tool for reflection that then directed questions for discussion with the researcher’s primary supervisor. The audio recording can be used to refute criticism that qualitative research is prone to systematic bias (K. May, 1991; Trier-Bieniek, 2012; Tuckett & Stewart, 2004).

Verbatim transcription

The importance of ensuring that the interview transcript is a verbatim account of what took place is widely accepted (Parahoo, 2006; Poland, 1995; Stephens, 2007). A verbatim transcript is a faithful reproduction of an aural record that is considered to be an unquestionable record of the interview and an expression of truth (Stephens, 2007). The primary investigator transcribed the first eight interviews, which help immersed the primary investigator in the data. This process took more than 3 hours for each 40-minute interview. For pragmatic reasons, thereafter, the audio recordings of the interviews were transcribed by a trained transcriber. To ensure rigour, the primary investigator then audited each transcript against the audio recording to check for accuracy. The auditing was considered to be vital for maintaining close contact and familiarity with the data (Ryan-Nicholls & Will, 2006; Seale & Silverman, 1997; Shenton, 2004; Tuckett, 2005). This process proved to be a lengthy and systematic examination of the transcripts. Auditing transcripts in this way (careful listening, reading, re-reading and early thematic identification within the transcribed text) (Barbour, 2001; Tuckett, 2005) enhanced the credibility and auditability of the study (Rubin & Rubin, 2005; Shenton, 2004; Whittemore, Chase, & Mandle, 2001).
Field notes

Field notes refer to various notes recorded by the researcher during or after his or her observation of a specific phenomenon. Emerson (1995) defines field notes as descriptions of experiences and observations the researcher has made while participating in an intense and involved manner. Bryman and Bell (2003) identify three classifications of field notes: mental notes, when it may be inappropriate to take written notes; jotted or scratch notes, taken at the time of observation (non-participant observation; participant observation) or discussion and comprising highlights that can be remembered for later development; and full field notes written up as promptly and as fully as possible.

In this study, the primary researcher used the second classification above and took brief contemporaneous notes during the telephone interviews. These brief notes allowed the primary investigator to improve the discussion by keeping track of ideas and themes, and coming back to them for clarification and further discussion and elaboration (Patton, 1990; Tuckett & Stewart, 2004). These brief notes were used by the primary researcher to sum up at the end of each interview. These commentary notes can play a key role in what Guba and Lincoln (1989) term ‘progressive subjectivity’ or the monitoring of the researcher’s own developing constructions, which these writers consider critical for establishing credibility.

3.6.4 Rigour (trustworthiness)

Unlike quantitative research that seeks to examine objective, measurable data and causal relationships between variables, qualitative research is about processes and meanings that cannot always be experimentally examined (Denzin, 2009). Socially constructed realities and relationships between the researcher and what is being studied are crucial components of qualitative inquiry (Denzin & Lincoln, 2003). Advocates of qualitative approaches stress the value-laden nature of realistic analysis; a frequently heard criticism is that qualitative research is subjective, anecdotal and subject to researcher bias (T. Koch & Harrington, 1998). There are many debates about the applicability of validity and reliability to qualitative research (Hoye & Severinsson, 2007; T. Koch & Harrington, 1998; Morse, 2015; Tobin & Begley, 2004). The challenge for the qualitative approach is to produce credible strong research and to prove rigour.

Rigour is the means of demonstrating the plausibility, credibility and integrity of the qualitative research process. According to Koch (2006), a study’s rigour can be determined if actions and developments of the researcher can be examined. This thesis used the framework proposed by Guba and Lincoln (1981) to assess the rigour of the qualitative research: credibility, transferability (or fittingness), auditability (or dependability)
and confirmability (Lincoln & Guba, 1985). Each criterion is discussed in the following section to demonstrate how rigour was achieved in this qualitative component of the larger mixed-method study (Table 3-4).

### Table 3-4 Criteria for rigour (trustworthiness)

<table>
<thead>
<tr>
<th>Rigour1 (Trustworthiness)2</th>
<th>Research Strategy</th>
<th>Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Field notes</td>
<td>Purposeful sampling</td>
</tr>
<tr>
<td></td>
<td>Recording of interviews</td>
<td>Constant comparison</td>
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<td></td>
<td>Thematic log</td>
<td>Peer checking</td>
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<tr>
<td></td>
<td>Auditing of transcripts</td>
<td>Triangulation</td>
</tr>
<tr>
<td>Transferability (fittingness)</td>
<td>Thick description</td>
<td>Audit trail</td>
</tr>
<tr>
<td>Auditability (dependability)</td>
<td>Field notes</td>
<td>Triangulation</td>
</tr>
<tr>
<td></td>
<td>Recording of interviews</td>
<td>Peer checking</td>
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<td></td>
<td>Thematic log</td>
<td>Audit trail</td>
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<tr>
<td></td>
<td>Auditing of transcripts</td>
<td></td>
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<tr>
<td>Confirmability</td>
<td>Audit Trail</td>
<td>Triangulation</td>
</tr>
<tr>
<td>2. Lincoln and Guba (1985)</td>
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</table>

#### Credibility

Koch and Harrington (1998) refer to credibility as the faithfulness to the description of the phenomenon in question. It addresses the issue of whether there is consistency between the participants’ views and the researcher’s representation of them. In this study, a range of techniques was implemented to establish credibility. Open-ended questions were included to obtain a true understanding of the participants’ experiences (Seale & Silverman, 1997). Notes were taken (recording field notes) during the interviews and the interviews were also digitally recorded. Keeping field notes contributed to the credibility of the study (Tuckett, 2005) by facilitating the immediate and ongoing constant comparison of data (Long & Johnson, 2000; Seale & Silverman, 1997; Tuckett, 2005; Whittemore et al., 2001). The field notes thus became another data source which, in turn, contributes to credibility (Tuckett, 2005). Recording the interviews added to the data collection credibility and may be used to refute the criticism that qualitative research is predisposed to systematic bias (K. May, 1991).

Peer review or debriefing is intended to prevent bias, aid conceptual development of the study and help with the development of credibility (Morse, 2015). Frequent debriefing sessions between the primary investigator and the primary supervisor were undertaken in the context of data appraisal and as a sounding board for the primary investigator to test ideas and to identify any biases and preferences (Morse, 2015; Nussbaum, 1998; Ryan-
Nicholls & Will, 2006). The use of purposeful sampling contributed to credibility because the participants shared similarities related to the research question (Tuckett, 2005).

Triangulation has a number of levels: investigator, data, theory or methods. A type of triangulation may involve the use of a wide range of participants. This is one way of triangulating via data sources. Individual viewpoints and experiences can be confirmed against others and, eventually, a rich representation of the attitudes, needs or behaviours of those under study maybe composed based on the contributions of a range of people (Shenton, 2004). Van Maanen (1983, p. 37) urges the exploitation of opportunities “to check out bits of information across participants”. In this study, such corroboration took the form of comparing the needs and information-seeking action described by one individual with those of others in a comparable position. Information provided helps explain the registered nurses’ attitudes and behaviour, and enhanced the contextual data.

Triangulation via data sources can also involve a range of documents, such as field notes, recording of interviews and verbatim transcripts.

**Transferability (fittingness)**

Transferability (fittingness) refers to whether or not findings can be applied outside the context of the study situation (Guba & Lincoln, 1981). In positivist work, the concern lies in demonstrating that the results of the work at hand can be applied to a wider population. Although the findings of this qualitative research may be unique to a small number of particular environments and individuals, it is also an example within a broader group such as allied health (e.g., physiotherapists, occupational therapists, dietitians) and social workers (Denscombe, 1998; Gomm, Hammersley, & Foster, 2000; Stake, 2011). According to Denzin (1989a), a ‘thick’ description is to fully describe social action, so that ‘thick interpretations’ of the actions can be made, presented in written form, and made available to a wide audience of readers. Thick description refers to the researcher’s task of both describing and interpreting observed social action (and behaviour) within its particular context (Schwandt, 2007). It accurately describes observed social actions and assigns purpose and intentionality to these actions, by way of the researcher’s understanding and clear description of the context under which the social actions took place (Denzin, 1989a; Geertz, 1973; Morrow, 2005). Thick description leads to ‘thick interpretation’, which in turns leads to ‘thick meaning’ of the research findings for the researchers and participants themselves, and for the report’s intended readership (Denzin, 1989a; Geertz, 1973). Thick meaning of findings leads readers to a sense of truth, wherein they can cognitively and emotively ‘place’ themselves within the research context (Denzin, 1989a).
Thick description is thought to enhance transferability of a qualitative study (Lincoln & Guba, 1985) by contributing to internal reliability (Morse, 2015). According to Morse (1991), it is the knowledge that derives from the study that is to be transferable. For the knowledge to be transferable, the thick description must include the research setting and information about the participants, as well as in-context data and credible interpretation. Transferability was enhanced in this research because the data were plentiful and naturally overlapped (Krefting, 1991). Even though examples are not exactly the same, key issues bear resemblances, which enable the researcher to see replication (Morse, 2015). Meticulous description of this study helped to convey the actual situation that was investigated as well as the contexts that surrounded them.

**Auditability (dependability)**

Auditability (dependability) for a study exists when another researcher can clearly follow the research pathway used by the investigator and potentially arrive at the same or similar conclusions (Long & Johnson, 2000). The data collection is deemed to have been undertaken using reliable methods free from discrepancies that may unknowingly influence the nature of the data (Guba & Lincoln, 1989). According to Koch (2006), a project’s auditability — being able to follow another’s researcher pathway — provides the reader with evidence of the researcher’s decisions and choices regarding the theoretical and methodological issues throughout the study. Importantly, there needs to be a clear record of the discussion of the reasons for these decisions. In effect, this means each stage of the research is traceable and clearly documented.

In this study, the interview data were digitally recorded then transcribed verbatim. Recording interviews enhances the auditability of the data collection procedure and facilitates the study’s rigour (Tuckett & Stewart, 2004). As part of the process for auditing the transcripts, the following measures were enacted. Twenty per cent (8/40) of the interviews were transcribed by the primary investigator and checked by the primary supervisor who is an experienced qualitative researcher. The transcripts of the interviews were analysed for content and structure by the primary investigator and the primary supervisor, and the level of agreement was assessed (Mays & Pope, 1995). The remaining 32 interviews were professionally transcribed and every transcript was audited against the original recording by the primary investigator. Auditing of the transcript against the recording involves careful listening, reading, re-reading and preliminary thematic identification of the recording and the transcribed text. According to Koch (2006), both adds credibility to the study and creates an audit trail.
During the interview, the primary investigator took brief contemporaneous notes (field notes). This allowed the primary investigator to improve the discussion by keeping track of ideas and themes, coming back to them for clarification, further discussion and elaboration, and summing up at the end of each interview. These brief contemporaneous notes provided an accurate account of how the interview was conducted and formed part of the audit trail of the research details. Frequent peer checking (or peer review) was done with the primary supervisor during concurrent data collection and analysis. This helps to prevent researcher bias and enhances the credibility of the study. Member checking was conducted during the process of data collection to check data between participants. According to Morse (2015), such replication determines normative patterns of behaviour, which enhances auditability.

After the eight interviews had been transcribed, a patterned repetition was noted. The portions of data were then de-contextualised from their original interview and re-contextualised into themes and labelled schematically. At the same time, as identification of themes progresses, the primary investigator also considers the relationship between categories. Inter-rater reliability was checked by the primary supervisor and he obtained the same themes as the primary investigator. This strategy is highly recommended for semi-structured interviews by Morse (2015).

Triangulation, as defined by Denzin (1970, p. 297), is “the combination of methodologies in a study of the same phenomenon”. In this study, methodological triangulation was used by including both the quantitative questionnaire and qualitative data in the form of semi-structured telephone interviews of the participants. Different but complementary methods were used in this study to measure the same phenomenon (also known as across- or between-methods triangulation) to achieve convergent validity (Denzin, 1970; Jick, 1979; Maxwell, 2013). The combination of different methods allows for counterbalancing the flaws or weakness of one method with the strengths of another (Denzin, 1970; Jick, 1979; Maxwell, 2013; Mitchell, 1986).

An audit trail is a transparent description of the research steps taken from the start of a research project to the development and reporting of findings (Malterud, 2001). Koch (2006) and Akkerman et al (2006) suggest that an audit trail is a means of demonstrating that a research study was carried out with considerable care. This study’s auditability can be established as the events, influences and actions of the researcher are traceable and clearly documented in the field notes, recording of interviews and verbatim transcriptions. The confirmation of content was done step-by-step, piece-by-piece during the research process, as advocated by Morse (1991), Tuckett (2005) and Van der Heide (2001).
Confirmability

Confirmability requires the researcher to demonstrate how conclusions and interpretations have been reached (Guba & Lincoln, 1981; Hall & Stevens, 1991). It is concerned with establishing that findings are clearly derived from the data (Tobin & Begley, 2004). According to Koch (2006) and Shenton (2004), confirmability is usually established when credibility, transferability and auditability are achieved. Several authors (Akkerman et al., 2006; T. Koch, 2006; Morse, 2015; Rice & Ezzy, 2000; Sandelowski, 1986) recommend the development of a research audit trail as a strategy for establishing confirmability. In this study, confirmability was enhanced by meticulous documentation of the steps taken checking and rechecking data throughout the study. The audit trail of this research is represented diagrammatically to show the course of the research step-by-step and how the data eventually led to the formation of recommendations (Table 3-5).

Table 3-5 Overview of data analysis

Investigator triangulation was applied in this study. The primary supervisor, acting as an external auditor, studied the first eight audio data collected against the eight transcriptions as well as the derived preliminary themes from the initial eight transcriptions. The fresh perspective that the primary supervisor brought allowed him to challenge assumptions made by the investigator, whose closeness to the project may have inhibited her ability to view it with real detachment. Questions and observations by the primary supervisor
enabled the researcher to refine the methods, develop a greater explanation of the research design and strengthen her arguments in the light of the comments made. The primary supervisor also analysed the content and structure for the transcripts of the interviews that were initially examined by the primary investigator, and the level of agreement was assessed.

3.7 Summary
The current research followed a sequential mixed-methods design. The quantitative results informed the development of an interview guide and conceptualisation of the purposive sampling strategy for the qualitative study (Creswell et al., 2003). The quantitative and qualitative studies complemented and illuminated each other. The findings from one method enhanced and clarified those from other methods (Tashakkori & Creswell, 2007). In summary, this chapter has considered the research methodology adopted to meet the aims of this study. It has provided a discussion and justification concerning aspects of research design and sampling methods. The following chapter will discuss the development of instrument used in this study.
Chapter 4  Instrument Development

4.1 Introduction
As the literature review (Chapter 2) has described, there were gaps in research that needed to be addressed to develop a knowledge base about registered nurses’ attitudes towards postgraduate education for specialty practice, and the facilitators and barriers they encounter in accessing it. Validated methods to assess the registered nurses’ attitudes towards postgraduate education, and their perceptions of the facilitators of and barriers to postgraduate education were also lacking. To date, no research has inductively developed and psychometrically tested a scale to assess registered nurses’ attitudes towards postgraduate education. This chapter provides a detailed discussion of the methods used for the development and design of the Nurses’ Attitudes Towards Post Graduate Education (NATPGE) questionnaire (Figure 4-1).

Figure 4-1 Analytical framework of instrument development
4.2 Methods
This section explains the rationale for selecting an online survey as the research method and the instrument development and design process. This is followed by a description of the validation and test–retest reliability evaluations that were undertaken to refine the questionnaire.

Justification for the selection of the online survey method
The past decade has seen a tremendous increase in internet use and computer-mediated communication (Nie et al., 2002). Internet-based surveys provide an attractive alternative to postal and telephone surveys of health professionals, but their use raises important technical and methodological issues that need to be carefully considered before widespread implementation (Braithwaite, Emery, de Lusignan, & Sutton, 2003; Dillman, 2000; H. Taylor, 2000). Online surveys allow a researcher to reach thousands of people with common characteristics in a short time (Dillman, 2000) despite possibly being separated by great geographic distances (Garton, Haythornthwaite, & Wellman, 1999; H. Taylor, 2000). Internet-based survey research may save time for researchers (Dillman, 2000; Braithwaite, Emily, Lusignan & Sutton, 2003) and provide the anonymity of survey responses, which gives greater assurance of confidentiality (Dillman, 2000). The use of online surveys eliminates the need for paper and other costs, such as for postage, printing, and data entry (Dillman, 2000; Yun & Trumbo, 2000) and is therefore less expensive than other data collection methods (Dillman, 2000; Shaughnessy et al., 2006). This approach can produce objective, quantifiable data that can be replicated. However, online surveys can also yield limited data by not providing in-depth information about participants’ feelings about the subject under study (Polit, 2010). On the other hand, a survey is most likely to access a greater variety of opinions and attitudes among registered nurses, particularly when research time is limited (Nie et al., 2002). The major obstacle is external validity, and specifically how to obtain a representative sample and adequate response rate (Dillman, 2000).

In this research, it was important to obtain a representative sample of registered nurses across geographically diverse states and territories of Australia. An online survey format was deemed to be the most suitable, and concerns about adequate response rate were addressed within the research protocol. The sample is described in Section 4.3.
Instrument development
This section describes the development and design of the NATPGE questionnaire. Generally speaking, the first step in instrument development is to organise the themes identified in the literature to inform the content of the questionnaire. The content of domain identification and item generalisation differ as a function of whether the instrument is a cognitive or affective measure (Grant & Davis, 1997). For a cognitive measure, the full content domain is sampled and items are generated from the representative areas (Lynn, 1986). By contrast, domain identification when developing an affective measure may be accomplished through literature review (Lynn, 1986; Grant & Davis, 1997). The questionnaire for this study was developed from the literature, as described in Chapter 3. Once the dimensions and sub-dimensions of the construct are identified, items are developed to measure them (Gable & Wolf, 1993; Grant & Davis, 1997; Lynn, 1986). Instrument development, in which items are refined and organised in an appropriate sequence and format, is the same for both cognitive and affective measures (Lynn, 1986; Grant & Davis, 1997).

Although there are few studies from Australia, international studies in the area of postgraduate education and specialty nursing focus on critical care, emergency and paediatric nursing specifically in the area of staff retention (Dussault et al., 2001; G. McCarthy, Tyrrell, & Lehan, 2007; Pelletier et al., 2005; Sourdif, 2004). Studies have also explored the perceived barriers to or facilitators of postgraduate education for individuals, but the implications of these for the nursing workforce have not been identified. Most items for the questionnaire developed for this study were derived from the themes identified in a study of new nursing graduates in New Zealand (McDonald et al., 2009). In the literature review, this study was found to most closely represent the themes that the modified evaluative framework of Barr et al (1999) identified as important. McDonald et al (2009) conducted a cross-sectional survey of a group of 51 new nursing graduates undertaking postgraduate education within a nursing entry to practice (NETP) program. According to McDonald et al (2009), in New Zealand; various district health boards offer postgraduate courses within their NETP programs that are designed to support the graduate in developing the knowledge and skills required to progress from a new graduate registered nurse to a competent registered nurse. At the same time, McDonald et al (2009) note, graduates are expected to perform the role of a beginning practitioner as well as embark on postgraduate education during their first year of practice. The purpose of the study by McDonald et al (2009) was to explore the graduate nurses’ experience of postgraduate education within an NETP program. Among other aims of the study, the
perceived benefits and barriers of postgraduate education within this program were explored. Qualitative responses to the open-ended questions from the participants in that study were used as the basis for some of the items on the NATPGE questionnaire. In this thesis research, several themes were identified from the article by McDonald et al (2009) and in the literature review as a whole that might represent either facilitators of or barriers to postgraduate education, and these formed the basis of items in that area of the NATPGE questionnaire. The themes derived from McDonald et al (2009) and the literature review as a whole were converted to Likert scale questions in the NATPGE questionnaire. Table 4-1 illustrates the process of conversion of the themes into Likert scale items. The decision to use the NATPGE questionnaire, instead of relying on the open-ended design of McDonald et al (2009), was to encourage a greater response rate in a short time and because it is easier and quicker for the respondents (Kumar, 1996). A quantitative questionnaire enables data to be collected in a standardised way so that the data are internally consistent and coherent for analysis (L. Cohen & Marion, 1980; Kumar, 1996).

Table 4-1 Themes identified from the study by McDonald et al used as items in the NATPGE questionnaire

<table>
<thead>
<tr>
<th>Themes identified from the study by McDonald et al</th>
<th>Items in the NATPGE questionnaire that addressed the theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. To explore nurses’ views on the value of postgraduate (PG) education for their practice</td>
<td>As an indicators of nurses’ views of the value of PG education for specialty practice, nurses’ beliefs about PG education were explored in relation to (i) practice area, (ii) career enhancement, (iii) confidence, (iv) knowledge and (v) skills.</td>
</tr>
<tr>
<td>1. PG education is useful for nurses in practice</td>
<td>Q4 Specialty PG education is useful for nurses in specialty practice</td>
</tr>
<tr>
<td>2. PG education enhances nurses’ careers</td>
<td>Q5 PG education in a specialty practice area enhances nurses’ careers</td>
</tr>
<tr>
<td>3. PG education increases nurses’ confidence</td>
<td>Q7 Specialty PG education increases nurses’ confidence</td>
</tr>
<tr>
<td>4. PG education improves nurses’ knowledge</td>
<td>Q9 Specialty PG education improves nurses’ knowledge</td>
</tr>
<tr>
<td>5. PG education improves nurses’ skills</td>
<td>Q13 Specialty PG education improves nurses’ clinical skills</td>
</tr>
<tr>
<td>II. To explore the perceived facilitators of and barriers to PG education</td>
<td>Nurses’ perceptions of the facilitators and barriers whilst undertaking PG education were explored through questions on (i)</td>
</tr>
</tbody>
</table>

P a g e 59 | 166
1. Change of practice as a result of PG education

2. Ways in which practice changes as a result of PG education:
   (i) Deeper knowledge and understanding
   (ii) More critical thinking and reflection
   (iii) Improved practical nursing skills
   (iv) Bring all my experience and knowledge together
   (v) Standard of care decreased due to burn out
   (vi) Greater confidence
   (vii) Not much change

3. Challenging aspects whilst undertaking PG education:
   (i) Time management - difficult to balance work, study and family
   (ii) Stressful in shift environment
   (iii) Mainly for single people - not appropriate for people with families
   (iv) More support needed from the ward

Nurses were asked to indicate whether they found the facilitators of and barriers to PG education indicative to their reasons for participation in PG studies.

This is addressed in Q5 above

Q12 A Registered nurse with specialty PG education experiences increased job satisfaction

This is addressed in Q9 above

Q15 Specialty PG education improves specialist nurses’ critical thinking

This is addressed in Q13 above

This is addressed in Q9 above

This is not addressed because the NATPGE questionnaire does not focus on nurses’ burnout or patient’s outcomes

This is addressed in Q7 above

Q10 There is no difference in practice between a registered nurse with a specialty PG qualification and a registered nurse without a PG qualification

Q8 It is difficult to balance work, study and family whilst undertaking PG education

Q6 Undertaking PG education whilst working in a shift environment is stressful

This is addressed in Q8 above

Q11 Employer support is necessary for PG study to be successful
(v) More support from university- greater flexibility around assignments and extensions

This theme is not addressed in the NATPGE questionnaire because exploring the delivery of PG education was not the aim of this study

(vi) Standard of care decreased due to burn out

This is not addressed because the focus of the NATPGE questionnaire was not on nurses’ burnout or patient outcomes

Additional items in the NATPGE questionnaire that explores registered nurses’ attitudes towards PG education:

Q1 A registered nurse needs to have a PG qualification related to their specialty practice to be called a specialist nurse

Q2 A registered nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse

Q3 A registered nurse needs to have both a PG qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse

Q14 The cost of PG education is too high

Scale of measure

A Likert scale was used as the psychometric response to provide a measure of extremity and direction (Dillman, 2000). The response scale was coded as follows: strongly agree = 1, agree = 2, unsure (neutral) = 3, disagree = 4 and strongly disagree = 5. Usually, in a continuum variables scale, the ‘unsure’ response is coded in the middle and assigned a score of 3, as recommended by Sherer et al (1982) and Pett et al (2003). However, for the NATPGE questionnaire, the unsure response was situated to the far right of the scale to discourage participants from routinely selecting this response by making it less conspicuous in the questionnaire (De Vaus, 2002). The NATPGE questionnaire was also arranged in a series of positively and negatively worded items to form a scale to help avoid an agreeable response set (De Vaus, 2002; De Vellis, 1991).

Rigour: validation and reliability testing

Reliability and validity are ways of demonstrating and communicating the rigour of research processes and the trustworthiness of research findings (Roberts, Priest, & Traynor, 2006). Reliability describes to what extent a particular test, procedure or tool, such as a questionnaire, will produce similar results in different circumstances, assuming
nothing else has changed (Cormack, 2000; Punch, 1999; Roberts, 1999; Roberts et al., 2006). Validity is a subtler concept (Roberts et al., 2006). It is about the closeness of what is believed to be being measured to what was intended to be measured (Cormack, 2000; Roberts, 1999; Roberts et al., 2006). Reliability is a necessary but insufficient condition for validity, and although a questionnaire may be reliable, it may not necessarily be valid (Punch, 1999; Roberts et al., 2006).

A number of processes have been undertaken to ensure the validity and reliability of the NATPGE questionnaire. These processes were:

1. determining content validity by seeking the views of a panel of experts on domain and item construction
2. determining face validity by seeking the views of a sample of clinicians on clarity and relevance
3. a pilot test–retest for reliability using a sample of registered nurses.

Content validity

Content validation is a rigorous assessment comprising a two-stage process: (i) instrument development and (ii) judgment-quantification and is considered fundamental to virtually all instrument design (L. Cohen & Marion, 1980; Dillman, 2000; Lynn, 1986). Although Lynn (1986) recommends a minimum of three in a panel of experts, others have suggested a range of 2–20 experts (Gable & Wolf, 1993; Waltz, Strickland, & Lenz, 2010).

For this study, four panel members were selected for the different expertise each could bring to the critique of the items. The four expertise domains were (1) expertise in the clinical area, (2) expertise in the development of psychometric scales, (3) expertise in the development and (4) expertise the analysis of an instrument. Members of the expert panel included a nurse academic who is an expert in the content area from New Zealand, two nurse academics who are experts in the content area and development and analysis of an instrument and, an expert in development of psychometric scales.

Members of the expert panel were given instructions, the NATPGE instrument and a rating form. They were asked to assess the NATPGE items for clarity, logic of fit and domain coverage. The most widely used method for quantifying content validity for multi-item scales is the content validity index (CVI), which is based on expert ratings of relevance (Polit, Beck, & Owens, 2007). To ensure strong and broad support for the retention of a question, at least three of the four panel members has to agree on each item. All questions scored highly on the CVI, and the comments from the expert panel resulted in only some minor changes to the wording of some items for better clarity and simplicity (Table 4-2).
Peat, Mellis, Williams and Xuan (2002) suggest rewording or rescaling any questions as recommended by the panel to improve internal validity of an instrument and to ensure that the replies can be interpreted in terms of the information that is required. The expert panel agreed that the items were arranged in a positively and negatively worded sequence, which was intentional to prevent response bias (De Vaus, 2002) (Appendix VIII).

**Table 4-2 Feedback from expert panel**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Comments from expert panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A registered nurse needs to have a Post Graduate qualification related to their specialty practice in order to be called a specialist nurse</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
<tr>
<td>2. A registered nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
<tr>
<td>3. A registered nurse needs to have both a postgraduate education qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse</td>
<td>Suggestion from one of the expert panel members: Maybe emphasise the word BOTH (capitals, or bold)?</td>
</tr>
<tr>
<td>4. Postgraduate education is useful for nurses in specialty practice</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
<tr>
<td>5. Postgraduate education in a specialty area enhances nurses’ careers</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
<tr>
<td>6. Undertaking postgraduate education whilst working in a shift environment is stressful</td>
<td>Suggestion from one of the expert panel members: “Whilst also working in a shift environment” could be clearer</td>
</tr>
<tr>
<td>7. Postgraduate education in a clinical area increases nurses’ confidence</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
<tr>
<td>8. It is difficult to balance work, study and family whilst undertaking postgraduate education</td>
<td>Suggestion from one of the expert panel members: Not everybody has a family. Maybe “work-life balance” is better</td>
</tr>
<tr>
<td>9. Postgraduate education is mainly for single people, it is not appropriate for people with family responsibilities</td>
<td>Suggestion from one of the expert panel members: Single people can have children too, single mothers for example…</td>
</tr>
<tr>
<td>10. Postgraduate education in a clinical setting improves nurses’ knowledge</td>
<td>Suggestion from one of the expert panel members: Nurses obtain a better understanding of their field from a postgraduate education in a clinical setting</td>
</tr>
<tr>
<td>11. There is no difference in practice between a registered nurse with a postgraduate specialty practice qualification and a registered nurse without a postgraduate qualification</td>
<td>Suggestion from one of the expert panel members: An RN with a postgraduate specialty practice qualification is equivalent to an RN without a postgraduate qualification for practical purposes</td>
</tr>
<tr>
<td>Statement</td>
<td>Suggestion from expert panel members:</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12. A registered nurse when undertaking postgraduate education needs support from their employer</td>
<td>Employer support is necessary for RN postgraduate study to be successful</td>
</tr>
<tr>
<td>13. A registered nurse with postgraduate specialty practice education experiences increased job satisfaction</td>
<td>Postgraduate specialty education leads to increased job satisfaction</td>
</tr>
<tr>
<td>14. Postgraduate education in a clinical specialty improves nurses’ skills</td>
<td>Specialty postgraduate education improves nurses’ clinical skills</td>
</tr>
<tr>
<td>15. The cost of postgraduate education is too high</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
<tr>
<td>16. Postgraduate education improves specialist nurses’ critical thinking</td>
<td>Feedback from expert panel: Very relevant, Very simple, Very clear</td>
</tr>
</tbody>
</table>

**Face validity**

Face validity is directly related to the participants’ acceptance of the text (Polit, Beck, & Hungler, 2001). The measurement instrument must be understandable and perceived as relevant by the participants to ensure their cooperation and motivation (Gould, 1994). A group of registered nurses was selected by a convenience sampling approach (i.e., was readily available) and invited to assess the instrument as amended following the expert panel feedback. Relying on this group ensured that the population for whom the NATPGE instrument had been developed was captured and that the items in the NATPGE instrument were salient for that group. This group of registered nurses was asked to assess issues such as phrasing and terminology, and to recommend other important or salient terms for inclusion (Downing & Haladyna, 2004).

Completed data were collected from 25 volunteers who are all registered nurses, mainly colleagues and clinicians in the hospitals, in which the principal researcher works. The registered nurses were asked for feedback to identify ambiguities and difficult questions. They were also asked to record the time taken to complete the instrument. According to Peat et al (2002), all unnecessary, difficult or ambiguous questions should be discarded to improve internal validity of an instrument. Most of the respondents felt that the instrument was clear, simple and unambiguous. However, four respondents were confused about the term ‘specialty education’ and commented that the phrase was ambiguous and unclear. The instrument was changed by adding the definition of ‘specialty’ to the heading of the instrument: ‘Specialty education refers to education that focused on a particular field of nursing practice (e.g. ICU, ED)’. 
Reliability: pilot study

Reliability is the consistency of a set of measurements or of a measuring instrument (Polit & Beck, 2010). That is, a reliable measure is one that is measuring something consistently (De Vaus, 2002; Polit & Beck, 2010). Reliability does not imply validity (De Vaus, 2002; Polit & Beck, 2010). For quantitative researchers, the three key types of reliability are stability, internal consistency and equivalence (Polit & Beck, 2010). In this study, stability was assessed using test–retest reliability procedures.

Internal consistency reliability looks at the measurement error in psychosocial instruments (Polit & Beck, 2010) by calculating Cronbach’s alpha. However, in this study Cronbach’s alpha was not used (Cronbach, 1951b). According to Allen and Yen (2002), the interclass coefficient correlation ($r$) is considered a stepped-up consistent version of Cronbach’s alpha. However, Altman and Bland (1983) argue that the Pearson correlation coefficient ($r$) should not be regarded as an agreement index because it measures association and not agreement. Reliability is the extent to which observers agree in their ratings and not merely the extent to which their ratings are associated or correlated (Sim & Wright, 2005). Perfect association does not imply perfect agreement (Altman, 1991; Graham & Jackson, 1993).

Equivalence reliability is determined by relating two sets of set scores to each other to determine the degree of agreement. When the data are ordinal data, the kappa statistic is advocated as the preferred method for analysis (Agresti, 1988; Altman & Bland, 1983; Bloch & Kraemer, 1989; Fleiss & Cohen, 1973; Graham & Jackson, 1993; Jakobsson, 2004; Jakobsson & Westergren, 2005). However, the unweighted kappa cannot provide a complete description of the agreement in ordinal data, and the weighted kappa is probably the most useful measure to assess agreement in ordinal data (Graham & Jackson, 1993; Jakobsson & Westergren, 2005; Lavallee & Felson, 2002; Sim & Wright, 2005). The section below (section 4.3) describes in detail how the three key reliabilities were evaluated in the pilot study.

4.3 Sample and sampling

Pilot study sample

Pilot studies are used in two different ways in social science research. The term can refer to so-called feasibility studies which are "small scale version(s), or trial run(s), done in preparation for the major study" (Polit et al., 2001, p. 467). However, a pilot study can also be the pretesting of a particular research instrument (Baker, 1994, pp. 182-183) including testing its reliability, which was the primary aim here. One of the advantages of a pilot
study is that it can give identify weakness in the main research project, circumstances in which the research protocol may not be able to be followed, or whether the proposed methods or instruments are inappropriate or too complicated (Lancaster, Dodd, & Williamson, 2004). In the words of De Vaus (2002, p. 54): "Do not take the risk. Pilot test first." A pilot study is normally smaller than the main study.

The sample was drawn from the Nurses and Midwives e-Cohort Study (NMeS), which was representative of the registered nurse population in Australia (Huntington et al., 2009; Turner et al., 2009) with participants in all states and territories of the country. Potential research participants were those who consented at the time of enrolment in the NMeS to be contacted for other research. The representativeness of the cohort sample and ethical approaches for the larger survey are described in detail elsewhere (Huntington et al., 2009; Turner et al., 2009). For the primary NMeS, all participant data were collected electronically.

**Sampling method**

Reliability is the consistency of a set of measurements or of a measuring instrument (Polit & Beck, 2010) and reliability does not imply validity (De Vaus, 2002; Polit, 2010). It was important that the sample for the pilot be representative of the target study population (Van Teijlingen, Rennie, Hundley, & Graham, 2001) as well as large enough to provide useful information (Thabane et al., 2010; Van Teijlingen et al., 2001). However, there is no consensus on the size of the sample that is needed for reliability studies (Charter, 2003).

Following institutional ethics clearance, a random sample of 100 registered nurses from the NMeS were invited to participate in a test–retest pilot process as part of the process of assessing the reliability of the online questionnaire. All 100 registered nurses were sent a personalised email introducing the study and inviting them to participate. Participation could be initiated by clicking a URL link within the email that directly transferred them to the study website. To ensure maximum response rates, all information sent to the participants was concise and succinct (Appendices IX and X), and all participants were informed in advance of the type of survey; i.e., a questionnaire would need to be completed twice, the second time 3–4 weeks after the first (Dillman, 2000; Shaughnessy et al., 2006).

To gauge the test–retest reliability, the questionnaire was administered twice, 3–4 weeks apart, under similar conditions (Polit & Hungler, 1997). This was to prevent the ‘carryover effect’, which may occur if the interval between the test and retest is short (Howell, 2010). This kind of reliability testing is used to assess the consistency of a test across time (De Vaus, 2002). The shorter the time gap, the greater the agreement; the longer the time gap,
the less the agreement (De Vaus, 2002). A few weeks to a month is normally considered sufficient for this purpose (Ashton, 2000; B. A. May & Limandri, 2004).

4.4 Data collection and analysis

Data were collected and analysed using Stata 12 (Stata Corp, 2011). After reverse-scoring the items, all items were analysed on an item–by-item basis to calculate the reliability agreement. To appraise reliability, the weighted kappa provides a useful measure of interrater reliability or intrarater agreement (R. Cohen, 1992; Graham & Jackson, 1993; Jakobsson, 2004; Jakobsson & Westergren, 2005). Because the weighted kappa is invariant under linear transformations of the weights, it is interpretable as the proportion of weighted agreement corrected for chance (Bloch & Kraemer, 1989; J. Cohen, 1968; Spitzer, Cohen, Fleiss, & Endicott, 1967). According to Fleiss and Cohen (1973), kappa is the proportion of agreement corrected for chance, and the use of weighted kappa implicitly assumes that all disagreements are equally weighted as are all agreements. This statistic ranges from 0 (low reliability) to 1 (high reliability). Kappa is a measurement of the agreement of responses to the questions in the test–retest and the scale normally cited is listed in Table 4-3 (Fleiss & Cohen, 1973; Jakobsson, 2004; Landis & Koch, 1977; Viera & Garrett, 2005).

<table>
<thead>
<tr>
<th>Kappa</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Less than chance agreement</td>
</tr>
<tr>
<td>0.01–0.20</td>
<td>Slight agreement</td>
</tr>
<tr>
<td>0.21–0.40</td>
<td>Fair agreement</td>
</tr>
<tr>
<td>0.41–0.60</td>
<td>Moderate agreement</td>
</tr>
<tr>
<td>0.61–0.80</td>
<td>Substantial agreement</td>
</tr>
<tr>
<td>0.81–1.00</td>
<td>Almost perfect agreement</td>
</tr>
</tbody>
</table>

4.5 Results

4.5.1 Content validity index

Overall, the expert panel used the content validity index to rank the NATPGE as a realistic training platform that would be useful for evaluating registered nurses’ attitudes towards postgraduate education. The comments received from the expert panel resulted in some minor changes to the wording of some items for better clarity and simplicity. No particular concerns were raised about any of the items by the expert panel. The expert panel agreed
that the items were arranged in a positively and negatively worded sequence, which was intentional to prevent response bias.

4.5.2 Test–retest reliability
The test–retest reliability in registered nurses’ attitudes towards postgraduate education during the 3-week period indicates a level of instability in attitudes. The sample comprises registered nurses with at least 2 years’ post-registration experience. Demographic data indicated that the sample included 23 (63.9%) registered nurses with more than 15 years’ experience in nursing and 25 (69.4%) nurses between the ages of 44 and 60 years. Twenty-three (63.9%) held a postgraduate qualification and eight (22.2%) had a hospital qualification. The respondents’ gender was not part of the demographic data collection (Table 4-4).

Table 4-4 Characteristics of the Pilot Study Sample

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Test Sample (S1) (n = 46)</th>
<th>Retest Sample (S2) (n = 36)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F (%)</td>
<td>F (%)</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–30</td>
<td>5 (10.8)</td>
<td>3 (8.3)</td>
</tr>
<tr>
<td>31–40</td>
<td>8 (17.3)</td>
<td>3 (8.3)</td>
</tr>
<tr>
<td>41–50</td>
<td>11 (23.9)</td>
<td>15 (41.6)</td>
</tr>
<tr>
<td>51–60</td>
<td>15 (32.6)</td>
<td>10 (27.7)</td>
</tr>
<tr>
<td>&gt;60</td>
<td>7 (15.2)</td>
<td>5 (14.1)</td>
</tr>
<tr>
<td><strong>Years in nursing (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2–5 years</td>
<td>5 (10.8)</td>
<td>3 (8.3)</td>
</tr>
<tr>
<td>6–10 years</td>
<td>5 (10.8)</td>
<td>4 (11.1)</td>
</tr>
<tr>
<td>11–15 years</td>
<td>5 (10.8)</td>
<td>5 (13.8)</td>
</tr>
<tr>
<td>&gt;15 years</td>
<td>31 (67.6)</td>
<td>24 (66.8)</td>
</tr>
<tr>
<td><strong>Formal education in specialty nursing practice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No: not working in specialty area</td>
<td>3 (6.5)</td>
<td>1 (2.7)</td>
</tr>
<tr>
<td>No: currently enrolled</td>
<td>2 (4.3)</td>
<td>2 (5.5)</td>
</tr>
<tr>
<td>Yes: hospital training</td>
<td>10 (21.7)</td>
<td>10 (27.7)</td>
</tr>
<tr>
<td>Yes: postgraduate level</td>
<td>23 (67.5)</td>
<td>23 (64.1)</td>
</tr>
<tr>
<td><strong>Identification of self as a specialist nurse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25 (54.3)</td>
<td>29 (80.5)</td>
</tr>
<tr>
<td>No</td>
<td>21 (45.7)</td>
<td>7 (19.5)</td>
</tr>
</tbody>
</table>

4.6 Discussion
In this study, there were 46 (46%) respondents in the test (S1) and 36 (78.3%) participated in the retest (S2). This small sample size (n = 36) may mean that there was a lack of statistical representation of the registered nurses and fully conclusive results (Dillman,
The results from the NATPGE instrument showed a moderate agreement between the test and retest (Figure 4-2).

**Figure 4-2 Kappa values between test (S1) and retest (S2)**

The items about the requirement for postgraduate education qualification and experience before a registered nurse is considered as a specialty nurse and the usefulness of postgraduate qualification to registered nurses, had low test–retest reliability (Table 4-5).
Table 4-5 Kappa weighted values between test and retest repeated measures

<table>
<thead>
<tr>
<th>Questions</th>
<th>Kappa value</th>
<th>95% confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A registered nurse needs to have a postgraduate qualification related to their specialty practice in order to be recognised by the profession as a specialist nurse</td>
<td>0.20</td>
<td>0.51, -0.11</td>
</tr>
<tr>
<td>2. A registered nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse</td>
<td>-0.03</td>
<td>0.36, -0.36</td>
</tr>
<tr>
<td>3. A registered nurse needs to have BOTH a postgraduate qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse</td>
<td>0.08</td>
<td>0.37, -0.20</td>
</tr>
<tr>
<td>4. Specialty postgraduate education is useful for nurses in specialty practice</td>
<td>0.00</td>
<td>0.00, 0.00</td>
</tr>
<tr>
<td>5. Postgraduate education in a specialty area enhances nurses’ careers</td>
<td>0.29</td>
<td>0.56, 0.03</td>
</tr>
<tr>
<td>6. Undertaking postgraduate education whilst also working in a shift environment is stressful</td>
<td>0.79</td>
<td>1.10, 0.47</td>
</tr>
<tr>
<td>7. Specialty postgraduate education increases nurses’ confidence in clinical decision making</td>
<td>0.44</td>
<td>0.72, 0.16</td>
</tr>
<tr>
<td>8. It is difficult to balance work, study and social life whilst undertaking postgraduate education</td>
<td>0.25</td>
<td>0.47, 0.03</td>
</tr>
<tr>
<td>9. Specialty postgraduate education improves nurses’ knowledge</td>
<td>0.35</td>
<td>0.62, 0.08</td>
</tr>
<tr>
<td>10. There is NO DIFFERENCE in clinical practice between a registered nurse with a specialty postgraduate qualification and a registered nurse without a specialty postgraduate qualification</td>
<td>0.47</td>
<td>0.73, 0.22</td>
</tr>
<tr>
<td>11. Employer support is necessary for postgraduate study to be successful</td>
<td>0.30</td>
<td>0.56, 0.03</td>
</tr>
<tr>
<td>12. A registered nurse with specialty postgraduate education experiences increased job satisfaction</td>
<td>0.49</td>
<td>0.72, 0.16</td>
</tr>
<tr>
<td>13. Specialty postgraduate education improves nurses’ clinical skills</td>
<td>0.52</td>
<td>0.79, 0.25</td>
</tr>
<tr>
<td>14. The cost of postgraduate education is too high</td>
<td>0.57</td>
<td>0.85, 0.29</td>
</tr>
<tr>
<td>15. Specialty postgraduate education improves specialist nurses’ critical thinking</td>
<td>0.32</td>
<td>0.61, 0.03</td>
</tr>
</tbody>
</table>

There are no plausible hypotheses that a group comprising mainly middle-aged registered nurses should be more inconsistent in their attitudes than any other group. Other potential explanations for this variation include changes in the context or constructs being measured, an inadequate or excessive interval in the test–retest timeframe, or an inadequate sample size of this study.

As far as it can be determined, there were no significant changes in context, and it was assumed that there were no substantial changes in the construct being measured in the
test–retest reliability pilot. It is known that, if one measures the same thing twice, the correlation between the two observations will depend partly on the time between the two measurement occasions. The shorter the time gap, the higher the correlation; the longer the time gap, the lower the correlation (De Vaus, 2002). This is because the two observations are related over time — the closer in time of the tests, the more similar the factors that contribute to error. The results indicated that some variables changed between the test and retest measurements. Therefore, one may conclude that this moderate agreement between the test and retest is not because there is anything wrong with the measurement method, but rather because people’s moods have changed or the experience of taking the test itself can change a person’s true score, as observed by Davidshofer and Murphy (2005).

Currier (1984) simplifies the task of adequate sampling by stating that, when studying relationships (correlation), at least 30 subjects should be included. Although the sample size was small (n = 36) in this research, it this was exploratory research. Exploratory research is not intended to provide conclusive evidence to provide the final and conclusive answers to research questions. Instead, exploratory research helps to provide a better understanding of the problem (Lambin & Schuiling, 2012) and to explore the research topic with varying levels of depth (Bell, 2010). Exploratory research also provides a means of tackling new problems on which little or no previous research has been done (R. B. Brown, 2006). This pilot study was the initial investigation to provide the basis for more conclusive research. It was useful for validating and assessing the reliability of the research instrument and helped to fine tune the research design, sampling methodology and data collection method (Singh, 2007).
4.7 Summary

The development of the NATPGE was conducted in three stages:

1. The development and design of NATPGE to explore the attitudes of registered nurses about postgraduate education in the context of specialist nursing practice in Australia (specialty education)
2. Pilot-testing of the developed NATPGE
3. The administration of the pilot-tested NATPGE to a population sample of registered nurses in Australia to explore the facilitators of and barriers to postgraduate education.

In summary, the development of the NATPGE reported here provided support for the validity and reliability of this new scale. The following chapter discusses the findings of the Phase One survey conducted with the participants from the NMeS database.
Chapter 5  Phase One: Survey

5.1 Introduction
The methodology described in Chapter 3 provided the baseline for data gathering. This chapter reports the results of the factor analysis for the items developed for the Nurses’ Attitudes Towards Postgraduate Education (NATPGE) instrument. The findings from the descriptive analysis of the scales and subscales are reported first followed by the statistical analyses undertaken to generate hypotheses about the relationships between the subscales and the characteristics of the study population.

5.2 Methods
Description of the sample
The survey sample was drawn from the Nurses and Midwives e-Cohort Study (NMeS) that fit the inclusion criteria for this study: registered nurses registered and working in Australia who did not identify midwifery as their specialty practice.
Of the 1,978 email invitations sent to the eligible registered nurses in the NMeS, 346 emails were returned because of invalid email addresses. The survey was open for 3 months, and 586 (35.9%) participants responded.
Table 5-1 shows the age and years of experience of the sample. Over 86% of the sample were more than 40 years of age, and 79.9% who responded to the survey had more than 15 years’ experience in nursing.

Table 5-1 Characteristics of population sample- Age and Experience

<table>
<thead>
<tr>
<th>Characteristics of population sample</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–30</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>31–40</td>
<td>73</td>
<td>12.5</td>
</tr>
<tr>
<td>41–50</td>
<td>241</td>
<td>41.1</td>
</tr>
<tr>
<td>51–60</td>
<td>263</td>
<td>44.9</td>
</tr>
<tr>
<td>&gt;60</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>Number of years worked as a registered nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2 years</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>2–5 years</td>
<td>16</td>
<td>2.7</td>
</tr>
<tr>
<td>6–10 years</td>
<td>57</td>
<td>9.7</td>
</tr>
<tr>
<td>11–15 years</td>
<td>41</td>
<td>7.0</td>
</tr>
<tr>
<td>&gt;15 years</td>
<td>468</td>
<td>79.9</td>
</tr>
</tbody>
</table>
Table 5-2 shows the employment participants’ characteristics, including self-identification as a specialist nurse. More than half of the participants (68.2%) identified themselves as specialist nurses even though only 56.5% of them reported that they have postgraduate qualification in the specialty practice they work in.

Table 5-2 Employment and Qualifications Characteristics

<table>
<thead>
<tr>
<th>Employment and qualifications characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is your current employment status?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am a specialist nurse working in a specialty nursing setting</td>
<td>339</td>
<td>57.8</td>
</tr>
<tr>
<td>I am not a specialist nurse, but I work in a specialty nursing setting</td>
<td>111</td>
<td>18.9</td>
</tr>
<tr>
<td>I am a specialist nurse, working in a general nursing setting</td>
<td>61</td>
<td>10.4</td>
</tr>
<tr>
<td>I am not a specialist nurse and I work in a general nursing setting</td>
<td>75</td>
<td>12.8</td>
</tr>
<tr>
<td><strong>Have you completed postgraduate education in the specialty practice area in which you are working?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA, I am not in a specialty practice area</td>
<td>57</td>
<td>9.7</td>
</tr>
<tr>
<td>NO, but I have a hospital qualification in the area</td>
<td>86</td>
<td>14.7</td>
</tr>
<tr>
<td>NO, but I have a postgraduate qualification in another area</td>
<td>92</td>
<td>15.7</td>
</tr>
<tr>
<td>YES, I have postgraduate qualification in the area</td>
<td>330</td>
<td>56.3</td>
</tr>
<tr>
<td>NO, but I am currently enrolled in a postgraduate degree in this area</td>
<td>21</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Table 5-3 shows the area of employment of the participants. Twelve point four percent (12.4%) of the participants were from critical care (critical care and coronary care) and emergency areas, and twenty three percent (23%) were from medical, surgical and mixed medical/surgical areas.
<table>
<thead>
<tr>
<th>Area of work</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aged Care</td>
<td>36</td>
<td>6.1</td>
</tr>
<tr>
<td>Cardiac Nursing</td>
<td>9</td>
<td>1.5</td>
</tr>
<tr>
<td>Community Health or Public Health</td>
<td>43</td>
<td>7.3</td>
</tr>
<tr>
<td>Coronary Care Unit</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>Critical Care/ Intensive Care</td>
<td>33</td>
<td>5.6</td>
</tr>
<tr>
<td>Ear, Nose &amp; Throat or Eye nursing</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Emergency Nursing</td>
<td>36</td>
<td>6.1</td>
</tr>
<tr>
<td>Family &amp; Child Health</td>
<td>41</td>
<td>7.0</td>
</tr>
<tr>
<td>Gastroenterology Nursing</td>
<td>10</td>
<td>1.7</td>
</tr>
<tr>
<td>Haematological Nursing</td>
<td>5</td>
<td>0.9</td>
</tr>
<tr>
<td>Mental Health Nursing</td>
<td>39</td>
<td>6.7</td>
</tr>
<tr>
<td>Neonatal Intensive Care</td>
<td>10</td>
<td>1.7</td>
</tr>
<tr>
<td>Neurological Nursing</td>
<td>7</td>
<td>1.2</td>
</tr>
<tr>
<td>Occupational Nursing</td>
<td>3</td>
<td>0.5</td>
</tr>
<tr>
<td>Orthopaedic Nursing</td>
<td>8</td>
<td>1.4</td>
</tr>
<tr>
<td>Paediatric Nursing</td>
<td>20</td>
<td>3.4</td>
</tr>
<tr>
<td>Palliative care</td>
<td>16</td>
<td>2.7</td>
</tr>
<tr>
<td>Peri-Operative Care: peri-operative/theatre/postoperative</td>
<td>53</td>
<td>9.0</td>
</tr>
<tr>
<td>Rehabilitation or Disability</td>
<td>12</td>
<td>2.0</td>
</tr>
<tr>
<td>Renal Nursing</td>
<td>11</td>
<td>1.9</td>
</tr>
<tr>
<td>Respiratory or Thoracic Nursing</td>
<td>3</td>
<td>0.5</td>
</tr>
<tr>
<td>Not currently working in clinical nursing</td>
<td>26</td>
<td>4.4</td>
</tr>
<tr>
<td>Other medical or surgical nursing not listed above</td>
<td>60</td>
<td>10.2</td>
</tr>
<tr>
<td>Other practice area related to nursing</td>
<td>100</td>
<td>17.1</td>
</tr>
</tbody>
</table>
5.3 Analysis

As detailed in Chapter 3 (Methodology), the NATPGE instrument included five items relating to demographics and 14 items to attitudes. Participants were asked to read each of the randomly ordered items and indicate the extent to which they agreed with each statement as applied to themselves on a 5-point Likert type scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree, and 5 = unsure). In actual instrument, the ‘unsure’ response was situated to the far right of the scale to discourage participants from routinely selecting this response by making it less conspicuous in the instrument (De Vaus, 2002).

Survey data were entered into IBM SPSS Statistics version 21 (IBM Corp, 2012) and screened for accuracy and missing values. List-wise deletion was chosen to accommodate data noted to be missing completely at random (MCAR), which resulted in the loss of 3.1% of cases (Kamakura & Wedel, 2000; Little & Rubin, 2002). After reverse-coding relevant items, reliability testing was undertaken using Cronbach’s alpha for internal consistency on the resulting factors (De Vaus, 2002; Tabachnick & Fidell, 2013). Descriptive statistics were used to summarise sample characteristics and to examine frequency distributions for each item. Normality for each variable was assessed by inspection of histograms (Trochim, 2006) and by computing skewness and kurtosis indices (Mann, 1995; Trochim, 2006).

To evaluate construct validity, the core structure of the instrument was examined by using principal component analysis (PCA) with varimax rotation. Deciding the number of factors to extract was informed by identifying eigenvalues >1 (Kaiser, 1974), scree test (Cattell, 1966), Bartlett’s test of sphericity (Bartlett, 1954) and the Kaiser–Meyer–Olkin (KMO) test (Kaiser, 1970, 1974). According to the recommendations of Hair et al. (2009), items were considered to be associated with factors if they had loadings of 0.40 or higher and were retained only if they have loaded significantly on one factor (at least 0.20 difference between loadings). Reliability testing using Cronbach’s alpha was performed for internal consistency on the resulting factors.
5.4 Results

5.4.1 Phase One: survey findings

Most of the items were answered by participants. The percentage of respondents who did not answer an item was 2.9–3.4%. The percentage of respondents who answered unsure was 0.7–11.1%, except for item 11, which had a 21.3% unsure response rate (Table 5-4).

Table 5-4 Phase One: survey findings

<table>
<thead>
<tr>
<th>NATPGE items</th>
<th>Strongly agree/Agree %</th>
<th>Strongly disagree/Disagree %</th>
<th>Unsure %</th>
<th>Did not answer %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A registered nurse needs to have a postgraduate qualification related to their specialty practice in order to be recognised by the profession as a specialist nurse</td>
<td>68.2%</td>
<td>26.1%</td>
<td>2.7%</td>
<td>2.9%</td>
</tr>
<tr>
<td>2. A registered nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse</td>
<td>91.7%</td>
<td>4.8%</td>
<td>0.7%</td>
<td>2.9%</td>
</tr>
<tr>
<td>3. A registered nurse needs to have BOTH a postgraduate qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse</td>
<td>66.4%</td>
<td>27.3%</td>
<td>3.4%</td>
<td>2.9%</td>
</tr>
<tr>
<td>4. Postgraduate education in a specialty area enhances nurses’ careers</td>
<td>83.8%</td>
<td>8.0%</td>
<td>5.3%</td>
<td>2.9%</td>
</tr>
<tr>
<td>5. Undertaking postgraduate education whilst also working in a shift environment is stressful</td>
<td>87.5%</td>
<td>6.0%</td>
<td>3.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>6. Specialty postgraduate education increases nurses’ confidence in clinical decision making</td>
<td>84.0%</td>
<td>7.0%</td>
<td>6.1%</td>
<td>2.9%</td>
</tr>
<tr>
<td>7. It is difficult to balance work, study and social life whilst undertaking postgraduate education</td>
<td>84.8%</td>
<td>10.6%</td>
<td>1.7%</td>
<td>2.9%</td>
</tr>
<tr>
<td>8. Specialty postgraduate education improves nurses’ knowledge</td>
<td>91.6%</td>
<td>3.2%</td>
<td>2.0%</td>
<td>3.2%</td>
</tr>
<tr>
<td>9. There is NO DIFFERENCE in clinical practice between a registered nurse with a specialty postgraduate qualification and a registered nurse without a specialty postgraduate qualification</td>
<td>17.4%</td>
<td>69.3%</td>
<td>10.2%</td>
<td>3.1%</td>
</tr>
<tr>
<td>10. Employer support (e.g. time off for study, financial assistance) is necessary for postgraduate study to be successful</td>
<td>76.3%</td>
<td>15.5%</td>
<td>5.1%</td>
<td>3.1%</td>
</tr>
<tr>
<td>11. A registered nurse with specialty postgraduate education experiences increased job satisfaction</td>
<td>59.4%</td>
<td>16.1%</td>
<td>21.3%</td>
<td>3.2%</td>
</tr>
<tr>
<td>12. Specialty postgraduate education improves nurses’ clinical skills</td>
<td>75.0%</td>
<td>12.4%</td>
<td>9.2%</td>
<td>3.4%</td>
</tr>
<tr>
<td>13. The cost of postgraduate education is too high</td>
<td>77.8%</td>
<td>7.7%</td>
<td>11.1%</td>
<td>3.4%</td>
</tr>
<tr>
<td>14. Specialty postgraduate education improves specialist nurses’ critical thinking</td>
<td>79.8%</td>
<td>8.5%</td>
<td>8.2%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>
5.4.2 Data reduction
All items correlated ($r > 0.30$) and were thus included in the final analysis undertaken using the methodology detailed in Chapter 3. PCA was used for factor extraction on all 14 NATPGE items. The KMO in this study was 0.8. Using a minimum eigenvalue of 1.0 as the criterion, four factors in this study that accounted for a total of 59.8% of the variance were extracted. The extracted factors were orthogonally rotated using the varimax procedure. Factor loadings $>0.40$ were considered to have loaded (Hair et al., 2009; Tabachnick & Fidell, 2013). The rotated solution demonstrated the presence of a simple structure with all components showing a number of strong loadings and a tendency to load uniquely onto only one factor. The items in this table were ordered according to the size of loadings to facilitate interpretation of the factor matrix (Table 5-5).

The second approach that is commonly used is to examine a scree plot of the eigenvalues plotted against the factor numbers. An inspection of Catell’s (1966) scree plot indicated that the variance accounted for by the factors in this study levelled off between three and four (Figure 5-1).

Figure 5-1 Scree plot to indicate the variance accounted for PCA

![Scree Plot](image)
<table>
<thead>
<tr>
<th>Item on NATPGE</th>
<th>Factor loadings</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty postgraduate education improves nurses’ clinical skills</td>
<td>0.759 0.187 −0.010</td>
<td>0.616</td>
</tr>
<tr>
<td>Specialty postgraduate education improves specialist nurses’ critical thinking</td>
<td>0.726 0.157 −0.015</td>
<td>0.572</td>
</tr>
<tr>
<td>Specialty postgraduate education increases nurses’ confidence in clinical decision making</td>
<td>0.720 0.232 −0.033</td>
<td>0.574</td>
</tr>
<tr>
<td>A registered nurse with specialty postgraduate education experiences increased job satisfaction</td>
<td>0.673 −0.045 0.062</td>
<td>0.463</td>
</tr>
<tr>
<td>Specialty postgraduate education improves nurses knowledge</td>
<td>0.593 0.425 −0.119</td>
<td>0.566</td>
</tr>
<tr>
<td>Postgraduate education in a specialty area enhances nurses’ careers</td>
<td>0.442 0.424 0.060</td>
<td>0.441</td>
</tr>
<tr>
<td>A registered nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse</td>
<td>0.228 0.344 −0.004</td>
<td>0.649</td>
</tr>
<tr>
<td>A registered nurse needs to have a postgraduate qualification related to their specialty practice in order to be recognised by the profession as a specialist nurse</td>
<td>0.214 0.834 0.043</td>
<td>0.744</td>
</tr>
<tr>
<td>There is NO DIFFERENCE in clinical practice between a registered nurse with a specialty postgraduate qualification and a registered nurse without a specialty postgraduate qualification</td>
<td>0.194 0.578 0.040</td>
<td>0.648</td>
</tr>
<tr>
<td>A registered nurse needs to have BOTH a postgraduate qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse</td>
<td>0.156 0.857 0.051</td>
<td>0.772</td>
</tr>
<tr>
<td>The cost of postgraduate education is too high</td>
<td>0.062 0.173 0.536</td>
<td>0.475</td>
</tr>
<tr>
<td>It is difficult to balance work, study and social life whilst undertaking postgraduate education</td>
<td>0.031 0.015 0.814</td>
<td>0.672</td>
</tr>
<tr>
<td>Employer support (e.g., time off for study, financial assistance) is necessary for postgraduate study to be successful</td>
<td>−0.059 −0.039 0.656</td>
<td>0.488</td>
</tr>
<tr>
<td>Undertaking postgraduate education whilst also working in a shift environment is stressful</td>
<td>−0.029 0.028 0.827</td>
<td>0.689</td>
</tr>
</tbody>
</table>
The first factor accounted for 28.5% of the variance and included six items with loading above the cut-off score of 0.4. All of these items loaded substantially onto only one factor. This factor appeared to have captured the construction relating to the facilitators for registered nurses to pursue postgraduate education. The first factor was labelled ‘Facilitators’.

The second factor accounted for 15.4% of the variance and was represented by three items. There was a degree of theoretical integrity regarding the registered nurse and possession of postgraduate education as a prerequisite to be a specialist nurse. Advanced postgraduate education provides registered nurses the opportunity to acquire the theory and skills needed to function as a specialist nurse in a variety of settings (Abraham & Buckwalter, 1994; Garand & Buckwalter, 1994). Postgraduate education is seen as providing registered nurses with the opportunity to develop competence as a specialist nurse at a beginning specialty level. Given this theoretical integrity and high alpha (0.74), this factor was accepted as measuring a construct relating to the recognition, in terms of postgraduate education, of a registered nurse. This factor was labelled ‘Professional Recognition’.

The third factor accounted for 8.6% of the variance and was represented by four items that loaded strongly on the third factor. This factor contained items that had a degree of theoretical resonance. Items that appeared to share a similar construct in terms of the success of postgraduate education were those relating to difficulty balancing work, study and social life, the stress of undertaking postgraduate education while working, high cost of postgraduate education, and need for employer support. This factor was labelled ‘Barriers’.

The fourth factor accounted for 7.3% of the variance and included only one item. It is impossible to run any reliability test on a single item and thus it was not accepted as a reliable component.

Cronbach’s alpha (1951a) was calculated by deleting scale items for all factors. Removal of an item actually weakened the alpha, and all items were retained in their respective factors. A theoretically meaningful three-factor solution was therefore proposed. Table 5-6 reports the internal reliability of the three subscales; the inter-item correlations ranged from 0.12 to 0.46, which demonstrated an appropriate degree of discriminate validity.
Table 5-6 Alpha Values, Means, Variance and Correlations for the Scales

<table>
<thead>
<tr>
<th>Factors</th>
<th>Alpha</th>
<th>Mean*</th>
<th>Variance</th>
<th>Standard Deviation</th>
<th>Factor One</th>
<th>Factor Two</th>
<th>Factor Three</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor One:</strong> Facilitators</td>
<td>0.78</td>
<td>1.52</td>
<td>0.34</td>
<td>0.59</td>
<td>1.00</td>
<td>0.18</td>
<td>0.46</td>
</tr>
<tr>
<td><strong>Factor Two:</strong> Professional Recognition</td>
<td>0.74</td>
<td>1.93</td>
<td>0.49</td>
<td>0.70</td>
<td>0.18</td>
<td>1.00</td>
<td>0.12</td>
</tr>
<tr>
<td><strong>Factor Three:</strong> Barriers</td>
<td>0.68</td>
<td>3.35</td>
<td>0.24</td>
<td>0.24</td>
<td>0.46</td>
<td>0.12</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Key:
* Mean divided by the number of items in the factor

Items that loaded highly on factors were considered in the construction of the subscales of the NATPGE and are discussed in detail in the Discussion section (section 5.5). Only one item failed to load. This was item 2 (*A registered nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse*), which most of the participants (91.7%) agreed with.
5.4.3 Exploration of the frequencies of the dependent variables

Factor one: facilitators

The statistical mean refers to the mean or average that is used to derive the central tendency of the data, and it is the most common term for calculating the mean of a statistical distribution.

The overall mean score for this subscale was 1.52, which indicated a level of agreement for the items represented in this subscale (Table 5-7). This indicated that participants responded ‘strongly agree’ to all items on this subscale and that most facilitators of postgraduate education were included in this subscale. The individual items in this subscale were about postgraduate education enhancing nurses’ careers, increasing nurses’ confidence in clinical decision making, improving nurses’ knowledge, improving nurses’ clinical skills and critical thinking, and experiencing increased job satisfaction.

Table 5-7 shows that most participants answered that they agreed or strongly agreed with most of these items relating to the facilitators of postgraduate education.

<table>
<thead>
<tr>
<th>NATPGE items</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate education in a specialty area enhances nurses’ careers (M = 1.86, SD = 0.99)</td>
<td>39.1% N= 229</td>
<td>44.7% N=262</td>
<td>5.3% N= 31</td>
<td>6.8% N= 40</td>
<td>1.2% N= 7</td>
</tr>
<tr>
<td>Specialty postgraduate education increases nurses’ confidence in clinical decision making (M = 1.86, SD = 1.04)</td>
<td>40.3% N= 236</td>
<td>43.7% N=256</td>
<td>6.1% N= 36</td>
<td>5.5% N= 32</td>
<td>1.5% N= 9</td>
</tr>
<tr>
<td>Specialty postgraduate education improves nurses knowledge (M = 1.59, SD = 0.76)</td>
<td>49.8% N= 292</td>
<td>41.8% N=245</td>
<td>2.0% N= 12</td>
<td>2.9% N= 17</td>
<td>0.3% N= 2</td>
</tr>
<tr>
<td>A registered nurse with specialty postgraduate education experiences increased job satisfaction (M = 2.67, SD = 1.39)</td>
<td>17.4% N= 102</td>
<td>42.0% N=246</td>
<td>21.3% N= 125</td>
<td>13.7% N= 8</td>
<td>2.4% N= 14</td>
</tr>
<tr>
<td>Specialty postgraduate education improves nurses’ clinical skills (M = 2.12, SD = 1.15)</td>
<td>29.9% N= 175</td>
<td>45.1% N=264</td>
<td>9.2% N= 54</td>
<td>10.9% N= 64</td>
<td>1.5% N= 9</td>
</tr>
<tr>
<td>Specialty postgraduate education improves specialist nurses’ critical thinking (M = 2.00, SD = 1.11)</td>
<td>34.1% N= 200</td>
<td>45.7% N=268</td>
<td>8.2% N= 48</td>
<td>7.5% N= 44</td>
<td>1.0% N= 6</td>
</tr>
</tbody>
</table>
Factor two: Professional Recognition

The Professional Recognition scale had an overall mean score of 1.93 and included individual items about self-esteem of registered nurses and their identity as a specialist nurse (Table 5-8). Most participants answered mainly that they agreed or strongly agreed with these items. However, for item 9, most participants disagreed (47.8%) or strongly disagreed (21.5%) that there is no difference in clinical practice between a registered nurse with a specialty postgraduate qualification and a registered nurse without a specialty postgraduate qualification.

Table 5-8 Distribution of responses: Professional Recognition subscale

<table>
<thead>
<tr>
<th>NATPGE items</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A registered nurse needs to have a postgraduate qualification related to their specialty practice in order to be recognised by the profession as a specialist nurse (M = 2.09, SD = 1.00)</td>
<td>31.2%</td>
<td>37.0%</td>
<td>2.7%</td>
<td>20.6%</td>
<td>5.5%</td>
</tr>
<tr>
<td></td>
<td>N= 183</td>
<td>N= 217</td>
<td>N= 16</td>
<td>N= 121</td>
<td>N= 32</td>
</tr>
<tr>
<td>A registered nurse needs to have <strong>BOTH</strong> a postgraduate qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse (M = 2.09, SD = 1.06)</td>
<td>34.3%</td>
<td>32.1%</td>
<td>3.4%</td>
<td>21.8%</td>
<td>5.5%</td>
</tr>
<tr>
<td></td>
<td>N= 201</td>
<td>N= 188</td>
<td>N= 20</td>
<td>N= 128</td>
<td>N= 32</td>
</tr>
<tr>
<td>There is <strong>NO DIFFERENCE</strong> in clinical practice between a registered nurse with a specialty postgraduate qualification and a registered nurse without a specialty postgraduate qualification (M = 3.22, SD = 0.94)</td>
<td>3.2%</td>
<td>14.2%</td>
<td>10.2%</td>
<td>47.8%</td>
<td>21.5%</td>
</tr>
<tr>
<td></td>
<td>N= 19</td>
<td>N= 83</td>
<td>N= 60</td>
<td>N= 280</td>
<td>N= 126</td>
</tr>
</tbody>
</table>
Factor three: Barriers

All the questions on this subscale had been reversed-coded, which means that a score of 3 indicated that participants responded agreed with that statement. The Barriers subscale had an overall mean score of 3.35 indicating a level of agreement for the items represented in this subscale (Table 5-9). This mean score shows that this group of nurses tended to agree with the list of barriers to postgraduate education for nurses were represented in this subscale. The barriers identified in this subscale included ‘undertaking postgraduate education whilst also working in a shift environment is stressful’, ‘it is difficult to balance work, study and social life whilst undertaking postgraduate education’, ‘employer support is necessary for postgraduate study to be successful” and “the cost of postgraduate education is too high’.

Table 5-9 Distribution of responses: Barriers subscale

<table>
<thead>
<tr>
<th>NATPGE items</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Unsure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undertaking postgraduate education whilst also working in a shift environment is stressful (M = 1.73, SD = 0.90)</td>
<td>44.2% N= 259</td>
<td>43.3% N= 254</td>
<td>3.6% N= 21</td>
<td>5.1% N= 30</td>
<td>0.9% N= 5</td>
</tr>
<tr>
<td>It is difficult to balance work, study and social life whilst undertaking postgraduate education (M = 1.76, SD = 0.82)</td>
<td>40.4% N= 237</td>
<td>44.4% N= 260</td>
<td>1.7% N= 10</td>
<td>9.2% N= 54</td>
<td>1.4% N= 8</td>
</tr>
<tr>
<td>Employer support (e.g. time off for study, financial assistance) is necessary for postgraduate study to be successful (M = 1.98, SD = 1.02)</td>
<td>34.5% N= 202</td>
<td>41.8% N= 245</td>
<td>5.1% N= 30</td>
<td>14.0% N= 82</td>
<td>1.5% N= 9</td>
</tr>
<tr>
<td>The cost of postgraduate education is too high (M = 2.04, SD = 1.23)</td>
<td>37.9% N= 222</td>
<td>39.9% N= 234</td>
<td>11.1% N= 65</td>
<td>7.2% N= 42</td>
<td>0.5% N= 3</td>
</tr>
</tbody>
</table>
5.4.4 Variations in the facilitators and barriers based upon the demographic findings

As explained in Chapter 3 (Methodology), analysis of variance (ANOVA) was conducted to investigate whether there would be variation in the way the participants reported barriers to and facilitators of postgraduate education. This process tested the hypothesis that the demographic groups would not answer the questions differently and that their responses would be the same regardless of their years of experience and having or not having postgraduate qualifications. A four by one-way between-group ANOVA was conducted to explore the impact of years of experience and having or not having postgraduate qualifications on facilitators and barriers, as measured by the NATPGE (Table 5-10). Preliminary assumptions and requirements for ANOVA were used to check for suitability. ANOVA is appropriate when the dependent variable is measured on an interval or ratio scale and when the independent variable is an ordinal-level variable with a small number of levels, as in this study. Assumptions for using ANOVA were checked for normality, linearity, univariate and multivariate outliers, homogeneity of variance–covariance matrices, and multicollinearity (Bowling, 1997; Field, 2013; Pallant, 2013; Tabachnick & Fidell, 2013). No serious violations were observed in this process.

The term effect size refers to a statistic calculated from a sample of data and is a measure of the strength of a phenomenon (R. Cohen, 1992). A Cohen effect size of 0.2 is considered a small effect, 0.5 a medium effect and 0.8 a large effect. In this study, the effect sizes, calculated using eta squared ($\eta^2$), were small (0.00 to 0.02). A $P > 0.05$ and $\eta^2 < 0.80$ were calculated, and these values supports the hypothesis that the demographic groups would not answer the questions in NATPGE differently.

Table 5-10 ANOVA results

<table>
<thead>
<tr>
<th></th>
<th>Years of nursing experience</th>
<th>Postgraduate qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilitators</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F(4, 563) = 0.823, P = 0.518$</td>
<td>$F(4, 564) = 0.596, P = 0.666$</td>
<td>$\eta^2 = 0.02$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Barriers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F(4, 564) = 0.929, P = 0.200$</td>
<td>$F(4, 563) = 0.685, P = 0.776$</td>
<td>$\eta^2 = 0.02$</td>
</tr>
</tbody>
</table>
5.5 Discussion

Understanding the factors that affect registered nurses’ attitudes towards postgraduate education provides an opportunity to evaluate areas that need to change to attract registered nurses to pursue postgraduate education. Results from this survey of Australian registered nurses indicate that facilitators of postgraduate education were rated highly in the areas of knowledge, confidence, career, critical thinking, clinical skill and job satisfaction. However, barriers that impeded postgraduate education uptake, such as stress, work–life balance, cost and employer support, were prominent in the survey responses. The subscale professional recognition accounted for 15.45% of the variance and was unexpected. The high percentage for this subscale suggests that professional requirements play a role in influencing registered nurses’ pursuit of postgraduate education. Overall, the findings have potential clinical and research application to provide a better understanding of factors affecting registered nurses’ attitudes towards postgraduate education and, thus, how to improve their participation.

Facilitators

The findings of this study identified the facilitators that encourage registered nurses to pursue postgraduate education. This phase of the research identified six facilitators: (1) improves knowledge; (2) increases nurses’ confidence in clinical decision-making; (3) enhances nurses’ careers; (4) improves critical thinking; (5) improves nurses’ clinical skill; and (6) increases job satisfaction.

The participants agreed strongly that the ability to gain knowledge and confidence were the predominant reasons for pursuing postgraduate education. The rapid scientific and technological changes in health care require nurses to obtain an advanced education that fosters a deeper understanding of the many factors that influence patient health and illness. It could be assumed that registered nurses in this survey recognised that postgraduate education provides them with the opportunity to develop competence to meet these demands. Similarly, other studies have found that clinicians with postgraduate qualifications are well prepared to meet the demands placed on today's nurses (L. M. Aiken et al., 2006; Duff et al., 2012; Griscti & Jacono, 2006; S. Whyte & Sellick, 2000). The registered nurses in this survey also viewed attainment of postgraduate qualifications as enhancing their career. This outcome is expected. The acquisition of postgraduate qualifications adds value to an individual’s work history, and the associated knowledge gained provides a deeper theoretical underpinning, which supports more effective decision-making processes (Drennan & Hyde, 2008; Schober & Affara, 2006; Spence, 2004a, 2004b).
Participants in this survey also indicated that postgraduate education provides the opportunity for improved critical thinking and clinical skills. For registered nurses across a range of contexts, these two traits enhance their assessment skills for complex situations and advanced management of care. Postgraduate education uptake and value reside in this evaluation that it enhances critical analysis of care, clinical judgement, and attendant progression to a new level of proactive and autonomous practice. Spence (2004a, 2004b), reported that structured approaches to problem solving, patient care and structured thinking can affect patient care.

More participants reported that postgraduate education enhances their career compared with increasing their job satisfaction. The view that postgraduate education does not necessarily increase job satisfaction is consistent with findings from previous studies of job satisfaction (Asegid, Belachew, & Yimam, 2014; Ingersoll, Olsan, Drew-Cates, DeVinney, & Davies, 2002; Lu et al., 2005; Pelletier et al., 2003). Factors affecting job satisfaction are multifactorial; job satisfaction does not depend only on the nature of the job but also on the expectations that individuals have of what their job should provide. It can be considered as an overall feeling about a job as well as a range of attitudes about various facets of a job. Nurses are required to make prompt adjustments to new developments in clinical practice by accessing new knowledge and experiences. Postgraduate education provides registered nurses with the opportunity to acquire the theory and skills in critical thinking, leadership, case management and health promotion, and to practice these across a variety of inpatient and outpatient settings relevant to their role as a specialist nurse in a variety of settings (Duff et al., 2012; Pelletier et al., 2003). The findings here contribute to the literature about the relevance of postgraduate education by revealing the facilitators that promote registered nurses’ attitudes towards postgraduate education.

Professional Recognition

Accounting for 15.4% of the variance, the subscale Professional Recognition suggests that the way registered nurses perceive postgraduate education is largely shaped by professional requirements. This theme captures a dual meaning. Firstly, it represents participants’ recognition that postgraduate education offers and endorses professional specifications designed to make the profession more efficient and effective (Upenieks, 2003; R. Watson, 2006). Secondly, this theme identifies the value of postgraduate education for nurses by demonstrating to employers, professional colleagues, consumers and carers that an individual nurse has achieved a professional standard for practice (Drennan & Hyde, 2008; Gerrish, McManus, & Ashworth, 2003; R. Watson, 2006).
‘Accountability’ has become the buzzword in public sector circles in recent years, and the issue of maintaining professional standards has come to the forefront (Battie & Steelman, 2014). Accountability is the key to increasing trust, reducing fear, and improving morale and performance, and should be the basis for establishing a culture of trust, support and dedication to excellence (Battie & Steelman, 2014). It provides registered nurses with the opportunity to commit to learning as an integral part of their work. In the USA, the Institute of Medicine (2011) and Robert Wood Johnson Foundation (2013) released their landmark reports that called for nurses to achieve higher levels of education to meet the demands of an evolving healthcare system and the changing needs of patients. Similarly in the state of Queensland, Australia, Queensland Health (2013) issued a statement that a more highly educated nursing workforce is critical to meeting the state’s nursing needs and delivering safe, effective patient care.

The issue of credibility among registered nurses has gained considerable momentum over the past 15 years (C. D. Smith, 2005). Registered nurses recognise the importance of establishing their credibility with healthcare providers in the clinical area. Registered nurses and doctors in the clinical setting recognise and value a nurse with clinical credibility (C. D. Smith, 2005). Therein lies a challenge to registered nurses to ensure they remain credible within the clinical setting and continue to provide a high standard of care. The nurses felt it was an obligatory requirement as an employee in an organisation relationship to meet service needs, especially in regional and rural locations (Gray, Rowe, & Barnes, 2014). Those in practice are aware that innovation and changes to current practice have inherent benefits for both working practices and patient care, and often this can be achieved only through postgraduate education. Education can provide an effective turning point that leads to increased practice confidence and competence (Gijbels et al., 2010; Gray et al., 2014).

Professional recognition offers the most promise for explaining the relationship between postgraduate education and the effects on professional nursing practice. It contributes positively to the professional and personal development of registered nurses as well as strengthens their commitment to the profession. Findings from the study revealed much about the motivation and thinking about practice that may be forming the basis of engagement with postgraduate education. The motivation to improve their practice motivated the participants to continue to invest in their own self-development.
Barriers

This subscale brings together salient barriers and issue around nursing work that hinder registered nurses pursuit of postgraduate education. The barriers reported by the participants were identified as: (1) stressful due to low confidence in information technology, (2) work–life balance, and (3) cost; as well as issues around nursing work: (1) lack of support from employer.

The participants in this survey indicated that undertaking postgraduate education while working is stressful due to low confidence in information technology. This may reflect that some participants lack the necessary computer skills (Spence, 2004b) and may be unfamiliar with the new learning modalities within the universities such as video conferencing, resource packages and online components (such as discussion boards, Wikis, podcasts and email). Participants in a study by Darbyshire (2004) reported that complexities of information technology rendered the extraction of meaningful, useful data so daunting.

Their access to computers may be limited (Pelletier et al., 2003). Nearly half (45.6%) of the participants in this study were more than 50 years old and they may need to overcome discomfort with the use of computers to be able to search electronically for information and to use the information communication technology used by universities (Spence, 2004b). Traditionally, the information technology in place within the healthcare system is oriented towards finance and management with clinical relevance, such as the reporting and recording of results (Spence, 2004b).

The participants in this survey rated difficulty in balancing work–life balance as a significant factor. Finding work–life balance when participating in postgraduate education may include arranging childcare, satisfying domestic commitments, possibly travel to and managing access to libraries and computers outside work time as well as simply finding time to study (Beatty, 2001; Massey, Aitken, & Chaboyer, 2009). Family relationships are important. Family life and relationships with children can be affected when a parent and/or spouse is involved in postgraduate education (Beatty, 2001; Spence, 2004b). Relationships with friends and extended family and social life tend to be put on hold for the duration of the program (Gray et al., 2014; Massey et al., 2009; Spence, 2004b). Pressures from professional organisations and employers to achieve and maintain a professional standard provided these registered nurses with particular motivation that others may lack.

The finding that participants rated cost as a significant barrier to pursuing postgraduate education is not new (Duff et al., 2012; Gijbels et al., 2010; Hegney, Tuckett, Parker, &
Eley, 2010; Spence, 2004b). Registered nurses may sometimes request financial support from employers for reasonable costs associated with postgraduate education. However, this often is not available, and many registered nurses self-fund their own postgraduate education. Participation in postgraduate education could be improved by reimbursing registered nurses who continue with their postgraduate education. Employers should make concerted efforts to recognise and remunerate staff with graduate qualifications. A new pay grading or incentive scheme may address this issue.

Participants in this study also felt that support from employers was necessary for their postgraduate education to be successful. Lack of employer support can take the form of poor staffing levels and lack of resources (release time and financial support for postgraduate education). The lack of nursing staff to relieve practising registered nurses also affects access to postgraduate education. At work, the registered nurses had to give advance notice of the dates of their study days to their managers, and some had difficulty getting these days. Generally, the use of study leave is dependent on staffing levels and workload. The lack of funding to offset the cost of postgraduate education or practising nurses has long been recognised as a significant barrier within Australia (Hegney et al., 2010; Pelletier et al., 2003; Pelletier, Donoghue, Duffield, Adams, et al., 1998) and internationally (Beatty, 2001; Gray et al., 2014; Massey et al., 2009; Nolan, Owens, & Nolan, 1995). The unwillingness of employers to fully fund postgraduate education disadvantages those nurses who are on lower incomes or who have a young family. Although further research is needed to confirm whether these barriers predict registered nurses’ attitudes towards postgraduate education, this research has shown that nurses consider that these barriers reflect those they feel are most relevant to them.
5.6 Summary

The analysis of the Phase One survey results were conducted in two stages:

1. Describing the scales and subscales;
2. Conducting statistical analyses to generate hypothesis about the relationships between the subscales and the characteristics of the study population.

The data-extraction technique using PCA identified three factors that influenced postgraduate education:

1. Facilitators
2. Professional Recognition

Each of these subscales had acceptable Cronbach’s alpha values, which demonstrated the reliability of the measured constructs: 0.78, 0.74 and 0.68, respectively.

A series of one-way ANOVA revealed that there were no significant interactions observed, which supported the hypothesis that different demographic groups would not answer the questions in the NATPGE differently.

In summary, these findings support that there were three factors that influenced postgraduate education. The identification of these barriers and facilitators form the basis of the content for the next phase of this study. The following chapter will discuss the findings of a series of face-to-face interviews and/or telephone interviews conducted with the participants from the Nurses and Midwives e-Cohort Study (NMeS) database to discuss and contextualise the findings presented in this chapter.
Chapter 6   Phase Two: Interpretative Study

6.1 Introduction
The Phase One survey results reported in the preceding chapter identified three factors that influenced nurses’ attitudes towards postgraduate education. The identification of these facilitators and barriers formed the basis of the content for the next phase of the study. This chapter discusses the findings of a series of face-to-face interviews or telephone interviews (or other modalities such as Skype, Zoom) conducted with the participants from the Nurses and Midwives e-Cohort Study (NMeS) database to explore and contextualise the findings. This chapter begins with a brief recap of the methods used (Chapter 3). Figure 6-1 provides an overview of how this phase was linked with the Phase One survey results.

Figure 6-1 The interpretive design
6.2 Methods
A detailed description of the research methodology is presented in Chapter 3. A brief overview is provided here. All 568 (28.7%) registered nurses who participated in Phase One of the study were sent a personalised email introducing Phase Two of the study. This type of purposive sampling tends to ensure richness in the data (Fossey et al., 2002) because the group shares similarities related to the research question and the members are genuinely willing to take part and to offer data freely. In all, 114 participants responded, 15 of whom had no postgraduate qualifications. Forty participants were interviewed (28.5%) to ensure a similar percentage of participants for this phase of the study as in Phase One. All 15 participants who did not have any postgraduate qualifications and 25 participants who had postgraduate qualifications were interviewed. Participants were men and women aged between 31 and 62 years, who had 9–41 years of nursing experience. A telephone interview was the preferred mode of contact for the participants, and interviews were conducted using a semi-structured interview guide informed by the survey (Phase One) responses. Each interview ranged from 30 to 50 minutes in duration. Verbal consent was obtained before the interview (see Chapter 3 for full details). The initial eight interviews were audio taped and transcribed verbatim by the researcher to ensure accuracy. The remaining 32 audiotaped interviews were professionally transcribed verbatim, and each transcript was then audited by the researcher against the audio recording to check for accuracy. Thematic data analysis began by reading each of the transcripts a number of times to achieve a sense of the whole. Each sentence of the transcripts was then labelled, and the data were compared with data across all interviews using a constant comparative method of analysis (Boeije, 2002; Fram, 2013). As the comparative method of analysis progressed, substantive labels were grouped into emerging themes and subthemes (Ryan-Nicholls & Will, 2006; Seale & Silverman, 1997; Shenton, 2004; Tuckett, 2005).

6.3 Findings
Qualitative data analysis revealed three broad conceptualisations of registered nurses’ attitudes towards postgraduate education, which are presented in Table 6-1. These interrelated themes provide meaningful insights into participants’ experiences and shared understanding of their pursuit and non-pursuance of postgraduate education. These themes with the attendant extracts from the data to illustrate each category are presented below. This is followed by analysis and discussion of the Phase Two study findings.
Table 6-1 Overview of themes and subthemes emerging from the interviews

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subtheme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilitators</strong></td>
<td><strong>Instrumental values</strong></td>
</tr>
<tr>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>Enhanced career</td>
</tr>
<tr>
<td></td>
<td>Clinical skills</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
</tr>
<tr>
<td></td>
<td>Critical thinking</td>
</tr>
<tr>
<td></td>
<td><strong>Support</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Motivation</strong></td>
</tr>
<tr>
<td><strong>Barriers</strong></td>
<td><strong>Cost</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Balance</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Time</strong></td>
</tr>
<tr>
<td><strong>Professional Recognition</strong></td>
<td><strong>Professional Recognition</strong></td>
</tr>
</tbody>
</table>

6.3.1 Facilitators

The theme ‘facilitators’ encompassed instrumental values offered by the postgraduate qualification (‘Instrumental values’), support from spouse/partner/employer in the form of financial aid, time and moral support (‘Support’) as well as the participants’ motivation (‘Motivation’). The following section explores the concept of facilitators as described by the participants.

**Instrumental values**

The instrumental values expressed during the interviews were the participants’ impressions of the effects that postgraduate education might have on practice and how they had changed (in their work practices and attitudes) as a direct result of undertaking an educational experience. Three of the 15 nurses without postgraduate education who did not see any instrumental values in furthering their education offered the following opinions:

* I don’t feel I’d get any benefit from it. (NPGE^ 2)
* I see no benefits in doing postgrad studies. (NPGE12)
* When you finish your qualifications, you wouldn’t get a better job and you wouldn’t get paid any more. (NPGE13)

^ NPGE = No postgraduate education
Knowledge

The nurses were emphatic that postgraduate education provided them with new knowledge, complemented what they already knew and improved their clinical practice by providing a greater depth of understanding. Additionally, the scope of understanding helped them become a more efficient and organised practitioner.

Postgraduate education “…absolutely improved my knowledge” (PGE18). Attached to this change in knowledge was the participant’s awareness of the scope of their practice. Although improving the nurse’s knowledge, postgraduate education “…has given me more of an idea of other things apart from just doing the basic registered nurse (sic)” (PGE30).

Another experienced nurse concurred:

*It (postgraduate education) reinforced everything I know as well as adding more to my knowledge base. I was an experienced nurse with more than 20 years, but the postgrad education expanded my knowledge.* (PGE35)

With education, the “…extra knowledge in developing education programs” (PGE17) brings with it improvements in the nurse’s practice. The extra knowledge helped “immensely with actually working with cancer patients, not only to the patients but to other nurses” (PGE16). This helped to shift the nurse away from routine behaviour towards evidence-based and more critically orientated practice:

*When we worked in theatre, you watched what other people did and then you copied them. Without really knowing the whole ramifications of what you were doing but once you start doing education, you think ‘this is what I do, this is why I do it, this is how I do it’ and all the other areas that are brought into that. It enhanced your own knowledge.* (PGE27)

The nurses with a postgraduate education noted that this education had an informing purpose, which they valued for its contribution to the depth (not just scope) of the nurse’s understanding:

*It gave me a much broader depth of knowledge in that specific area, it gave me more information and depth in how to present to groups, particularly to groups that might not have the knowledge.* (PGE29)

Three nurses’ impressions of the effects that postgraduate education had on them included its capacity to add to their sense of esteem among their peers and to remedy a deficit. Professionally, undertaking the education and accruing new knowledge was noted

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8 PGE = Postgraduate Education
to have the capacity to “…give you a standing amongst your colleagues that you’re working with because you do have that increased knowledge” (PGE32).

- It’s given me more professional standing with the medical and professional colleagues. (PGE37)
- There were things that I’ve missed and there were questions I didn’t ask because I didn’t know until I have completed the postgraduate studies. It was so beneficial. Having hands on experience is no substitute for gaining postgrad knowledge. (PGE23)

There were four (4) nurses without postgraduate qualification, who did acknowledged that they are aware that postgraduate education does improve knowledge but they have their reasons (barriers) for not pursuing further education.

**Enhanced career**

A prominent opinion among the experienced registered nurses without postgraduate education (n=11/15) was that a nurse could easily leverage his/her experience and work history to land a coveted position. Offering a contrary view they said:

- I see no benefits in doing postgrad studies because I’d been able to achieve the positions that I’ve had on my experience. (NPGE12)
- I could get the job I wanted without having further education. (NPGE11)
- There is really no need, to work in here (NICU), to do a masters or post graduate studies. It’s not required by my job. (NPGE7)

Nineteen of the 25 nurses who had undertaken postgraduate education disagreed. Postgraduate education was considered by many as a stepping stone for them to advance their careers. Postgraduate education “…enables me to move up my career” (PGE39), “…landed me this job” (PGE36) and “…helped me to get the position I am in today” (PGE30).

Thus, although postgraduate education not only “…bolsters my current position” (PGE25) it also “…positioned me for some good jobs…” (PGE34) and “…opens up a lot more opportunities in your career” (PGE29) and “…improved my career opportunity” (PGE26).

For the postgraduate educated nurse, education was considered to be the segue to career advancement and career opportunities. The nurses also noted that postgraduate education made them more employable:

- It has opened up lots of avenues. I’ve been able to do lots of different things like in nursing education as well as working in the mental health units. As I have more
avenues, I have more choices when it comes to jobs. It makes me very much more employable. (PGE35)

I guess it has given me options, given me the opportunity to have a job that is very rewarding. And it creates opportunities: I went from being a nurse unit manager to a senior nursing role for Deputy Director of Nursing to Queensland. (PGE21)

With the opportunity to advance and improve their careers, some nurses also noted that they are more satisfied with their jobs:

It got me the job that I am in now and I’m happy with my job. (PGE40)

…I was able to take on more responsibility with the postgrad that I have done. For that I’m happier in my job. (PGE16)

It absolutely makes me a better remote nurse. I am doing what I love now. (PGE18)

…give me the opportunity to have a job that is very rewarding. (PGE21)

In addition to this attendant job satisfaction, postgraduate education for this group provided them job security. As one nurse put it: “It’s (postgraduate education) about being competitive in the job market. It’s just sort of securing your job security for the future” (PGE20).

Clinical skills

Most nurses (16/25) mentioned clinical skills enhancement when speaking about postgraduate education. They articulated the dual effect of increasing the breadth and depth of nurses’ skills-base. Postgraduate education was considered to not only “…make me a more skilful clinician” (PGE39) by “…adding to my skill” (PGE37), but it “…reinforces my clinical skills” (PGE35) and “…benefits my skills clinically” (PGE16), and “…broadens my nursing skills” (PGE27).

Associated with improvement in clinical skills was the belief that postgraduate education improves patient outcomes. Several nurses commented: “…it makes a big difference in skills…produces better patient outcomes including lower mortality and morbidity” (PGE21), “……it has helped me to give better patient-focused care” (PGE22) and “…[it has made me] practice better and able to deliver a higher standard of care to the patients” (PGE18).

By improving clinical skills, postgraduate education has also allowed the nurse “…to integrate my clinical skills with knowledge at a much higher level” (P21) and “…to use what I’ve learned to guide my practice” (PGE25).

The effect postgraduate education had on the registered nurses’ clinical skills cannot be overstated:
Nursing practice is continually evolving. You know things that people didn’t know about, we know a lot more about and if you don’t do any postgraduate education you don’t learn a lot of that. And as an adult — and as a nurse — overall responsibility is to continually be looking for ways in which I can improve and increase my knowledge and skills that it will make me a better nurse. Postgraduate education will improve and deliver better nursing care. (PGE18)

The nurses recognised postgraduate education as the vector by which practice skills were improved, patient outcomes bettered, and the theory–practice nexus crossed. No one from the group without postgraduate education commented on this subtheme.

**Confidence**

Postgraduate education was considered as a means for nurses’ acquiring “...self-confidence, which is important...” (PGE17) and also being “given ... more confidence ...” (PGE37). It was seen to have a dual effect — both initiating and adding to the nurses’ confidence. The confidence that postgraduate education facilitates meant that the nurse was “…more confident in talking to patients” (PGE22). This was noted especially when caring for patients requiring a higher level of professional communication than might otherwise be encountered in daily practice:

*It gave me a lot of confidence in being able to discuss with different audiences end of life and dementia [situations].* (PGE19)

Furthermore, the confidence effect of postgraduate education, as perceived by this group with postgraduate education (n= 15/25), extended to being “...much more confident in a leadership role” (PGE21). For example:

*I undertake clinical supervision and I give clinical supervision, and the confidence to do that and the confidence to do a senior nurse role and all that goes along with that.* (PGE32)

*It also gives me the confidence to mentor junior nurses and to manage other registered nurses.* (PGE26)

This impact of confidence on leadership abilities and working with staff extended into what the nurse does — the very doing of nursing. Simply put: “Confidence. Definitely given me confidence in what I'm doing” (PGE26). More poignantly, the confidence effect of postgraduate education created awareness and reasoning skills:

*It’s given me a lot more confidence. It gives confidence in what I know, how I do things. If somebody says to me why do you do that? I can justify why I do it.* (PGE27)
To the participants, confidence also meant that the nurse has a better understanding of how, why and what they do and know, as well as permitting them to question their own and other’s clinical practice:

*It gives me the confidence to question and to challenge practice.* (PGE26)

*It makes you look at certain things more closely, start questioning certain practice. It makes you question practice and not just accept that the way things are done.* (PGE40)

The group without postgraduate education did not comment on this subtheme.

In summary, the participants believed that the effect on the nurse’s confidence attributable to postgraduate education cannot be underestimated. Postgraduate education “...*gives me more credibility and confidence to have a strategic approach to the development of clinical and organisational practice.*” (PGE38)

**Critical thinking**

The registered nurses associated postgraduate education with the ability to make effective, informed decisions in clinical practice. They aligned this process with critical thinking, which involves higher-level thinking and reasoning abilities. About half of this group (n=12/25) perceived that postgraduate education not only “...*helped develop my analytical abilities*” (PGE37), but “...*it makes you analyse what you are doing*” (PGE36). For example:

*It’s really made me critically analyse what I’m doing day-to-day.* (PGE25)

*It makes me think critically in whatever I do.* (PGE37)

*I didn’t think I was good enough...so I went back to do my masters. If you do postgraduate education, it makes you question what you do and justify why you’re doing things, usually to other people.* (PGE27)

Postgraduate education not only “...*changes the way you think*” (PGE36), it also “...*exposed you to different ways of thinking... it makes you explore different ways of thinking*” (PGE38) and “...*it expands our understanding of the reason behind why*” (PGE18). As one participant put it:

*I’ve changed my way of thinking quite dramatically. I will look for answers, I’ll look for research, I’ll look for the actual research that supports what I’m thinking.* (PGE24)

The participants commented that postgraduate education broadens and changes the nurse’s analyses and how he/she thinks in practice. They noted that the registered nurse
must think critically to provide effective and timely care while coping with an expanded role in and a resource-poor complex healthcare system. As one nurse summarised:

*It developed my critical thinking. I work in the rural area and, due to limited resources, a clinical specialist nurse has to make snap decisions. It enables me to synthesise a large amount of information from a number of sources with a limited time frame.* (PGE26)

The value of critical thinking as a consequence of postgraduate education was recognised to reside in the understanding:

*You need to be able to think, to analyse, how can we adjust that to fit with what we have and what we want to achieve and postgraduate education teaches you. It teaches you to think critically and analyse situations in a structured manner.* (PGE39)

The group without postgraduate education made no comment on this subtheme.

**Support**

As an incentive for engaging with postgraduate education, nurses identified support from a spouse/partner/employer or peer and in the form of financial aid, time and/or emotional support. Participants identified that support in either form is invaluable as a motivational influence and to satisfy practical needs. All three forms (finance, time and emotional support) played important interactive roles.

For half of the participants (n=20/40, 12 with postgraduate education and eight without postgraduate education), financial aid was perceived as an essential precursor that enabled them to undertake postgraduate education:

*When I reduced my hours to study, I wasn’t making much money, but my husband supported me.* (PGE36)

*It’s been a little bit easier because the scholarship means that I’ve actually been able to have a little bit more flexible time.* (PGE19)

*Money was not an issue at that time as we just got married and we have no kids, my husband was willing to part-finance my studies.* (PGE29)

As critical as financial aid was to the participants, it was also essential that they were given time off to pursue their studies. One participant commented, “*My bosses are really good here, they’re very flexible. I take a couple of extra weeks long service every year, I could work two or three weeks full time if I wanted to, to accumulate a couple of days and then not be around for a week*” (PGE20). Six of the participants interviewed stressed the importance of supported time off to their pursuing postgraduate education:
Providing study leave would be very beneficial. It’s pretty hard I think for people who are working fulltime. (NPGE7)

If the employer gives you paid time off to study it would probably be enough to encourage nurses to do it. (NPGE10)

It would be good to be more supported at work so have some time allocated in your week to do that. (NPGE3)

…I have the capacity to get away from your work environment to attend it, like study leave… (NPGE6)

I felt as though I'd been well supported; the Army gave me the time off whenever I needed them (sic). (PGE34)

More than half (n=17/25) of the participants with postgraduate qualification noted that emotional support from either a spouse/partner or employer motivated them to complete their studies. Support from a spouse and peers, even managers, appeared to have a positive influence on a number of the participants who were interviewed:

I have a very supportive husband. He was also very keen to see me complete that qualification, so he would step in a lot by doing the dishes, the laundry, cooks as well as baby-sits. He has been extremely supportive and helpful. (PGE17)

The managers I've got are a lot more supportive — you need a supportive manager that is prepared to support you and give you time if you need it. (PGE24)

If you’re doing it with a colleague or have support from a colleague, you help to keep each other motivated and support each other in completing the course. (PGE23)

In stark contrast, the absence of support by a spouse and/or manager created doubt and prevented the eight of 15 nurses in the group without postgraduate education from pursuing postgraduate education:

I wanted to do it, but part of the reason I didn’t was that my boss at that time — I was going to do the ICU one. She felt that I wouldn’t be able to be in charge of the ward, she didn’t seem to think I had the confidence to do that. (NPGE4)

My husband wasn’t supportive; he thought I was being silly doing it in my life and I should be helping him in his business. So I didn’t pursue it. (NPGE2)

In summary, the support that participants received from their spouse/partner, peers, and/or workplace was important to most of them. The support received by the participants encouraged them to pursue and complete their postgraduate education.
**Motivation**

For 17 of the 25 nurses with postgraduate education, engaging with and undertaking postgraduate education was attributable to either who they are or the task at hand. For some, the driver for committing to postgraduate education was internal:

*I think if you weren’t internally motivated it might be difficult to make yourself do those things (do the research and watch the lectures, listen to the lectures and do all the readings).* (PGE25)

To these nurses, the commitment to postgraduate education came from the very task itself — in selecting what must ultimately be a course or courses fit for purpose:

*It was a bit more challenging and it was much more relevant to the work I was doing and so that in itself was a very motivating factor to keep me going.* (PGE28)

The former driver is borne out given that half (n=17) of the 25 participants with postgraduate qualification in this study noted that: “I’ve got a higher level of motivation” (PGE25), “I’m a person who’s very self-motivated” (PGE17) and “My motivation for doing the postgraduate studies is what makes me soldier on” (PGE39). There was a possible dominant variable here:

*I think it comes down to personality and how much you’re prepared to push yourself and work for it.* (PGE24)

*It’s not an easy thing to do; I think it’s got a lot to do with personality.* (PGE31)

*That’s how I see it, just knuckle down and study, and get the job done.* (PGE22)

The latter, a high level of task orientation, found resonance where the nurses spoke of outcomes and rewards. These outcomes and rewards suggested that there were external motivations. For example:

*I think in the long term, the benefits (of postgraduate education) have outweighed the disadvantages.* (PGE21)

*The fact that I was enjoying it (postgraduate education) and the end point was in sight together combined to make me think that the sacrifice was well worth it.* (PGE28)

*…but you do come out the other end of it (postgraduate education) so I’m sure it’s good for personal growth.* (PGE31)

However, the group without postgraduate education seemed to lack the internal motivation to pursue this option. For example:

“…there’s nothing to drive me to be motivated enough to do it” (NPGE12).

“…don’t have the energy to do post graduate studies” (NGPE 8).
“...I see no benefits in doing postgrad studies and there’s nothing to drive me to do it” (NPGE 2).

6.3.2 Barriers

Barriers are those circumstances or perceptions that discourage or prevent an individual from taking action or accomplishing a task. Participants identified difficulties balancing work, study and social life ('Balance'), employer support ('Support') and cost of postgraduate education ('Cost') as barriers to postgraduate education. The concept of barriers as described by the participants is presented in the following section.

Cost

Of the 40 participants interviewed, 26 (65%; 14 with postgraduate education and 12 without postgraduate education) indicated that the financial cost of postgraduate education was a restricting factor that needed to be overcome: “...cost (cost of education) is a bit of a limiting factor for me…” (NPGE3). Some of these nurses were simply unable to afford the expense:

Financially…I would not be able to afford to study. (NPGE12)

I started that Masters program, but I withdrew because I didn’t have the money to continue doing it. (PGE25)

In my view, many more people would undertake post graduate study if the fees were not so high. I’m a single person on a single income with two jobs and a mortgage and a car and everything that comes with that. (NPGE9)

For others, postgraduate education was affordable but at great financial hardship:

...it was too expensive, a big financial sacrifice… (NPGE15)

Nurses need to make sacrifices for postgraduate education, make a huge financial sacrifice. Anyone who’s got a family or children, or any debt obligations would not be able to do that or not do it easily. (PGE19)

One of the nurses believed that finding the courses fees is just one of those things that must be done: “There are always challenges; the first one is the financial angle of it. You've got to somehow find the money” (PGE24).

Finding the money and enrolling in the postgraduate courses were outcomes for those fortunate enough to gain a scholarship or other work-based financial support:

Another challenge is the fees of the course because they’re not cheap. I did have a scholarship for my postgraduate [study]; I don't think I could have done it without the scholarship, so that was very helpful. (PGE32)
I wouldn’t be able to afford it if I didn’t have the financial assistance from work. (PGE26)

In addition to the costs of education itself, there is the loss of income from reduced working hours. Two participants commented:

I wasn’t lucky enough to get any scholarships, so financially I had a huge HECS debt when I finished and I was working part-time. (PGE30)
I had to reduce my work to part-time so I could study. I had to work every weekend to get the penalty rates. (PGE36).

Balance

One factor that affected the participants’ engagement with postgraduate study was their ability to balance competing responsibilities with their study. Regardless of whether they had or did not have children, nearly half (n=18/40; 12 with and six without postgraduate education) spoke of the challenge of balancing married life, family life and their work life with the responsibilities of being a postgraduate student. They commented that they felt tension to find a balance in their daily life between the study requirements and work:

That was probably the hardest part of it, trying to find a nice balance. (PGE22)
...it was difficult to balance between studying and working full time… (NPGE15)

As expected, finding this work–life balance was complicated by family responsibilities, especially (at first glance) for those with children:

Juggling work and home… work–life balance and study as well for 2 years… (PGE32)
Finding the time allowing the work/children/family life generally… (NPGE3)
The children were young, so you had to fit in your assignments and your study when they were asleep or when they were at school. I think it’s just balancing… (PGE20)

Most participants commented that enrolling in postgraduate education had a strong effect on the relationship with their spouse/partner and children. Postgraduate education:

was not a priority as I wanted to spend time with my husband and children. (NPGE10)
put quite a bit of stress on our marriage. (PGE19)
is not good for relationship at certain times. (PGE31)

In the context of studying and parenthood:

I had to balance against work, against study and the needs of my children. (PGE39)
It was difficult with working full time, having young kids and studying… (PGE26)
...competing responsibilities, so you’ve got a family who want your attention, who want to go places, do things…It (postgraduate education) takes that time away from your family. (PGE17)

I think postgraduate education is the way to develop your career but, at this stage, I’d rather spend time with my children and watch them grow. (NPGE7)

The participants considered that their role as a mother and/or wife — both doing things and simply being with family members, was compromised. This dichotomy between study and being a mother, wife/partner and worker had consequences such as guilt and a restricted social life: “I feel a bit guilty with my family because I’ve spent so much time just studying…” (PGE24); “I suppose what suffers is your social life…” (PGE40). There was a strong tone within the data that the feminised workforce and traditional female roles at home brought great pressure on the individual trying to complete postgraduate education:

I want a balanced family, so I make sure the kids are fed and bathed and put to bed. Then I lock myself in the study to work on my assignments and not look at the grubby house and dirty kitchen. (PGE37)

**Time**

The temporality of postgraduate education in the context of their work and personal life was reasonably expected. According to the participants, employer support was important in overcoming time-management issues; employer support took the form of study leave and flexible work rosters. For 23 of the 40 (57.5%; 15 with and eight without postgraduate education), finding time to study was a major challenge:

The next challenge is the time; you’ve got to make the time. Time for study, time for reading, time for what you need to do with your postgraduate studies. (PGE24)

I was studying part-time and working full time, and, of course, time was one of the challenges that I faced. (PGE35)

Time was the biggest challenge for me. (PGE37)

However, for some of the participants, time as a challenge did not preclude enrolling in and pursuing postgraduate study. When time (the lack thereof) was perceived as a genuine blocker, it was noted:

....because I was working two jobs I didn’t have time for any postgraduate work… (NPGE1)

I would love to do it, but I just am not prepared to commit the time that it’s going to take… your whole life is taken up by that. (NPGE4)

....don’t have the time to do postgraduate studies. (NPGE8)
Rising to the challenge and in the context of life outside work, those nurses who were determined to obtain a postgraduate qualification found ways to make it happen:

I'd be up a 5 am; I used to work from 5 am 'til 7 am each morning; that's probably about the best time I was able to do my study. (PGE38)

It's a time consuming thing to do. We all worked shift work…we often worked the weekends. We worked night duty and took something in to read with us. (PGE31)

It would be good if I get paid time off to study (like study leave), I wouldn't have to use night shifts to overcome the challenge. (PGE32)

It would be good if I get more support from my manager as in time off, recreational leave for exam, more flexible roster. Instead I worked night shifts just to complete my assignments, read the required journals. (PGE35)

The need to find a work–life balance while continuing to perform traditional work as a mother and wife/partner at home combined with the participants' perceptions of the financial burden and need for sacrifice meant that the nurses who pursue postgraduate student must be highly resourceful, capable and creative:

I never got any study time, I had to make up the time that I took off from work in order to be able to complete those goals. I had to be flexible with my hours and start earlier and finish later on other days in order to be able to get my hours in. (PGE40)

6.3.3 Professional recognition

Professional standards are specifications designed to make a specific industry more efficient and effective. Professional recognition is the hallmark of professional growth, which becomes more evident as nurses engage in higher education. According to the participants, professional recognition is an important factor contributing to their feelings of value as a professional and may play a central, transformative role in the development of professional values and identity. Twenty of the 25 participants with postgraduate education associated an improved personal or professional esteem with the new-found knowledge postgraduate education brings.

More than half (n=14/25) of the registered nurses with postgraduate qualifications considered that a higher level of education is a hallmark of being a profession(al):

I'm a strong believer that, for nurses, if you practise in a speciality area, you need to have a minimum of a grad cert in that area. Whether you're working in paediatrics or orthopaedics, or aged care, or anywhere, how can you claim to be an advanced-level clinician if you don’t have an academic qualification or a theoretical qualification in the area? (PGE38)
Personally, as a nurse, I feel postgraduate study is very important to nursing and continuing on, and particularly if you’re working in a specialty area. I just feel it’s a necessity. I feel that it’s a necessary part of nursing as a profession. (PGE16)

For those undertaking it, postgraduate education, aligned them within and alongside the other multidisciplinary professions that comprise the modern healthcare team:

It isn’t just about their own professional work environment, it’s about leading or contributing in a major way to a team of different professionals and working on an equal basis within that team. (PGE26)

This emphasis on professionalism and the advanced education binary is more than personal or about the self. Rather, these nurses recognised the education–profession nexus as a part of a responsibility they have to the people they serve:

I think we have that professional responsibility; we have a legislated responsibility to ensure that our knowledge and our practice — whatever field we’re in — is current. (PGE39)

If nursing wants to be recognised as a profession to be taken seriously, nurses just have to do it. I think, apart from our obligation to the profession, we have an obligation to our patients to make sure that we’re actually doing the right thing. (PGE21)

I think nurses are well positioned to really use postgraduate education to benefit the public. I feel a responsibility to the public to actually make sure that they have information that they can use. (PGE19)

These participants’ words implied that the importance of and reasons for pursuing postgraduate education were symbiotic with being and becoming a professional and profession, respectively. A nurse was unable to lay claim to either in the absence of the former.

For seven of the 15 participants without postgraduate education, the decision to pursue postgraduate education should be determined by job requirements rather than professional recognition. For example:

I guess there needs to be a requirement (job) to do it. (NPGE3)

… I’d never had a job that demanded me to do postgraduate education. (NPGE1)

I haven’t needed to, it wasn’t necessary to my job. I would have if my employer said you had to have it. (NPGE8)
6.4 Discussion

Mixed methodology was used to delve beneath the surface of the immediate responses from the participants and survey research. The methodology included both a quantitative procedure (a survey) and qualitative procedure (interviews). It was expected that the use of both methods would provide a deeper understanding of nurses’ attitudes towards postgraduate education in Australia. The findings reveal a thick description of the facilitators of and barriers to postgraduate nursing education and the professional recognition of nurses in this context.

The findings that emerged from this study provide insights into the attitudes of registered nurses towards postgraduate education. These participants’ attitudes towards postgraduate education were captured in three potentially distinct yet interrelated themes.

Facilitators
The theme ‘facilitators’ can be described as a condition that activates ‘goal-oriented behaviour’. Goal-oriented behaviour refers to the subset of motivation that involves translating explicitly construed goals into actions one can perform in order to accomplish these goals (Schultheiss, 2008, p. 603). Therefore, the participants in this study were more likely to pursue higher education for the pleasure of learning something new (gaining knowledge and confidence), the importance (benefits) of receiving an advanced education, and the satisfaction of accomplishing something new (personal satisfaction). This was consistent with prior research about nurses who desired to pursue postgraduate education because they wanted professional advancement and advanced knowledge and skills (Richards & Potgieter, 2010; Richardson & Gage, 2010; J. I. Warren & Mills, 2009).

Instrumental values
The participants’ desire for new knowledge showed their understanding of the need to stay on top of the latest developments within their profession or area of clinical speciality and to apply newly acquired knowledge to improve their clinical practice/skill. This nexus is not new; previous studies have concluded that postgraduate education leads to improvements in clinical practice, particularly in the integration of theory with practice (Jordan, 1998; Waddell, 1992; Wood, 1998). According to Pelletier, Donoghue, and Duffield (2003) and Richardson and Gage (2010), the driving forces for nurses undertaking further study is that they understand that specialised knowledge must be obtained to have confidence performing more senior roles and delivering high-quality care.
Regardless of which cohort they belonged to, the participants in this study viewed postgraduate education as a means for career progression. They were increasingly aware that, although it may not be mandatory, there is an increasing demand for nurses to have postgraduate qualifications to be considered for senior clinical positions and managerial roles. These findings support preliminary evidence from the survey (Phase One survey, Chapter 5) that postgraduate education advances one’s career and echo earlier studies on postgraduate education (Armstrong & Adam, 2002; Hallinan & Hegarty, 2015; A. Johnson & Copnell, 2002; Pelletier et al., 2005; Penz et al., 2007; D. A. Whyte, Lugton, & Fawcett, 2000).

Nurses in this study also acknowledged that postgraduate education enhanced their autonomy and facilitated opportunities for an increased scope of practice. They also reported a significant increase in job satisfaction because of this increased autonomy. According to Finn (2001), professional autonomy, including the ability to make decisions in clinical practice, is ranked as one of the most important factors contributing to nurses’ job satisfaction. Job satisfaction and autonomy were found to be positively correlated with advanced education (Pron, 2013). Similarity concerning that perceived autonomy was evident in nurses with higher levels of education is not only evident in this study but in other studies (Iliopoulos & While, 2010; Lu et al., 2005; Pron, 2013). Job satisfaction is important to the retention of nurses, patient satisfaction and outcomes. Early exit of nurses from the workforce affects patient outcomes and may incur losses in terms of the investment in training productivity, given the future years a nurse would otherwise have provided in the nursing workforce.

Many of the nurses in this study reported an increase in confidence that was attributable to completing their postgraduate education. They felt more assertive and confident in taking charge of their clinical domain. The majority felt the postgraduate qualification had affected their personal and professional confidence, which led to an increase in respect from their colleagues. In addition, the nurses reported an increase in confidence in sharing their knowledge and ability to challenge practice. This was linked to their recognition of their ability to question their medical colleagues about diagnosis and treatment. Important for policy makers and professional organisations, this increased confidence resulted in an increased in self-esteem which is an important contributor to one’s subjective feelings of value as a professional (Iacobucci, Daly, Lindel, & Griffin, 2012).

As healthcare systems become more complex, the range of knowledge and skills needed by nurses becomes more diverse. It is important for nurses to develop critical-thinking, problem-solving, and reflective practice techniques to expand their clinical decision-making
skills (ACNN Commissions, 2014; Barnhill, McKillop, & Aspinall, 2012; Tri-Council Of Nursing, 2010). Nurses are required to make more decisions because the growth of nursing practice has widened their autonomy. The overall impression from the nurses in this study is that postgraduate education has a positive effect on the development of critical thinking skills. Important for nurse educators, healthcare educators (universities) and transition to practice programs is the reality uncovered in this study that the development of critical thinking skills is essential for managing the complexities of the healthcare environment and this is best served through postgraduate education.

**Support**

Support from a spouse, partner, employer and/or peers in the form of finance, time and moral support; was cited as vital to the uptake of postgraduate education for most of the participants who were interviewed. This finding is consistent with that of other major studies (Altmann, 2011; Duffy, Friesen, Speroni, & Swengros, 2014; Plunkett et al., 2010). Nurses who lacked this support tended to have low aspirations and weak commitment to their professional goals (as demonstrated by some of the participants without postgraduate education). All three forms of support were important to both initiating and completing postgraduate education. Participants in Carlson’s (1999) study recognised the need for multiple sources of support to cope with the complex lives, roles, and responsibilities. Carpenter and Hudacek (1996) describe support from peers as an essential component of the experience of postgraduate students, which enables them to solidify relationships with peers on both a personal and profession level. By contrast, Hassouneh-Phillips and Becket (2003) describe the challenges experienced when support is not present and that lack of support can be a harmful influence on completion of postgraduate education.

The participants’ experiences of support varied greatly depending on individual management practices. Those able to put forward a convincing argument for postgraduate studies appeared to receive positive support from their managers. Even though management has a responsibility to encourage staff participation in postgraduate education, it is equally the nurse’s responsibility. The organisation should invest in and promote the achievement of postgraduate studies for its nurses because of the benefits of having a sustainable and competent nursing workforce to deliver optimum patient outcomes (L. H. Aiken et al., 2012; L. H. Aiken, Clarke, Sloane, Lake, & Cheney, 2008; L. H. Aiken et al., 2010; Institute of Medicine, 2011; Queensland Health, 2013).

The nurses in this study who have a high level of support approached difficult tasks as challenges to be mastered rather than as threats to be avoided. They quickly recover their sense of efficacy after failures or setbacks. They tend to attribute failure to insufficient
effort or deficiencies in knowledge and skills. The responses from the participants in this study support prior research in indicating that having good support from a spouse, partner, employer and/or peers, in the form of finance, time and moral support can greatly increase the likelihood of completing their postgraduate studies (Altmann, 2012; Carpenter & Hudacek, 1996; Hassouneh-Phillips & Beckett, 2003; Lent, Brown, & Hackett, 1994; Plunkett et al., 2010).

**Motivation**

Most of the nurses interviewed appeared to be motivated to obtain further education and qualifications. Research findings from this study indicated that two broad categories of motivation drive the uptake of postgraduate education: firstly, personal motivation, which includes the desire for personal stimulation and the intrinsic importance of postgraduate education; and secondly, professional motivation, which includes career progression and extrinsic professional expectation.

Nurses in practice were aware that innovation and changes to current practice have inherent benefits for both working practices and ultimately patient care, and that often these benefits can be achieved only through postgraduate education. The education of nurses influences patient safety and outcomes, as well as nurses’ attitudes and actions. Personal and professional values and attitudes are often reflected in an individual’s behaviour and motives for action (Altmann, 2012). Attitude plays a significant role in motivation because attitude influences a person’s ability to question life’s complexities or underlying assumptions in specific situations (Altmann, 2012). Attitudes and motives are linked to actions: a strong attitude can motivate one to participate (Altmann, 2011; Henerson, Morris, & Fitz-Gibbon, 1987; Lethbridge, 1989). The drive to improve their practice motivates the nurses in this study to continue to invest in their own self-development. Postgraduate education is considered a viable option by nurses of a specific personality type; nurses who undertake and complete postgraduate education are both internally and externally driven and motivated. Therefore, the value of postgraduate education is both intrinsic and instrumental (Beatty, 2001; DeLeskey & Fetzer, 2007). The nurses in this study wanted to be competent at their job and receive pleasure from doing their job well. The achievement of competence itself is an intrinsic motive for pursuing postgraduate education (Levesque, Zuehlke, Stanek, & Ryan, 2004). Many of the participants in this study perceived that postgraduate qualification would offer additional benefits, such as job security and being recognised as a professional. For them, recognising that nursing offers security in a career choice provided them incentive to exert the effort needed to complete the course. This finding concurs with research showing that
internal and external factors are important to an adult learner (Bye, Pushkar, & Conway, 2007; De Cooman et al., 2008; Miers, Rickaby, & Pollard, 2007; Sansone & Harackiewicz, 2000).

It can be concluded from the findings of this study that some nurses naturally possess a high level of internal motivation; those who focus on the internal feelings of satisfaction will achieve their goals despite difficulties along the way. However, others require more. External motivation such as monetary awards and tangible recognition may inspire more nurses to pursue postgraduate education (Kovner, Brewer, Katigak, Djukic, & Fatehi, 2012). This study showed that internal factors are also influenced by external factors such as having support from a spouse, partner, employer and/or peers. Adult learners, such as the participants in this study, are both intrinsically and extrinsically motivated, mainly because most pay for their own education. Studies have shown that motivation influenced all learners, regardless of whether the motivation is internal or external (Miers, 2002; Miers et al., 2007; Sansone & Harackiewicz, 2000).

**Barriers**

The barriers to postgraduate education identified by all participants in both cohorts in this study are congruent with those reported by previous studies: financial costs (Bahn, 2007a; Ellerton & Curran-Smith, 2000; Hughes, 2005), balancing roles and demands (Bahn, 2007a; Hughes, 2005) and lack of time (Altmann, 2011; Megginson, 2008).

**Cost**

Financial cost was identified as personal (reduction of working hours to pursue postgraduate education) and/or academic (cost of postgraduate education). The reality is that most of the nurses in this study needed to remain employed because of financial, professional (requirement of registration) and/or family commitments. These nurses noted the lack of financial support in the form of scholarships was a barrier to postgraduate education and that this was compounded in some cases by having to reduce work status to part-time to pursue postgraduate education. Many nurses are working parents and spouses and must juggle studies and work to support their family and provide security for their future. They often do not want to add economic burden to their family’s current financial situation. Many of the participants in this study who do persist in their studies usually struggle financially and find it difficult to balance their studies with their jobs. These findings are consistent with those of previous studies (Altmann, 2011; Bahn, 2007b; Kovner et al., 2012; Plunkett et al., 2010). Cohen (2011) suggests that the provision of financial assistance in the form of a scholarship, employer assistance and/or educational
leave of absence for pursuit of postgraduate education to counter the need to reduce working hours would encourage more nurses to pursue postgraduate education. Even though the pursuit of postgraduate education rests ultimately with the individual nurse, the employer’s support can play a significant role in contributing to a highly educated nursing workforce (Kersaitis, 1997; Plunkett et al., 2010; Raso, 2013; Richards & Potgieter, 2010). Financial compensation through the nurse’s salary could offer an incentive for him/her to pursue postgraduate education. Nurses in this study in both cohorts (with or without postgraduate qualification) wanted their efforts to be rewarded specifically by increased salary (Bahn, 2007a, 2007b; Delaney & Piscopo, 2004; Megginson, 2008).

As an example, in Queensland, all permanent full-time registered nurses working for Queensland Health are given an additional 3.5% fortnightly allowance (based on their working hours) in recognition of their postgraduate education (Queensland Health, 2014). However, this remuneration is not consistent throughout the country. Most of the registered nurses in Australia will have incurred a HECS-HELP debt during their undergraduate years. HECS-HELP is a government loan scheme to help eligible Commonwealth-supported students to pay their student contribution amounts through a loan or upfront discounts (Study Assist, n.d). However, not all universities in Australia offer Commonwealth-supported places at the postgraduate level, and most of these courses are offered as fee paying. Many of the nurses in this study did not want to contemplate extra financial burden by pursuing postgraduate studies. Addressing this at the national level through the Office of Chief Nurse and Midwifery Officer may be a solution.

**Balance**

Most nurses pursue postgraduate education after a break from their initial education (Miers, 2002; S. Sweet & Moen, 2007). This is mainly because of both the demands and norms of the nursing profession (e.g., transition support programs, experience) and of their personal lives (e.g., marriage, parenthood) (Parr, 2000). Consequently, there is a risk that this group experiences greater challenges completing their postgraduate degree compared with nurses who pursue postgraduate education at an earlier age (Miers et al., 2007). The nurses in the study were trying to balance study, domestic responsibilities and the need to earn money regardless of their parental status (V. D. Johnson, 2010). Among the challenges faced by the participants in Sweet and Moen’s (2007) study, the ability to use current technology related to online learning was a compounding element to finding a work–life balance. These challenges were also expressed by some of the participants in the current study.
For many of the participants in this study, being a parent was their first priority and interfered with further education. Nursing in Australia and worldwide is predominantly a female occupation. In Australia, 89.4% of the nursing population are female (Australia Bureau of Statistics, 2013; Nurses and Midwifery Board Australia, 2016b). It is within this context that many of the nurses in this study identified domestic responsibilities such as childcare responsibilities as a constraint on their participation in postgraduate education (Bahn, 2007a; Davey & Robinson, 2002; Delaney & Piscopo, 2004; Ellerton & Curran-Smith, 2000; Hughes, 2005). They experienced social and ideological prejudices associated with stereotypical female roles, such as wife, mother, care provider and homemaker. The participants here spoke about how the timing of study was dictated by domestic demands and that balancing home and academic life was a source of great stress; they felt torn between their roles as a wife, mother and student. This is consistent with other research findings (Altmann, 2011; Davey & Robinson, 2002; Kersaitis, 1997; Penz et al., 2007) that show that women with no children at home are more inclined to pursue postgraduate education than are women with children. These complex and often competing roles influenced nearly every aspect of their lives, including if and when to pursue postgraduate education. Managing their multidimensional lives proved challenging and the importance of maintaining balance was an important factor.

For most of the participants in this study, pursuing postgraduate education altered their domestic routine. However, those who successfully completed their postgraduate education were successful because they were able to balance their work, family and domestic commitments effectively. For these participants, balance was borne from support — which was identified as a key factor influencing their pursuit of postgraduate education. Support is inextricably linked to, and helps to facilitate, balance. By contrast, the absence of support is a source of stress and is commonly identified as a barrier to or negative influence on the educational experience (Altmann, 2011; Penz et al., 2007). Participants in this study recognised the need for multiple sources of support to cope with their complex lives, roles and responsibilities. They acknowledged that returning to university requires a lifestyle change.

**Time**

Time, specifically the lack of time, provided a common barrier (and ironically, was also a facilitator) to these participants’ pursuit of postgraduate education. Data related to time as a barrier centred on the personal commitments of the participants. That is, a nurse’s commitment to undertaking and completing postgraduate education (or not) is contingent on the adequacy of registered nurse staffing and time constraints related to both the family
and work. Although addressing staff shortages and time constraints within the workplace is difficult, these issues must be dealt with to maintain the qualification level of registered nurses in advanced nursing roles.

Inflexible work scheduling imposed by management was cited by most of the participants in this study. Many researchers have also noted the negative influence of inflexible work schedules and an apparent lack of commitment from managers (Altmann, 2011; Bahn, 2007a, 2007b; Beatty, 2001; S. M. Cohen, 2011; Ellerton & Curran-Smith, 2000; Hughes, 2005). Many of the nurses in this study do shift work and find it a challenge to pursue postgraduate studies while having an inflexible work schedule. They must arrange their study time (assignments and examinations) around their present work schedule.

Development of flexible work options for nurses pursuing postgraduate education will help to remove or minimise this barrier. This may involve allowing nurses to make scheduling changes (switch shifts) with colleagues.

**Professional recognition**

Participants in this study viewed postgraduate education as essential for self-development, both personally and professionally. Many of the participants in this study recognised the importance of developing themselves professionally, which supports the findings of Plunkett et al (2010). Adams (2013, p. 23) proposed that the rewards for conforming to these expectations might include some form of recognition or acceptance by the group members and this supports the individual in building the dimensions of their own professional identity. Many of the participants have stated that if nursing is to keep abreast of the complex and changing nature of modern nursing, postgraduate education is an absolute necessity in the future.

Professionalism relies increasingly on an ability to respond quickly to changing market conditions, client requirements and the influence of government policies (Adams, 2013). Contrary to Bahn (2007a) who found that registered nurses fail to recognise the acquisition of skill and knowledge is intrinsic to professional recognition, in this study there was an overwhelming and cohesive group response in the belief that obtaining a postgraduate qualification would provide a credible professional recognition. The participants in this study described credible professional recognition as a distinct view of postgraduate-qualified nurses held by others and themselves. The participants’ defined credible professional recognition as the inherent respect, based on educational level, conferred to registered nurses with a higher educational level. The participants also described their belief that postgraduate qualifications are required for professional and upper
management-level positions—positions other than clinical nurse positions. Many participants echoed Bahn’s (2007a); and Bine and Watson’s (1992) belief that professional recognition comes with advanced education. Primarily, the participants seemed to recognise a need to maintain their nursing competence at a high level by meeting their employing organisation’s legitimate demands that staff be able to provide safe and effective health care. The participants also provided evidence of their strong psychosocial drive to improve and deliver high-quality patient care, which may reflect an inherent trait within the profession of nursing.

This finding is especially important for the nursing profession as it is struggling to attain professional status during the rapid progress in healthcare. Nursing has its own professional values, as written in the Standards for Practice (Nurses and Midwifery Board Australia, 2016a). One of these is life-long learning, and it is the role of nursing education to instil and foster the professional recognition and Standards for Practice of Nursing in future nurses.

6.5 Summary

The participants in this study spoke of a perceived gain, often hard won, from the completion of postgraduate education in terms of their professional and career development. The barriers that the participants reported suggest areas in which change might help to motivate registered nurses to undertake postgraduate education. Professional recognition was an unexpected finding, but it suggests that professional requirements may play a role in influencing registered nurses’ pursuit of postgraduate education. This qualitative component provides insight into the facilitators of and barriers to postgraduate education including the role of professional recognition as a possible facilitator or barrier.

Nursing is an increasingly complex profession that requires highly educated staff with a sound academic background. One of the key objectives of postgraduate education is to provide the nursing profession with articulate, skilled and knowledgeable leaders who can make decisions after critical analysis of the available evidence. These qualities seemed to have been acquired by many of the participants in this study.

An overwhelming theme that emerged from this study was that making the decision to pursue postgraduate education is part of a process. This process involves a shift in many facets of personal and professional life. Postgraduate education was viewed by all the participants not as an isolated academic endeavour but as a life-altering one. Therefore, the decision to pursue postgraduate education must be planned to ensure that all of the
financial, personal and professional elements of change are considered. Contemplation and planning for postgraduate education involve careful and deliberate consideration of how a nurse’s current lifestyle will be affected, which is then weighed against the potential benefits. For all nurses without postgraduate qualification in this study, the pursuit of postgraduate studies was not seen as an investment that they were prepared or willing to embark on at the time of this study.

The analysis of Phase One survey (Chapter 5) findings identified the facilitators of, professional recognition and barriers to registered nurses’ attitudes towards postgraduate education. An adjunct series of telephone interviews with Australian registered nurses and further analysis of conversations from these discussions strengthen the understanding from the survey (this chapter). The facilitators provide insights into the push towards undertaking postgraduate education, and the barriers describe the significant hurdles to the pursuit of postgraduate education. Understanding both will help to inform nursing leaders, healthcare organisations (employers) and healthcare educators (universities) and to integrate these findings in their strategies for improving nurses’ engagement with postgraduate education.

In the following chapter, the entirety of the findings from both phases of this research are synthesised to provide recommendations for improving engagement with postgraduate education for registered nurses in Australia.
Chapter 7  Synthesis and Conclusion

7.1 Introduction
The aim of this thesis research was to provide an understanding of the registered nurses’ attitudes towards postgraduate education in Australia. It was necessary to identify these barriers to determine why nurses are not pursuing postgraduate education despite evidence that there is a substantial link between nursing educational level (i.e., postgraduate education) and patient outcomes (Australia Nursing Federation, 2009; Cotterill-Walker, 2012; Dimitriadou–Panteka et al., 2014; Drennan, 2010). Nurses need to engage in postgraduate education to adapt to the constant evolving healthcare technologies and to maintain effective, safe nursing practice. Employers and patients have expectations about nurses’ level and currency of knowledge (Bahn, 2007b). This aim has been achieved by providing both empirical findings and theoretical reflections upon these findings. Together, the findings of the quantitative and qualitative phases of this study provide new knowledge about nurses’ attitudes towards postgraduate education which, importantly, suggest new ways forward in terms of policy directives relevant to nurses and further avenues for research.

7.2 Summary of major findings
The aim of the research presented within this thesis as outlined in Chapter 3 was to explore nurses’ attitudes towards postgraduate education in Australia. The research questions to address this aim were:

1. Do nurses in Australia believe that postgraduate education is necessary for specialty nursing practice?
2. Has postgraduate education been beneficial to nurses who have undertaken postgraduate studies?
3. Are there differences in the perceptions of facilitators of and barriers to postgraduate education between nurses with and without postgraduate education?
4. Do nurses in Australia who have undertaken postgraduate education for specialty practice intend to remain in nursing longer than those who have not?

7.2.1 Is postgraduate education necessary?
As discussed in the chapters 5 and 6, postgraduate education has been shown to positively influence patient care and to improve care delivery and patient outcomes (Cotterill-Walker, 2012; Drennan, 2010; Institute of Medicine, 2011; Robert Wood Johnson Foundation, 2013). Even though only 55% of the participants in the Phase One (survey;
Chapter 5) possessed postgraduate qualifications, 68.2% of them indicated that registered nurses need to have a postgraduate qualification related to their specialty before they could be recognised as a specialist nurse. This was explored qualitatively in Phase Two (interpretative study; Chapter 6), which found that more than half of the nurses with postgraduate qualifications felt that it is a necessity for nurses to possess higher education regardless of their specialty area. They held the view that postgraduate education leads to improved patient outcomes and improves their credibility and professional standing within nursing and among other healthcare professionals. For these nurses, being a professional demands competence in relation to knowledge and technical skills. In addition to a broad base of knowledge, being a professional requires depth of knowledge in a chosen area of practice a desire and ability to continue developing that knowledge base and to share it with others, and critical thinking in decision-making. This reinforces the prerequisites for the promotion of safe, competent and patient-centred nursing practice that are inherent in the standards of practice and code of conduct of the Nursing and Midwifery Board of Australia, the professional body that regulates the practice of registered nurses in Australia (Nurses and Midwifery Board Australia, 2016a). Possession of postgraduate qualifications helps nurses to achieve increased meaning and to continually strive to attain higher levels of excellence in their work. These should ultimately help nurses feel pride in their profession and value the significant contribution that they and the profession make to the healthcare system.

7.2.2 Is postgraduate education beneficial?

Benefit in this context is not only a benefit to the participants personally, but also the healthcare organisations (employers) that employ them. All participants who had undertaken postgraduate education in this study were aware that, when treating more complex patients, they require the ability to think critically to be able to apply a multilevel approach to care. They were also aware that, to improve patient care, they must acquire new nursing knowledge and skills that accommodate the complexity and changing nature of today’s health care. The healthcare delivery environment has become more complex, and tomorrow’s older patients will be sicker and require more complex care. Therefore, nurses need to be aware of and comfortable applying new research findings and to be able to access the best available evidence and apply this at the bedside. The Tri-Council of Nursing has identified changes in the level of care required at the bedside that occur in tandem with the current healthcare reform initiatives that demand a higher level of academic preparation (Tri-Council Of Nursing, 2010). Together they support the notion that, with the increased complexity of the patient population, the new nursing workforce
must be able to synthesise evidence-based practice with critical thinking, which requires a higher level of education. This critical link has also been identified by The Commission on Magnet Accreditation (2014) and The Institute of Medicine (2011). These nurses reported that their clinical practice has improved through a greater depth of understanding, which helps make the nurse a more efficient and organised practitioner. Postgraduate education enhances their technical skills and builds non-technical skills such as communication and leadership. Nurses who are skilled in leadership roles can delegate effectively and manage complex situations to completion, which enhance the quality of care (Cotterill-Walker, 2012; Plunkett et al., 2010). They also have the necessary skills to work effectively in multidisciplinary teams, which will be the bedrock of care in the future (Cathro, 2011).
A growing body of evidence suggests that healthcare organisations employing a higher percentage of postgraduate-qualified nurses enjoy a safer practice environment, a more stable workforce, lower turnover-related costs, lower rates of mortality and some hospital-acquired conditions, and a ready pipeline of nurses to fill leadership and management roles (L. H. Aiken et al., 2012; Girot & Albarran, 2012; Hegney et al., 2010; NACNEP, 2010; Pittman et al., 2012; Robert Wood Johnson Foundation, 2013). For healthcare organisations that employ registered nurses, nurses’ wages make up a sizable proportion of operating budgets. Controlling costs means ensuring that the nursing labour force is being used efficiently. Healthcare organisations that support postgraduate education for nurses will enjoy the benefits of improved patient care, increased productivity, enhanced reputation and, ultimately, a healthier bottom line.
Researchers have reported that postgraduate education enhances the nurses’ ability to gain knowledge (Ashworth, Gerrish, & McManus, 2001; Pelletier et al., 2005) and to incorporate this into practice (Hardwick & Jordan, 2002; Pelletier et al., 2005). As technology continues to advance and the condition of hospitalised patients becomes increasingly complex, there has been a shift towards higher educational attainment among the nursing workforce. As reported by the participants in this study, the job market has a demand for experienced nurses with postgraduate education (Ashworth et al., 2001). These nurses seemed to recognise the need to maintain their nursing knowledge and skills at a high level to be able to meet their employing organisation’s legitimate demands that staff be able to provide safe and effective health care (Bahn, 2007b; Battie & Steelman, 2014).
Sixty per cent of the nurses surveyed expressed an increased confidence because of postgraduate education and this was confirmed in the later interviews. In the interviews,
the participants reported that higher levels of academic preparation enhanced their self-perception and increased their confidence in their ability to perform their roles effectively. They recounted feelings of accomplishment and pride that were directly related to achieving postgraduate qualifications (L. Brown & Watson, 2010). An appreciation of the benefits of postgraduate education from both the personal and a professional perspective appeared to be responsible for the zest for postgraduate education among this group of nurses. The nurses in this study also perceived that postgraduate education increases their job opportunities. This perception resonates with an early study by Bahn (2007b), who found that increasing employability is a driver for obtaining advanced education.

In summary, nurses in this study reported that postgraduate education provides them with an opportunity to grow and develop their own skills, knowledge and confidence. The message that emerged from the findings of this research was that studying at the postgraduate level was a beneficial, positive and rewarding experience for this group of nurses (L. Brown & Watson, 2010).

7.2.3 Is there a difference in the perceptions of the facilitators of and barriers to postgraduate education between the cohorts?

The literature review (Chapter 2) discusses what is known about the facilitators and barriers faced by registered nurses in undertaking postgraduate education. By clearly identifying the facilitators that influence and barriers that prevent registered nurses from pursuing postgraduate education, healthcare organisations (employers) and healthcare educators (universities) can develop strategies to promote advanced education for nursing staff.

The unique aspect of this study is the use of two cohorts. Those who had not completed postgraduate education (NPGE) identified the barriers to and incentives to explain why they had not pursued postgraduate education. These findings should help nursing leaders, healthcare organisations (employers) and healthcare educators (universities) consider possible strategies to support nurses pursuing their postgraduate qualification. The perceptions of registered nurses who had completed postgraduate education (PGE) will help to identify the strategies that are useful for supporting nurses’ pursuit of further education.

In this study, the barriers experienced by both cohorts of nurses were similar; namely cost, time and work–life balance. Many nurses in this study are working parents, spouses/partners and professionals trying to juggle study and work to support their family and to provide financial security for their future. They noted that they did not want to add any economic burden to their family’s current financial situation. The opportunity for nurses
to work extra shifts to increase family income is attractive. This option is tested by the
decision to return to study, which means forgoing extra work hours and income while also
placing a financial impost on the family budget because of university fees. According to
Altmann (2012), many nurses are the family’s sole financial provider and they would much
prefer a timely entrance into the workforce to avoid adding financial burden to the family.
Nurses who are considering obtaining postgraduate education may not qualify for
scholarships and are responsible for the full amount of educational costs, and these costs
will have come from personal loans or saving. These findings echo those of an earlier
study by Morgenthaler (2009, p. 335).
Most registered nurses in Australia have incurred a HECS-HELP debt during their
undergraduate years (Callender & Jackson, 2005; 2008). HECS-HELP is a government
loan scheme to help eligible Commonwealth-supported students pay their student
contribution amounts through a loan or upfront discounts (Study Assist, n.d). However, few
universities in Australia offer Commonwealth-supported places at the postgraduate level
because most are fee-paying courses. Many of the nurses in this study prefer to enter the
workforce upon completing their undergraduate degree and do not want to contemplate
extra financial burden by pursuing postgraduate (Altmann, 2012). Even though all
permanent full-time registered nurses working for Queensland Health are provided a 3.5%
fortnightly allowance (based on their hourly rate and the number of hours worked) towards
postgraduate education qualification, this appears to be an insufficient incentive for them
to pursue postgraduate studies (Queensland Health, 2014). According to 80% of the
participants without postgraduate education (NPGE) in the current study, the allowance is
only a nominal amount and does not offset the debt they believed they would incur by
pursuing postgraduate education. The cost–benefit ratio of pursuing postgraduate
education and its potential return on the investment is perceived as inadequate by these
nurses. Even though more than half of the cohort with postgraduate education (PGE) in
the current study felt the same way, they commented during the interviews that the cost
was not a deterrent for them to pursue postgraduate education. Many of them knew there
would be no difference in their rate of pay even after they acquired a postgraduate
qualification. However, attaining a postgraduate education was essential to their moving
from a competent practitioner to a higher level where they would be able to respond
appropriately in unfamiliar situations. These nurses felt accountable to their patients, their
employers and the national regulating body, and they view postgraduate education as a
conduit to help them achieve that accountability.
For the NPGE cohort, some felt there was no need to advance their education because they felt content with their current positions. For them, their income was sustainable and sufficient; and their routine and schedule suited them and their family. The NPGE cohort of nurses understood the advantages of postgraduate education for increasing their base of knowledge and reaching their career goals. Ultimately, they did not value advancing their education because they do not see the relevance to the changes in health care nor the contributions they could make by having a postgraduate qualification. If one accepts the evidence that having a more highly educated nursing workforce makes a difference to patient outcomes (L. H. Aiken et al., 2012; Armstrong & Adam, 2002; Bahn, 2007b; Chaboyer et al., 2001; Cooley, 2008; Cragg & Andrusyszyn, 2004; Robert Wood Johnson Foundation, 2013), then getting these NPGE nurses to advance their educational level will be paramount. To meet the growing complexities within health care in Australia, a substantial investment will be required from the government (policymakers), healthcare organisations (employers) and healthcare educators (universities) as well as from the registered nurses.

In summary, this study found that, even though both cohorts (PGE and NPGE) noted the same barriers to pursuing postgraduate education, their interpretations and perceived consequences of these barriers differed. The PGE cohort was motivated by other factors more strongly and found a way to overcome these barriers. Nurses typically have responsibilities to others outside of work, yet this cohort was able to achieve their goals. These results are further evidence that returning to university requires a lifestyle change, which some are not willing to make. One outcome of this study was the evidence that many nurses with postgraduate education have a strong sense of self-motivation and that motivation or resiliency may be integral to their pursuit of postgraduate education and ultimate success in attaining a postgraduate qualification. Even though the NPGE cohort noted the same facilitators as the PGE cohort, they do not see those facilitators as an incentive to advance their nursing education.

7.2.4 Do postgraduate-qualified nurses remain in nursing longer than those without a postgraduate qualification?

Both PGE and NPGE cohorts were asked about their intent to remain in nursing. The literature review (Chapter 2) showed that the links between attaining postgraduate education and intent to remain in nursing longer are mixed. On the one hand, Engeda, Birhanu and Alene (2014) suggest that nurses with advanced education are more likely to stay in their profession. On the other hand, Hinshaw, Smeltzer and Atwood (1987) and others (Deobelle et al., 2011; Sourdif, 2004; Tourangeau & Cranley, 2006) have found that
the intent to stay is higher for nurses without postgraduate education. This may explain why those with postgraduate education do so because they believe that there are better opportunities for nurses with a higher level of education in fields outside nursing and thus those nurses moving out of the profession. If true, mechanisms to counter this flow should include better organisational incentives and rewards, recognition of nurses’ achievements, and opportunities for decision-making and for professional growth (Tourangeau & Cranley, 2006).

However, all participants in the current study emphasised their commitment to nursing. Most of the nurses in this study were older than 30 years (range 31–62 years) and are not representative of the 20–30-year age group. Older nurses have a greater desire for stability or a higher continuance commitment compared with younger nurses (Deobelle et al., 2011; Engeda et al., 2014; Tourangeau & Cranley, 2006; Wang, Tao, Ellenbecker, & Liu, 2012a, 2012b).

Previous research has suggested that the intent to stay in nursing is strongly related to job satisfaction (Asegid et al., 2014; Skinner et al., 2011) in nurses, and that nurses’ satisfaction is linked to the level of patient care that they undertake (Kutney-Lee, McHugh, et al., 2009; You et al., 2013). Job satisfaction has been described as an individual attitude to how well personal expectations at work correspond to outcomes (Coomber & Barriball, 2007; McKenna, 2000; Strachota, Normandin, O’Brien, Clary, & Krukow, 2003). Therefore, an individual’s appraisal of the degree to which the job fulfils one’s own job values can cause a positive emotional state of satisfaction or a contrasting negative feeling of dissatisfaction. Perhaps the most important strategies strengthening nurse intention to stay are those that promote job satisfaction such as promoting satisfaction in the areas of praise and recognition. Recognition is an important factor in employee motivation (Tourangeau & Cranley, 2006). Brun and Dugas (2008) suggest that employees will approach their work more positively if they are provided with ‘proper’ recognition. For nurses, this may include acknowledgement of their role and qualification(s). Studies have identified that age, education, role recognition and appreciation are variables that affect the intention to stay (Eley, Eley, & Rogers-Clark, 2010; Morrell, 2005; Morrell, Loan-Clarke, Arnold, & Wilkinson, 2008; Morris et al., 2007; Tourangeau & Cranley, 2006). Strategies such as establishing recognition programs that promote praise and recognition of nurses’ contributions as well as qualifications within organisations may lead to increased intention to stay. Programs such as career pathways, scholarships, awards and appreciation events are examples of nurse-recognition programs. Recognising individuals for their achievements should increase their job satisfaction, which may
improve participation in postgraduate education and, importantly, help provide excellent care to patients.

In conclusion, the possession of postgraduate qualification had no impact on the intention to remain in nursing of the nurses in this study. The results here echo earlier research showing that older nurses value a stable and merit-based work environment (Deobelle et al., 2011; Eley et al., 2010; Engeda et al., 2014; Tourangeau & Cranley, 2006; Wang et al., 2012a) and thus tend to stay in nursing longer; this warrants further research. This is important because turnover and retention are not synonymous, and understanding nurses’ intention to remain in nursing is important for Australian’s healthcare educators (universities) and health policy makers as they plan the future management of health care in Australia.

7.3 Limitations

The findings of this study must be interpreted in the context of a number of limitations.

1. One limitation is that the sample in the current study is not representative of the Australian registered nursing workforce with respect to age, experience and specialisation. However, the Nurses and Midwives e-Cohort Study, from which this cohort was drawn, has been shown to be representative (Huntington et al., 2009; Turner et al., 2009; 2008) and there is no evidence that the sample of the current study is not.

2. The low response rate and self-selection may have resulted in a response bias. The survey instrument had a response rate of 35.9% despite considerable efforts to increase this rate. Although there are no standards for an acceptable response rate, published opinions (W. Fan & Yan, 2010; Millar & Dillman, 2011) suggest that an average response rate for online surveys, such as this survey, is 45–50%. Therefore, the response rate for the NATPGE may reflect a degree of response bias (De Vaus, 2002), and this is acknowledged as a potential limitation of this research. There may be a wide range of reasons why the participants volunteer for the study, including having particularly strong feelings or opinions about the research, or a specific interest in its findings. Given the nature of this research, it can be postulated that registered nurses with opinions about postgraduate education were more likely to respond to the instrument.

3. The online method of distribution of the survey may have favoured or disadvantaged some potential participants. Nonetheless, Thede (2012) suggests that the vast majority of the nursing workforce not only have access but use online
technology. Other studies (Eley, Fallon, Soar, Buikstra, & Hegney, 2008; Hegney et al., 2007) undertaken by colleagues have not found this to be a cause of a low response rate.

4. The interviews depended on self-reported information from the participants. Therefore, the validity of the answers depends on their truthfulness. The degree to which this is a problem will undoubtedly vary with the topic. However, the purpose of this study is benign and, therefore, it is assumed that the participants were truthful (X. Fan et al., 2006).

5. Only preliminary reliability of the NATPGE has been established using principal component analysis. A confirmatory factor analysis (CFA) approach is needed to evaluate the reliability of the NATPGE for exploring registered nurses’ attitudes towards postgraduate education. CFA will be considered in the future development of this instrument with an international cohort of registered nurses.

6. This study was limited to the exploration of registered nurses’ attitudes towards postgraduate education in Australia. It did not attempt to explore the element of marketing by the Australian healthcare educators. Recruitment campaigns may need to be more clearly targeted to reflect these findings.

7.4 Recommendations

Overall, the findings from the current study made a number of advances towards a greater understanding of registered nurses’ attitudes towards postgraduate education. That understanding offers the opportunity to identify recommendations that may increase the uptake of postgraduate education among nurses. The recommendations are targeted at healthcare organisations (employers) and healthcare educators (universities).

Healthcare organisations (employers)

A major finding was the financial barrier faced by nurses. A number of options are suggested for consideration. Healthcare organisations (employers) need to provide financial incentives and, ultimately, rewards. Nursing administrators need to recognise and reward staff monetarily for educational advancement. Healthcare organisations should consider institutional funding incentives for advancing the education of registered nurses. Healthcare organisations need to promote nurses understanding (knowledge) about tuition reimbursement and increase the amount tuition reimbursement offered locally. The employer (healthcare organisations) can create career ladders by encouraging and rewarding the roles of the clinical nurse, nurse unit manager, and clinical nurse consultant as being contingent on the attainment of a postgraduate qualification. Nurse managers,
educators and administrators must continue to encourage and support staff currently at university by alerting staff to conferences and opportunities in the community that may be of benefit to their specialist field of practice.

Healthcare organisations can assist nurses in pursuing postgraduate education by allowing nurses to adjust their work hours to accommodate their studies yet to maintain their benefits. One example is offering education leave of absence for the pursuit of postgraduate education that allows nurses to maintain their benefits. In addition, employers, especially at the middle-management level such as nurse unit manager, may be more accommodating toward coordinating work and study schedules; i.e. study leave, flexible rostering schedules.

**Healthcare educators (universities)**

Healthcare educators (universities) and healthcare administrators/educators should create a culture of professionalism and intellectualism in nursing in which nursing practice is based on scientific evidence. A positive attitude towards and a commitment to professional growth are requisite for encouraging nurses to choose to continue their postgraduate education. Some suggestions for how this may be achieved are given below.

A biennial stakeholder symposium that brings together universities (especially postgraduate program directors), hospitals (especially directors of nurse education) and current and prospective postgraduate students should define the needs in light of current course offerings. The aims are to counter any perceptions about a lack of relevance of course offerings, increase the numbers of articulated programs, map out potential RPL (Recognition of Prior Learning)/credit transfer offerings and promote the nurses’ knowledge of these programs. At the same event, healthcare educators (universities) and healthcare administrators/educators should promote current research understanding of the benefits of postgraduate education.

Healthcare educators should take a headland role in advancing postgraduate nursing education at the undergraduate level. The goal should be to encourage nursing research, with exposure in the early stages of education and throughout the undergraduate program. The application of nursing research at the undergraduate level connects theory and the translation of evidence into practice, with the endpoint of exciting graduate nurses about the prospect of furthering their education.

### 7.5 Future avenues of research

Exploratory research intends merely to explore the research questions and does not intend to offer final and conclusive solutions to existing problems (Saunders, Lewis, & Thornhill,
The aim of undertaking such research, therefore, is to develop new knowledge rather than to test or confirm a hypothesis. The focus of exploratory research is on gaining insights and familiarity with the subject area and developing further testing. Given this, on the basis of the findings of this study and considering the limitations of the study, a number of recommendations can be made for further research.

1. The findings from this research are limited to the Australian context. Thus, it would be valuable to replicate this work by surveying registered nurses internationally using the subscales identified in the NATPGE. This will allow for comparisons of these findings with an international cohort and generalisation of these findings.

2. The value of postgraduate education on quality of care is poorly studied and there is a need for studies that examine the impact of education on quality of care for example, on patient outcomes.

3. The findings from this research have been used to generate recommendations that will need to be translated into policy. These findings about registered nurses' attitudes towards postgraduate education can be used to engage organisations, employers and universities in the hope of stimulating positive attitudes towards the uptake of postgraduate education. The findings reinforce the importance of using a translational research approach to give these research findings clinical applications that are relevant to registered nurses.

7.6 Concluding statement

In conclusion, this research set out to explore the attitudes of registered nurses towards postgraduate education, and the study identified the perceived facilitators of and barriers to the pursuit of postgraduate education. It accomplished its aim with the development of the NATPGE instrument. The primary findings identified that motivation (internal or external) is a strong facilitator for nurses to pursue postgraduate education and that external motivation such as monetary awards or tangible recognition may be required for some nurses. Continued support for nurses who want to pursue postgraduate education and well-developed career ladders for nurses are needed. Identifying the facilitators that may encourage a nurse to pursue postgraduate education and barriers that deter a nurse from pursuing postgraduate education will help healthcare workplaces and the academic sphere to make changes that support their nurses in advancing their education. In addition to the recommendations described above, the
findings in this study provide a starting point for future research in this area. Thus, the results from this Australian research have important implications for Australian nursing leaders, healthcare organisations (employers) and healthcare educators (universities).
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doi:10.1017/S004727940500913X

doi:10.1080/03075070802211802


doi:http://dx.doi.org/10.1108/0957822901006046

doi:10.3912/OJIN.Vol16No03PPT02


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Appendices

Appendix I Ethics approval December 2012

THE UNIVERSITY OF QUEENSLAND
Institutional Approval Form For Experiments On Humans
Including Behavioural Research

Chief Investigator: Ms Linda Ng

Project Title: Exploring Registered Nurses’ Attitudes to Post Graduate Education For Speciality Practice In Australia: A Pilot Study

Supervisor: Adjunct A/Prof Stephanie For-Young, Dr Yoki Kain, Dr Anthony Tuckett

Co-Investigator(s): None

Department(s): School of Nursing and Midwifery

Project Number: 2911000884

Granting Agency/Degree: MPhil

Duration: 31st December 2012

Comments:

Expedited review - low risk.

Name of responsible Committee:
Behavioural & Social Sciences Ethical Review Committee

This project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans.

Name of Ethics Committee representative: Associate Professor John McLean Chairperson

Behavioural & Social Sciences Ethical Review Committee

Date 1/8/2011 Signature
## Appendix II Ethics approval December 2013

### APPENDIX II

![University of Queensland logo]

**Institutional Human Research Ethics Approval**

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<td>Adjunct A/Prof Stephanie Fox-Young, Dr Vicki Kain, Dr Anthony Tuckett</td>
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<td>Duration:</td>
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Note: If the research is to be undertaken or already approved as a predecessor to this Ethics Approval, that prior approval must be notified to the UQ Human Research Ethics Office and the University's Research Ethics Office (Research Integrity & Compliance) must be notified in writing of all related changes in the research and all related human research ethics issues.

**Name of responsible Committee:**

**Behavioural & Social Sciences Ethical Review Committee**

This project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research* and complies with the regulations governing experimentation on humans.

**Name of Ethics Committee representative:**

Associate Professor John McLean
Chairperson
Behavioural & Social Sciences Ethical Review Committee

Signature [Signature] Date [17/12/2013]
### Appendix III Ethics approval December 2014

**APPENDIX III**

**THE UNIVERSITY OF QUEENSLAND**

**Institutional Human Research Ethics Approval**

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<td>Chief Investigator:</td>
<td>Ms Linda Ng</td>
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**Name of responsible Committee:**

**Behavioural & Social Sciences Ethical Review Committee**

This project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research and complies with the regulations governing experimentation on humans.

**Name of Ethics Committee representative:**

Associate Professor John McLean

Chairperson

**Behavioural & Social Sciences Ethical Review Committee**

---

**Signature** [Signature]

**Date** 11/10/2014
Appendix IV Participant information sheet Phase One: survey

Participant Information Sheet

Project title: Exploring registered nurses’ attitudes to Post Graduate education for specialty practice in Australia

Investigator: Linda Ng
LLB, BN, MN (ICU)
linda.ng@uqconnect.edu.au
School of Nursing and Midwifery
The University of Queensland
Herston Campus

Supervisors: Dr Anthony Tuckett
Dr Robert Eley
Dr Victoria Kain

Aim
This research aims to explore registered nurses’ attitudes to Post Graduate education for specialty practice, and to better understand their reasons for undertaking or not undertaking Post Graduate education.

Background
Studies overseas have shown that Post Graduate education improves knowledge and skills of Registered Nurses in specialty nursing practice as well as increasing Registered Nurses’ satisfaction with their jobs. There is also evidence that registered Nurses who have undertaken Post Graduate study tend to stay longer in nursing. However, there is no agreed position in Australia about whether Post Graduate education is a necessary pre-requisite for specialisation. It is also not clear whether Australian Registered Nurses with Post Graduate qualifications in specialty practice fields remain in nursing longer than those who do not have these qualifications. It is therefore impossible to develop any policy framework for nursing specialisation, and this has important consequences for the quality of future workforce planning.

You are invited to participate in a study for this research project which involves completing a questionnaire, which explore attitudes of registered nurses to specialist nursing and post graduate education. This study will assist us in ensuring that the questionnaire is a valid and reliable instrument to be used in future research.

Potential benefits
The ultimate goal of this survey is to identify what, if any, effect Post Graduate education has on retention in nursing and to clarify attitudes to Post Graduate education for specialty practice among Registered Nurses in Australia. If Post Graduate education is found to increase retention, the results from the attitudinal section of the piloted questionnaire will be used as the basis for developing material to enhance the uptake of Post Graduate education among nurses.
Procedures
Your participation in this study will involve completing a questionnaire which will ask you about your attitudes towards specialty nursing and post graduate education. It is anticipated that the total of your time commitment to this research project will be approximately 10 minutes.

Potential risks
There should be no added risk above the risks of everyday living for you in participating in this study. However, if you experience distress, you should contact Australia wide counselling service on 13 11 44 who will direct you to your nearest local contact.

Confidentiality
All comments and responses are anonymous and will be treated confidentially. The names of individual persons are not required in any of the responses. In any publication, information will be provided in such a way that you cannot be identified. All data collected from the survey will be stored electronically on computer servers. All data will be password protected to which only the e-Cohort manager, the investigator and the principal supervisor have access. Data will only be used for the purpose of conducting the research. All data will be kept for five years following completion of the study and publications of the research before being deleted.

Participation is voluntary
Participation in any research project is voluntary. If you do not wish to take part, you are not obliged to. If you agree to participate, you can withdraw from participation during the study without comment or penalty. As this survey is conducted online if you decide to withdraw participation you may do so at any time while completing the questionnaire, but not once it has been submitted. Your decision whether to take part or not will not affect your membership with the Nurses and Midwives e-Cohort Study.
Before you make your decision, you can contact the investigator, Linda Ng on linda.ng@uqconnect.edu.au to answer any questions you have about this research project. Complete the survey only after you have had a chance to ask your questions and have received satisfactory answers.

Ethics concern
This study has been approved by the University Of Queensland Behavioural & Social Sciences Ethical Review Committee (2011000884). If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact the University Of Queensland Behavioural & Social Sciences Ethical Review Committee Research Secretariat on 07 3365 3924 or humanethics@research.uq.edu.au

Feedback
Upon the conclusion of this research, the investigator will provide feedback to participants involved in the study which will include a summary of the overall outcomes of this study via email and internet (e-Cohort website). All publications from the Nurses’ Attitude Towards Post Graduate Education (NATPGE) research will be listed on the e-Cohort study website.
Appendix V Participant information sheet Phase Two: interpretative study

Participant Information Sheet

Project title: Exploring registered nurses’ attitudes to Post Graduate education for specialty practice in Australia

Investigator: Linda Ng
LLB, BN, MN (Crit Care)
linda.ng@uqconnect.edu.au
School of Nursing and Midwifery
The University of Queensland
Herston Campus

Supervisors: Dr Anthony Tuckett
Dr Robert Eley

Aim
This research aims to explore registered nurses’ attitudes to Post Graduate education for specialty practice, and to better understand their reasons for undertaking or not undertaking Post Graduate education.

Background
Studies overseas have shown that Post Graduate education improves knowledge and skills of Registered Nurses in specialty nursing practice as well as increasing Registered Nurses’ satisfaction with their jobs. There is also evidence that registered Nurses who have undertaken Post Graduate study tend to stay longer in nursing. However, there is no agreed position in Australia about whether Post Graduate education is a necessary pre-requisite for specialisation. It is also not clear whether Australian Registered Nurses with Post Graduate qualifications in specialty practice fields remain in nursing longer than those who do not have these qualifications. It is therefore impossible to develop any policy framework for nursing specialisation, and this has important consequences for the quality of future workforce planning.

You are invited to participate in a study for this research project which involves completing a questionnaire, which explore attitudes of registered nurses to specialist nursing and post graduate education. This study will assist us in ensuring that the questionnaire is a valid and reliable instrument to be used in future research.

Potential benefits
The ultimate goal of this survey is to identify what, if any, effect Post Graduate education has on retention in nursing and to clarify attitudes to Post Graduate education for specialty practice among Registered Nurses in Australia. If Post Graduate education is found to increase retention, the results from the attitudinal section of the piloted questionnaire will be used as the basis for developing material to enhance the uptake of Post Graduate education among nurses.
Procedures
If you wish to participate, you will be asked to participate in a semi-structured interview (telephone, Skype, Moodle or face to face) which will ask you about your attitudes towards specialty nursing and post graduate education. It is anticipated that the total of your time commitment to this research project will be approximately 30 to 45 minutes.

Potential risks
There should be no added risk above the risks of everyday living for you in participating in this study. However, if you experience distress, you should contact Australia wide counselling service on 13 11 44 who will direct you to your nearest local contact.

Confidentiality
All comments and responses are anonymous and will be treated confidentially. The names of individual persons are not required in any of the responses. In any publication, information will be provided in such a way that you cannot be identified. All data collected from the survey will be stored electronically on computer servers. All data will be password protected to which only the investigator and the principal supervisor have access. Data will only be used for the purpose of conducting the research. All data will be kept for five years following completion of the study and publications of the research before being deleted.

Participation is voluntary
Participation in any research project is voluntary. If you do not wish to take part, you are not obliged to. If you agree to participate, you can withdraw from participation during the study without comment or penalty. Your decision whether to take part or not will not affect your membership with the Nurses and Midwives e-Cohort Study. Before you make your decision, you can contact the investigator, Linda Ng on linda.ng@uqconnect.edu.au to answer any questions you have about this research project.

Ethics concern
This study has been approved by the University Of Queensland Behavioural & Social Sciences Ethical Review Committee (2011000884). If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact the University Of Queensland Behavioural & Social Sciences Ethical Review Committee Research Secretariat on 07 3365 3924 or humanethics@research.uq.edu.au

Feedback
Upon the conclusion of this research, the investigator will provide feedback to participants involved in the study which will include a summary of the overall outcomes of this study via email and internet (e-Cohort website). All publications from the Nurses’ Attitude Towards Post Graduate Education (NATPGE) research will be listed on the e-Cohort study website.
Appendix VI Consent form for Phase Two: interpretative study

WRITTEN CONSENT FORM

PROJECT TITLE: Exploring Registered Nurses’ Attitudes Towards Post Graduate Education for Specialty Practice in Australia

1. I agree to participate in the study named above.
2. The nature and purpose of the research project described in the Participant Information material above has been explained to me.
3. I understand that I may not directly benefit by taking part in this study.
4. I acknowledge that the possible risks and/or side effects, discomforts and inconveniences, as outlined in the Participant Information Sheet have been explained to me.
5. I understand that while information gained in this study may be published, I will not be identified and information will be kept confidential.
6. I understand there will be no payment to me for taking part in this study.
7. I have had the opportunity to discuss taking part in this research project with the researcher or colleague.
8. I understand that my participation will involve a questionnaire and I agree that the researcher may use the results as described in the information sheet.
9. Taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided.
10. I am aware I should retain a copy of the Participant Information Sheet.
11. I understand that by completing this survey, I have consented to participate in the study and I should retain a copy of the Information Sheet and my Consent.
12. I understand that information will be kept confidential except where there is a requirement by law for it to be divulged.

Participant’s Signature:  
Participant’s Name:  
Date:  

STATEMENT BY INVESTIGATOR:  
I have explained the study named above and the implications of participation in it to this volunteer. I believe the consent is informed and that he/she understands the implications of participation.

Investigator Signature:  
Investigator Name: Linda Ng  
Date:
Appendix VII Semi-structured interview guide

Exploring Registered Nurses’ Attitudes Towards Post Graduate Education for Specialty Practice in Australia

<table>
<thead>
<tr>
<th>With PGE</th>
<th>No PGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Begin by telling me about your experience with PGE e.g. [your PGE in.....]</strong></td>
<td><strong>You have been working in a specialty practice for [no of years] and you do not have any PGE related to that specialty. Can you tell me about that?</strong></td>
</tr>
<tr>
<td><strong>Addressing RQ 2: View on PGE for specialist practice</strong></td>
<td></td>
</tr>
<tr>
<td>1. I am interested in how your practice has changed as a result of PGE. Can you speak to that?</td>
<td><strong>Addressing RQ 1: Necessity of PGE</strong></td>
</tr>
<tr>
<td>→ Which aspects of PGE have impacted on your practice?</td>
<td>1. If you are given an opportunity to pursue PGE, would you take it?</td>
</tr>
<tr>
<td>2. I am also interested in how PGE has impacted on you personally. Can you speak to that?</td>
<td><strong>Addressing RQ 3: Difference in perceptions of barriers between PGE and No PGE</strong></td>
</tr>
<tr>
<td>3. When did you last complete your PGE? Can you tell me how your career changed since then?</td>
<td>2. If you could influence the policymakers/employers, what do they have to change to encourage you to undertake PGE?</td>
</tr>
<tr>
<td><strong>Addressing RQ 1: Necessity of PGE</strong></td>
<td><strong>Addressing Research Question 4: Intention to stay</strong></td>
</tr>
<tr>
<td>4. Did you find PGE beneficial?</td>
<td>3. Do you see yourself staying in nursing until retirement?</td>
</tr>
<tr>
<td><strong>Addressing RQ 3: Difference in perceptions of barriers between PGE and No PGE</strong></td>
<td>4. Do you have any comments to add regarding PGE?</td>
</tr>
<tr>
<td>5. What, if any challenges did you encounter in undertaking PGE?</td>
<td></td>
</tr>
<tr>
<td>→ What strategies did you employ to address these challenges?</td>
<td></td>
</tr>
<tr>
<td>→ What would have made it easier for you to deal with those challenges?</td>
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</tr>
<tr>
<td><strong>Addressing Research Question 4: Intention to stay</strong></td>
<td></td>
</tr>
<tr>
<td>6. Do you see yourself staying in nursing until retirement?</td>
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<tr>
<td>7. Do you have any comments to add regarding PGE?</td>
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Appendix VIII NATPGE Questionnaire

Nurses’ Attitudes Towards Postgraduate Education (NATPGE) Questionnaire

The Nurses’ Attitudes Towards Post Graduate Education (NATPGE) questionnaire has been designed to ask nurses their attitudes towards Post Graduate Education and Specialisation.

For the purpose of this study, Post Graduate Education is any formal qualifications (graduate certificate/diploma, master or PhD) obtained from any university. It does not include TAFE, In-Service or hospital certificate study.

Please note, as midwifery is now considered a separate profession in Australia, if you are a Registered Nurse/ Registered Midwife working in a midwifery practice area, this questionnaire DOES NOT apply to you.

Your email response to the invitation to be involved in the research project titled "Exploring registered nurses’ attitudes to Graduate Education for specialty practice in Australia: A pilot study", was your consent to participate.

Section One:
Firstly, please provide some information about yourself and please select the appropriate box. For the purpose of this study, Specialty education refers to education that focused on a particular field of nursing practice (e.g. ICU, ED).

1. What is your current employment status?
   - I am a specialist nurse working in a specialty nursing setting
   - I am not a specialist nurse, but I work in a specialty nursing setting
   - I am a specialist nurse, working in a general nursing setting
   - I am not a specialist nurse and I work in a general nursing setting

2. Have you completed Post Graduate Education in the specialty practice area in which you are working?
   - NA- I am not in a specialty practice area
   - NO- but I have a hospital qualification in the area
   - NO- but I have a Post Graduate qualification in another area
   - YES- I have Post Graduate qualification in the area
   - NO- but I am currently enrolled in a Post Graduate degree in this area

3. Are you currently working in Australia?
   - Yes
   - No

4. How many years have you worked as a Registered Nurse? (Please round up to the closest year)
   - Less than 2 years
   - 2 years to 5 years
   - 6 years to 10 years
   - 11 years to 15 Years
   - More than 15 years
5. Please choose from the following list the option that best describes your area of clinical specialisation in nursing

- □ Aged care
- □ Cardiac nursing
- □ Community health or public health
- □ Coronary care (CCU)
- □ Critical care/ intensive care
- □ Ear, nose & throat or eye nursing
- □ Emergency nursing
- □ Family & child health
- □ Gastroenterology nursing
- □ Haematological nursing
- □ Mental health nursing
- □ Neonatal intensive care (NICU)
- □ Neurological nursing
- □ Occupational nursing
- □ Orthopaedic nursing
- □ Paediatric nursing
- □ Palliative care
- □ Peri-operative care: peri-operative/theatre/post-operative
- □ Peritoneal dialysis
- □ Rehabilitation or disability
- □ Renal nursing
- □ Respiratory or thoracic nursing
- □ Not currently working in clinical nursing
- □ Other medical or surgical nursing not listed above
- □ Other practice area related to nursing

Section Two:
The following statements ask you about your attitudes towards Post Graduate Education. For the purpose of this study, Post Graduate Education is any formal qualifications (graduate certificate/diploma, master or PhD) obtained from any university. It does not include TAFE, In-service or hospital certificate study. For the purpose of this study, specialty education refers to education that focused on a particular field of nursing practice (e.g. ICU, ED). Please indicate whether you strongly agree, agree, disagree or strongly disagree with the statements.

1. A Registered Nurse needs to have a Post Graduate qualification related to their specialty practice in order to be recognised by the profession as a specialist nurse
   - □ Strongly agree □ Agree □ Disagree □ Strongly disagree □ Unsure

2. A Registered Nurse needs to have experience in a specialty clinical setting before they can be called a specialist nurse
   - □ Strongly agree □ Agree □ Disagree □ Strongly disagree □ Unsure

3. A Registered Nurse needs to have BOTH a Post Graduate qualification relevant to their specialty practice and experience in the specialty clinical setting before they can be called a specialist nurse
   - □ Strongly agree □ Agree □ Disagree □ Strongly disagree □ Unsure

4. Post Graduate Education in a specialty area enhances nurses’ careers
   - □ Strongly agree □ Agree □ Disagree □ Strongly disagree □ Unsure

5. Undertaking Post Graduate Education whilst also working in a shift environment is stressful
   - □ Strongly agree □ Agree □ Disagree □ Strongly disagree □ Unsure
6. Specialty Post Graduate Education increases nurses’ confidence in clinical decision making  
   - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

7. It is difficult to balance work, study and social life whilst undertaking Post Graduate education  
   - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

8. Specialty Post Graduate Education improves nurses knowledge  
   - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

9. There is NO DIFFERENCE in clinical practice between a Registered Nurse with a Specialty Post Graduate qualification and a Registered Nurse without a Specialty Post Graduate qualification  
   - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

10. Employer support (e.g. time off for study, financial assistance) is necessary for post graduate study to be successful  
    - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

11. A Registered Nurse with Specialty Post Graduate Education experiences increased job satisfaction  
    - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

12. Specialty Post Graduate Education improves nurses’ clinical skills  
    - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

13. The cost of Post Graduate Education is too high  
    - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

14. Specialty Post Graduate Education improves specialist nurses’ critical thinking  
    - Strongly agree  - Agree  - Disagree  - Strongly disagree  - Unsure

Thank you for taking the time to complete this questionnaire
Appendix IX Participant information sheet for pilot study

Project title: Exploring registered nurses’ attitudes to Post Graduate education for specialty practice in Australia: A pilot study

Investigator: Linda Ng
LLB, BN, MN (ICU)
linda.ng@uqconnect.edu.au
School of Nursing and Midwifery
The University of Queensland
Herston Campus

Supervisors: Assoc. Prof Stephanie Fox-Young
Dr Anthony Tuckett
Dr Victoria Kain

Aim
This research aims to explore registered nurses’ attitudes to Post Graduate education for specialty practice, and to better understand their reasons for undertaking or not undertaking Post Graduate education.

Background
Studies overseas have shown that Post Graduate education improves knowledge and skills of Registered Nurses in specialty nursing practice as well as increasing Registered Nurses’ satisfaction with their jobs. There is also evidence that registered Nurses who have undertaken Post Graduate study tend to stay longer in nursing. However, there is no agreed position in Australia about whether Post Graduate education is a necessary pre-requisite for specialisation. It is also not clear whether Australian Registered Nurses with Post Graduate qualifications in specialty practice fields remain in nursing longer than those who do not have these qualifications. It is therefore impossible to develop any policy framework for nursing specialisation, and this has important consequences for the quality of future workforce planning.
You are invited to participate in a pilot study for this research project which involves completing a questionnaire, on two occasions within 3-4 weeks that explore attitudes of registered nurses to specialist nursing and post graduate education. This pilot study will assist us in ensuring that the questionnaire is a valid and reliable instrument to be used in future research.

Potential benefits
The ultimate goal of this survey is to identify what, if any, effect Post Graduate education has on retention in nursing and to clarify attitudes to Post Graduate education for specialty practice among Registered Nurses in Australia. If Post Graduate education is found to increase retention, the results from the attitudinal section of the piloted questionnaire will be used as the basis for developing material to enhance the uptake of Post Graduate education among nurses.
Procedures
Your participation in this plot study will involve completing a questionnaire on two occasions, 3-4 weeks apart, which will ask you about your attitudes towards specialty nursing and post graduate education. It is anticipated that the total of your time commitment to this research project will be approximately 30 minutes.

Potential risks
There should be no added risk above the risks of everyday living for you in participating in this study. However, if you experience distress, you should contact Australia wide counselling service on 13 11 44 who will direct you to your nearest local contact.

Confidentiality
All comments and responses are anonymous and will be treated confidentially. The names of individual persons are not required in any of the responses. In any publication, information will be provided in such a way that you cannot be identified. All data collected from the survey will be stored electronically on computer servers. All data will be password protected to which only the e-Cohort manager, the investigator and the principal supervisor have access. Data will only be used for the purpose of conducting the research. All data will be kept for five years following completion of the study and publications of the research before being deleted.

Participation is voluntary
Participation in any research project is voluntary. If you do not wish to take part, you are not obliged to. If you agree to participate, you can withdraw from participation during the study without comment or penalty. As this survey is conducted online if you decide to withdraw participation you may do so at any time while completing the questionnaire, but not once it has been submitted. Your decision whether to take part or not will not affect your membership with the Nurses and Midwives e-Cohort Study.

Before you make your decision, you can contact the investigator, Linda Ng on linda.ng@uqconnect.edu.au to answer any questions you have about this research project. Complete the survey only after you have had a chance to ask your questions and have received satisfactory answers.

Ethics concern
This study has been approved by the University Of Queensland Behavioural & Social Sciences Ethical Review Committee (2011000884). If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact the University Of Queensland Behavioural & Social Sciences Ethical Review Committee Research Secretariat on 07 3365 3924 or humanethics@research.uq.edu.au

Feedback
Upon the conclusion of this research, the investigator will provide feedback to participants involved in the study which will include a summary of the overall outcomes of this study via email and internet (e-Cohort website). All publications from the Nurses’ Attitude Towards Post Graduate Education (NATPGE) research will be listed on the e-Cohort study website.
Appendix X Email correspondence and consent form for pilot study

Dear Colleagues,

You are invited to take part in this pilot study that investigates the attitude of registered nurses to specialty nursing and post graduate education. This pilot study involves completing the same questionnaire twice, 3 to 4 weeks apart. The pilot study will assist in ensuring that it is a valid and reliable instrument.

The ultimate outcome of this project will lead to the development of new knowledge that will inform post graduate education curricula.

The attached Participant Information Sheet contains detailed information about this research project. Its purpose is to explain to you all the procedures involved before you decide whether or not you wish to take part in it.

Please read this Participant Information Sheet carefully. You should feel free to ask any questions about any information in this document. You may also wish to discuss the project with a friend or colleague.

Once you understand what the project is about and if you agree to take part in it by replying to this email, you will be asked to complete a brief survey within a week of your response, and again in 3 weeks’ time. By completing these surveys, you indicate that you understand the information contained in the attached Participant Information Sheet and that you give your consent to participate in the research project. You should download and keep a copy of the Participant Information Sheet as a record.

My positive response to this email invitation to be involved in the research project titled:

**EXPLORING REGISTERED NURSES’ ATTITUDES TO POST GRADUATE EDUCATION FOR SPECIALTY PRACTICE IN AUSTRALIA: A PILOT STUDY** (indicated by completing the survey through the e-cohort link below)

acknowledges that:

1. The nature and purpose of the research project described in the Participant Information material above has been explained to me in an email
2. I understand that I may not directly benefit by taking part in this study
3. I acknowledge that the possible risks and/or side effects, discomforts and inconveniences, as outlined in the Participant Information Sheet have been explained to me in this document
4. I understand that while information gained in this study may be published, I will not be identified and information will be kept confidential.
5. I understand there will be no payment to me for taking part in this study.
6. I have had the opportunity to discuss taking part in this research project with the researcher or colleague.
7. I understand that my participation will involve a questionnaire and I agree that the researcher may use the results as described in the information sheet.
8. Taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice and to withdraw any unprocessed data I have provided.
9. I am aware I should retain a copy of the Participant Information Sheet.
10. I understand that by completing this survey, I have consented to participate in the study and I should retain a copy of the Information Sheet and my Consent email.
11. I understand that information will be kept confidential except where there is a requirement by law for it to be divulged.

To access your survey, please follow these 3 simple steps:

1. Click on the following link which will take you to the NATPGE study homepage: http://nurses.e-cohort.net/natpge/
2. Once you are at the study page click on the link named “Click here to access your survey”
3. You will be prompted to enter your email and password (your password is your date of birth and must be entered in the following format - dd/mm/yyyy e.g. 01/02/1984)

At the end of the survey, you will be returned to the main Nurses & Midwives e cohort page.

Thank you.
Regards,
Linda Ng
Primary Investigator