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The ward-based Nurse Clinical Educator: Impact on student learning outcomes and student and preceptor experiences

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This thesis is presented for the degree of
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School of Nursing and Midwifery

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Declaration

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Karen McCarthy

Master of Nursing (Research) student

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Abstract

Aim

This study aimed to determine the impact of the implementation of a ward-based Nurse Clinical Educator (NCE) role on students and staff at one health service whilst students were on clinical practicum at a Western Australian regional health care facility.

Question

The research question was: "What impact does the NCE support intervention have on students and clinical staff during clinical practicum?"

Background

Clinical experience for undergraduate student nurses (students) undertaking their bachelor's degree is of utmost importance for gaining both competence and registration. Students encounter difficulties in obtaining opportunities to practice their skills and develop competence when on clinical practicum; and preceptors are often overwhelmed by their responsibility to supervise students, as well as provide holistic patient care. The literature identifies a need for a role which is directly responsible for student learning, which would maximise learning opportunities for students, as well as support preceptors. This role could maintain synergistic relationships and communication between the university and clinical facilities.

Although there is literature reporting on the evaluation of either students' or preceptors' experience in the clinical setting, there have been only a few studies where both students' and preceptors' experiences were evaluated in the same study; or the effectiveness of a support model was implemented into the clinical setting and evaluated. Research focused on the implementation of a partnership intervention support model, would add to the limited body of knowledge on the efficacy of clinical support interventions.

Methods

This study utilises a convergent parallel mixed methods design, as it was deemed to provide a better triangulation of data obtained. Quantitative and qualitative data were collected in surveys before and after the NCE intervention, whilst students were on clinical practicum. Surveys collected data using both Likert-scale and open-text responses. Analysis was performed using descriptive statistics and content analysis to interpret the findings.

Participants

Participants in this study were undergraduate nursing students and clinical staff who participated in clinical practicum during the implementation of a ward-based NCE support role in a Western Australian regional health care facility.

Findings

This study found the main impact of the NCE role was upon stress and time. Stress was reduced for both students who had access to increased support networks, and for preceptors who could obtain assistance with students when workloads were heavy. There was an increase in teaching time available for skill development for the students, which in turn led to increased competence of students, less time taken by student to undertake skills, and increased student confidence. There was an increase in available time for the preceptors for their workloads on the wards, and more time for preceptors to assist students, without being hampered by students taking a long time with skills.

Key words

Undergraduate nursing student, nurse, clinical staff, nursing, preceptor, facilitator, clinical educator, supervisor, education, clinical, practicum, clinical placement, learning outcomes, experiences, partnership, regional, Australia.

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Abbreviations

CC	Clinical Coordinator
CF	Clinical Facilitator
CI	Clinical Instructor
CN	Clinical Nurse
CNE	Hospital Clinical Nurse Educator
DEU	Dedicated Education Unit
EN	Enrolled Nurse
LEM	Learning Environment Manager
LOD	Learning and Organisational Development
MMAT	Mixed methods appraisal tool
NCE	Nurse clinical educator
NUM	Nurse unit manager
Prac	Practicum
RM	Registered Midwife
RN	Registered Nurse
SoN	School of Nursing
Staff	Hospital clinical nursing staff
Student	Undergraduate student nurse
TLM	Team Leader Model
VANA	Veterans Affairs Nursing Academy

Glossary of Terms

Clinical	Relating to the observation and treatment of actual patients that is provided in a hospital or clinic
Clinical Coordinator	An experienced registered nurse or midwife employed by the hospital as a clinical nurse, in a role to coordinate and manage the clinical area for the duration of a shift
Clinical Facilitator	A nurse with relevant clinical experience, who is employed by the university in a casual supervisory role, to spend an allocated amount of time with students, to oversee students on practicum
Clinical Facilitator role	Nursing educator intervention role, who provides clinical education, support and liaison for students and nursing staff in the clinical area
Clinical Instructor	Clinical educator providing instruction to students
Clinical Nurse	An experienced registered nurse or midwife employed by the hospital as a senior nurse
Clinical Nurse Educator	A nurse employed by the hospital as a staff educator
Coordinator role	Dedicated nursing practicum coordinator intervention role, who manages the practicum education experience and liaison between the university and the health service
Dedicated Education Unit	A clinical unit dedicated for the education of students
Enrolled Nurse	A person who has completed the prescribed educational preparation and is registered with the Nursing and Midwifery Board of Australia as a Division 2 nurse.
Learning and Organisational Development	A nurse employed by the hospital in a staff learning and development role
Nurse Clinical Educator	A nurse employed by the university in a full-time supernumerary role, in addition to the CF and preceptor roles. This role understands university requirements, has post-graduate nurse education qualifications and undertakes coordination and support of student learning for and sometimes supports staff.

Nurse Unit Manager	An experienced registered nurse or midwife employed by the hospital as a nurse manager to coordinate and manage the clinical area
Partnership model	A nursing model with a partnership between the university and the clinical facility
Placement	The allocation of a student practicum period
Practicum	A supervised practical section of a course for the preparation of students, undertaken in the workplace, which allows previously-learned theory to be put into practice
Preceptor	A nurse clinician who is employed by the clinical facility, and as part of their role, in addition to taking a patient load, undertakes supervision and observed assessment of students practicing their skills and patient care during their shift on their clinical practicum
Registered Midwife	A person who has completed the prescribed educational preparation and is registered with the Nursing and Midwifery Board of Australia as a midwife.
Registered Nurse	A person who has completed the prescribed educational preparation and is registered with the Nursing and Midwifery Board of Australia as a Division 1 nurse.
School of Nursing	University educational school in the discipline of nursing
Staff	Hospital clinical nursing staff
Student	A person enrolled in a nursing program at undergraduate level of study
Supernumerary	In excess of the requisite number. Not included in nurse to patient ratios or allocated a patient load
Team Leader Model	A nursing model which utilised a team of nurses to supervise a student, with a team leader allocated

Statement of Contributors

This thesis is my own composition, all sources have been acknowledged.

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Dedication

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Chapter 1. Introduction

Undergraduate student nurses (students) encounter difficulties in obtaining opportunities to practice their skills and develop competence when on clinical practicum. At the same time, preceptors are often overwhelmed by their responsibility to supervise students, whilst being committed to providing holistic patient care. This study evaluated a Nurse Clinical Educator (NCE) intervention, specifically developed to address the needs of students and staff while students were on clinical practicum. This chapter will introduce the study, providing a background for the study, as well as terminology used. The rationale for this research and background of the role under investigation will then be discussed, along with the hospital demographics. The researcher's position and significance of this research is outlined. An outline of the research aims, research question, objectives and design guiding this study will follow. This chapter closes with the organisation of the thesis.

1.1 Background to the study

Clinical experience for students enrolled in their bachelor degree is of utmost importance to enable them to acquire knowledge and skill competence, and confidence, so they may provide safe and competent nursing care (Courtney-Pratt, Fitzgerald, Ford, Marsden, & Marlow, 2012). Clinical practicums are an essential learning component of the students' program and are a requirement of the program accrediting body (Australian Nursing and Midwifery Accreditation Council [ANMAC], 2012; Courtney-Pratt et al., 2012). Active involvement is essential to student learning, attainment of skills, confidence and competence, however the student's ability to maximise learning experiences may be limited in the busy clinical setting (Levett-Jones, Lathlean, Higgins, & McMillan, 2009b).

Whilst on clinical practicum, students work alongside their preceptors who are nurses expected to supervise students for the shift as well as continue to care for a full patient load. Throughout their practicum, students struggle to take full advantage of opportunities to practice their clinical skills and develop competence, due to the limited capacity of preceptors to be available to supervise them throughout the process (Houghton, Casey, Shaw, & Murphy, 2013; Reid-Searl, Moxham, Walker, & Happell,

2008). Being allocated to a supportive role-model preceptor is vital for facilitating students' learning and attainment of competence in the clinical setting (Houghton et al., 2013). Having other students in the clinical area can be advantageous for peer-support, however, too many students can hinder exposure to learning opportunities (Houghton et al., 2013).

The reality, though, is that there are a lot of demands on the preceptor's time, when their focus is understandably primarily on timely, safe patient care. At times this becomes detrimental to the student learning experience (Courtney-Pratt et al., 2012; Gaberson & Oermann, 2010). Despite the professional requirements for direct supervision of students, the amount and quality of supervision by preceptors varies dramatically between facilities and even between wards, sometimes compromising patient safety (Australian Nursing and Midwifery Accreditation Council [ANMAC], 2012; Reid-Searl et al., 2008).

Overall there is a perceived need for improvement in all elements of the clinical experience, more specifically, to use the available time to better help students to learn. Educators, CF, and preceptors, should be provided with an assortment of teaching strategies to promote and encourage student learning in the clinical area (Smedley & Morey, 2010). The contemporary literature identifies a broad range of clinical practicum support models, using a variety of strategies and personnel. A common theme across the literature is the need for a role which is directly responsible for student learning and maintaining synergistic relationships and communication between university and clinical facilities, which ultimately maximises learning opportunities for students (Congdon, Baker, & Cheesman, 2013; Dobalian et al., 2014; Houghton et al., 2013; Nishioka, Coe, Hanita, & Moscato, 2014a; Sanderson & Lea, 2012).

The students' clinical practicum experience has been studied in terms of context and its impact, e.g. rural, community or high acuity area (Dobalian et al., 2014; Nishioka et al., 2014a; Sanderson & Lea, 2012). The impact of the CF's guidance on student learning has been compared with that of the preceptor (Courtney-Pratt et al., 2012), while a number of studies have evaluated either students' OR preceptors' experience in the clinical setting (Congdon et al., 2013; Courtney-Pratt et al., 2012;

Dobalian et al., 2014; Hall-Lord, Theander, & Athlin, 2013; Henderson & Tyler, 2011; Newton, Cross, White, Ockerby, & Billett, 2011).

There is limited research available which has evaluated a practicum intervention model in an acute clinical area. There is a plethora of literature on the positive and negative experiences that students encounter whilst on clinical practicum; OR for preceptor experiences with students that are on practicum. Few studies were identified that evaluated both students' AND clinical staff perceptions of a practicum clinical support intervention strategy. Moreover, there has been no research of this nature in regional Western Australia.

1.2 Terminology and role identification

Throughout the nursing education literature there are many different terms used for the different roles and at times these are used interchangeably. To understand the roles that are being discussed in this thesis, the terms student, preceptor, CF and NCE will be used.

A student in this thesis is enrolled in a registered nursing program at undergraduate level of study. In the literature various titles have been used for students, including: student (Dobalian et al., 2014; Hannon et al., 2012; Henderson & Tyler, 2011; Nishioka et al., 2014a; Nishioka, Coe, Hanita, & Moscato, 2014b); student nurse (Jeggels, Traut, & Africa, 2013); nursing student (Hall-Lord et al., 2013; Levett-Jones & Bourgeois, 2015; Löfmark, Hansebo, Nilsson, & Törnkvist, 2008; MacIntyre, Murray, Teel, & Karshmer, 2009; T. A. Murray, Schappe, Kreienkamp, Loyd, & Buck, 2010); and undergraduate nurse (Congdon et al., 2013; Courtney-Pratt et al., 2012; Delunas & Rooda, 2009; Newton et al., 2011; Sanderson & Lea, 2012).

A preceptor is a nurse clinician who is employed by the clinical facility, and as part of their role, in addition to taking a patient load, undertakes supervision and observed assessment of students practicing their skills and patient care during their shift on their clinical practicum (Gaberson & Oermann, 2010). Various titles used for this role include: preceptor (Hall-Lord et al., 2013; Jeggels et al., 2013; Levett-Jones & Bourgeois, 2015; Newton et al., 2011); nursing staff (Dobalian et al., 2014); staff nurse (Delunas & Rooda, 2009; MacIntyre et al., 2009); ward nurse, supervising nurse

(Courtney-Pratt et al., 2012); mentor (Congdon et al., 2013); clinician (T. A. Murray et al., 2010; Sanderson & Lea, 2012); or clinical instructor (Hannon et al., 2012).

A Clinical Facilitator (CF) is a nurse with relevant clinical experience, who is usually (but not always) employed by the university in a casual, supernumerary supervisory role, to spend an allocated amount of time each week with students, monitoring student progress, ensuring student learning requirements and learning objectives are met when students are on practicum (Sanderson & Lea, 2012). CFs provide orientation to the practicum, communicate practicum expectations, facilitate learning, support students, monitor student's progress, ensure learning objectives and skills assessments are met and provide clinical evaluation for each student (Sanderson & Lea, 2012). Various titles used for a CF include: CF (Courtney-Pratt et al., 2012; Delunas & Rooda, 2009; Henderson & Tyler, 2011; Sanderson & Lea, 2012); clinical supervisor, clinical instructor, and clinical educator (Levett-Jones & Bourgeois, 2015). In this study the CF role was employed by the university for 6-8 hours per week.

The NCE is a nurse employed by the university, who understands the university's requirements, often has post-graduate nurse education qualifications and undertakes overall coordination of student learning and support for both students and sometimes staff as well. Various titles used for a NCE include: faculty educator (Dobalian et al., 2014); clinical educator (Newton et al., 2011); supervisor of clinical education (Henderson & Tyler, 2011); or clinical faculty coordinators (Nishioka et al., 2014a, 2014b). In this study, the NCE has post-graduate nurse education qualifications and is a full-time supernumerary role, in addition to the CF and preceptor roles.

1.3 Rationale for the study

A review of the university's nursing program identified that students were missing opportunities to gain skills and competencies whilst on practicum, due to preceptors having limited time to allow students to undertake supervised skills (S. Tencer, personal communication, February 4, 2013). This resulted in a partnership agreement being developed between a regional Western Australian hospital and the university for a full-time, supernumerary, ward-based NCE intervention to be placed at the hospital when students attended for their practicum.

An application was made by the university's Nursing Program Coordinator, for grant funding to enable the NCE role to be implemented to support students on practicum. This study was initiated following discussion with a colleague. The intention was for the NCE to provide extra support for students and staff, as well as enabling increased student placements at the hospital. The supernumerary NCE support intervention was a new role, which was employed to supplement the existing CF supervisory roles and the hospital's preceptor roles, to address this deficit.

Initially the ward-based NCE role was implemented with the expectation of evaluating the efficacy of the role to meet funding auditing requirements. Research methodology was designed, then applications made for ethical approval, which was gained from both the university's and hospital's ethics committees (see Appendices A and B), in order to allow data collection to be conducted. This allowed valuable data to be collected during the implementation of the NCE role, which would later be analysed as part of this research study. The rationale for this research was to evaluate this intervention role, to determine its impact on student learning outcomes and the experiences for both students from the university who were on clinical practicum at this health care facility, and the clinical staff who guide and support these students.

1.4 NCE role overview

The NCE role was undertaken by a hospital clinical nurse educator (CNE) with post-graduate nurse education qualifications, on secondment to the university, to enable integration of the NCE role into the hospital (Henderson & Tyler, 2011). The NCE role was a fulltime supernumerary role, responsible for all of the university's students undertaking their practicum at the hospital during the year. These students were in their second or third year of study of the three-year Bachelor of Science (Nursing) degree (Edith Cowan University, 2013). As part of the partnership agreement, an increase in student placements was provided at the hospital for the university, due to the expected support the NCE role would provide to students and preceptors. This was important to rural students, as it would enable more students to be placed locally in the regional area for their practicum, without the extra burden of additional financial strain, family strain, and stress of having to attend practicum in the distant metro area, due to the limited placements available in the regional area (Tencer, 2013).

1.4.1 Implementation of the NCE role

On commencement of the NCE role, information sessions were undertaken at each of the hospital's clinical areas' monthly clinical meeting, and prior to data collection. This informed all identified key stakeholders of the NCE intervention as a support role and the objectives of the NCE role. The NCE role's objectives included:

1. Develop and nurture partnerships of excellence, and effective communication between the university and the hospital;
2. Provide clinical support to students, CFs, preceptors, facility staff and educational caregivers;
3. Ensure students have opportunities for meaningful learning experiences, competency and skill acquisition, and have required supervision during this process;
4. Reduce clinical preceptor stress when supervising students, and reduce student stress whilst performing clinical skills: and
5. Provide a supported and safe environment to enhance students' feeling of belongingness, and learning, whilst on practicum.

In the information sessions, the distinction was also made of the differences between the roles involved in practicum, as the NCE role was in addition to, and not undertaking any of the components of other roles. To ensure all stakeholders had access to the NCE, the NCE carried a mobile phone at all times, and contact information with phone numbers were provided in each clinical area's contact information folder, staff education boards, and supplied to all CFs and students at the facility. Stakeholders were also informed of the imminent invitation to participate in the research.

1.4.2 NCE duties performed

During the nursing course, students completed clinical skills assessments at the university, prior to undertaking practicum (Edith Cowan University, 2013), and the NCE role assisted with these competency assessments. At the hospital, the main role of the NCE was to ensure students had opportunities for meaningful learning experiences, competency and skill acquisition, and have required supervision whilst on practicum.

After reviewing handover information on the medical and surgical wards, the NCE communicated with all students on shift as well as preceptors, to facilitate availability and supervision of skill acquisition for students. If the preceptor was not available to supervise students in obtaining skills, then the NCE role provided this supervision. Initially preceptors were requesting the NCE to do all skills with students, however after reiteration and discussion of the NCE role and scope of practice, preceptors continued to supervise students with clinical skills when possible.

The same process also occurred for student competency assessments. If students were undertaking practicum in a clinical area with limited skill availability, then the NCE role liaised with preceptors and Nurse Unit Managers (NUM) in that clinical area, to provide students with some opportunities on the medical or surgical ward, to undertake clinical skills that required competency assessment.

The NCE role performed a variety of duties which had previously been performed by other employees at both the university and the hospital. The NCE role liaised with the hospital at the beginning and end of each semester at monthly clinical area meetings, to relay and update key information. NUMs were collaborated with to progress and promote the role and research study, and also to discuss any issues or queries that arose.

It had previously been identified by most NUMs that the university and students required provision of area-specific education and orientation packages. The NCE collaborated with NUMs, CNEs and clinical nurses (CN) in order to update or produce these area-specific education and orientation packages, then made these available to the nursing program and the students, prior to their attending practicum at the hospital.

The NCE collaborated with Learning and Organisational Development (LOD) Coordinator and NUMs, in order to provide rosters for students' practicums, whereby students were 'buddied' up with two key preceptors for most of these preceptor's shifts. Where possible at least one shift per fortnight for the preceptor was not allocated to precepting, in order to avoid 'burnout' (Henderson & Tyler, 2011). The NCE role provided initial hospital and clinical area orientation with all students attending the facility – this occurred for the remainder of the first day, after CFs provided their orientation of practicum requirements and timeframes to be met. These

roles had previously been part of the hospital's LOD, NUM, CNE or CC roles to perform.

Students, CCs, CNEs, and hospital staff were able to clarify with the NCE role, any information regarding both student and preceptor expectations, and current clinical skills and education. Preceptors liaised with the NCE regarding any student who was perceived as not performing adequately, were at risk, or if the student had worked outside their scope of practice or made a medication error. In this instance the NCE role supported both preceptor and student, advised CF and liaised with CF for further instructions. New CFs to the facility or the role had the support of the NCE, in order to facilitate their role to students with either orientation, learning objectives, or learning contracts, if required.

1.5 Hospital demographic information

The hospital was a 145-bed health care facility in regional Western Australia. The surgical and medical wards host students in both semesters, whereas all other clinical areas host students for one semester only. In the nursing course, each year is broken into two semesters, and each semester is known as a 'stage' for student practicum. First-year students (stage one and two) do not attend practicum at this facility, due to the focus of first-year practicums being in aged care. Students in stages three and five attend the facility in semester one of each year, and stages four and six attend the facility in semester two of each year. Stages three, four and five complete two practicums of two-weeks each semester, stage six complete a two-week practicum then a five-week final practicum in that semester.

1.6 Researcher's position

The researcher is a registered nurse and nurse educator, with experience in precepting nursing students and graduates. This experience enabled the researcher to have first-hand knowledge of the pressures of precepting students whilst managing a full and busy workload. During the researcher's clinical and academic careers, the experience of witnessing the spectrum between outstanding to debilitating preceptorship of students and graduates led to a passion in this area. Preceptorship experiences have the impact of boosting or dashing confidence levels, making students

or preceptors nervous, and students feeling like their practicum experience was rewarding or distressing (Levett-Jones et al., 2009b). Sometimes these experiences led to students leaving the undergraduate nursing course and re-considering nursing as a career, as well as nurses leaving the workplace and sometimes the nursing workforce. These experiences encountered by the researcher motivated her to investigate strategies to improve the situation for both students and preceptors – thus the genesis of this study.

1.7 Significance of this research

For a comprehensive understanding of the quality of the clinical placement, gaining an understanding from both the student and preceptor perspectives is required (Courtney-Pratt et al., 2012). It is also imperative to investigate the strategies required to develop students' competence and skills, and the abilities of preceptors who educate and role-model their behaviours to students (Henderson et al., 2010). This requires structures and procedures to be implemented, so that intervention strategies can change culture, become embedded and be sustainable (Henderson et al., 2010). These intervention strategies are not universally demonstrated, and the literature identifies inconsistencies amongst existing models; in communication, provision of support and supervision, and skill and competency acquisition, all of which the students experience whilst they attempt to gain opportunities to practice their clinical skills when on clinical practicum (Levett-Jones, Lathlean, Higgins, & McMillan, 2009a).

This NCE support intervention may provide benefits to both students and preceptors by increasing learning opportunities for students, and reducing the workload burden on preceptors, thus providing a more comprehensive learning experience for the student (Courtney-Pratt et al., 2012; Henderson et al., 2010; Houghton et al., 2013). The provision of clinical support resembling Courtney-Pratt et al. (2012) and Henderson et al. (2010) models is recommended by Houghton et al. (2013).

1.8 Aim and research question

This research aimed to evaluate the NCE role as a supportive intervention in the clinical education process, which was implemented for undergraduate nursing

students and their preceptors. To do this, the research addressed the following research question: “What impact does the NCE support intervention have on students and clinical staff during clinical practicum?”.

Specific objectives were to determine the impact of the intervention on:

a) The students’ learning outcomes;
b) The students’ clinical practicum experience; and
c) The experience of hospital staff involved when students were on practicum.

To meet these objectives and evaluate the impact of the NCE intervention, this study utilised a mixed methods pre- and post-intervention approach.

1.9 Organisation of thesis

The organisation of this thesis includes the introduction, literature review, methodology, findings, discussion and conclusion. This introductory chapter introduces the background to the study, terminology used, rationale for this research and overview of the NCE role discussed. The researcher’s position was acknowledged, significance of this research was made, and an outline of the research aims, research question, objectives and design guiding this study were discussed.

Chapter two provides a literature review, which discusses nurse education in Australia, the aim of the literature review, the search strategy, data extraction, quality appraisal of the identified literature, synthesis of the literature and identifies gaps in the literature for further research opportunities. The third chapter outlines the methodology for this research, discussing the research purpose, research question, framework for methodological principles, research design, data analysis, ethical considerations, how rigour was maintained, as well as the strengths and limitations of the study.

The findings are separated into two chapters: chapter four focuses on students; and chapter five for staff, both with quantitative and qualitative data. Student findings discusses student placement details, then findings related to student learning outcomes and their experiences on practicum. Staff findings discusses clinical nursing staff employment details, then findings related to staff experiences when students are on practicum. Chapter six provides an overall discussion of the research, which

synthesises the findings from this research with the review of the contemporary literature available, to answer the research question. It then discusses the implications for practice and research, recommendations are made, and the thesis concludes with a summary of the complete thesis.

1.10 Conclusion

A partnership NCE support intervention was implemented with the aim of increasing learning opportunities for students on practicum and reduce the burden on the preceptors expected to supervise students, whilst also managing their workload. This role was expected to provide a more comprehensive learning experience for the student and reduce the burden on preceptors.

This study evaluated the NCE role, to determine what impact the NCE support intervention had on the students' learning outcomes, and clinical practicum experiences for students and clinical staff. The following structured literature review discusses the contemporary research around clinical supervision models, and their impact upon the students and preceptors who are involved in the clinical model. The results of this review of the literature are discussed in the next chapter.

Chapter 2. Literature review

2.1 Introduction

There are many nursing models and teaching strategies utilised when undergraduate registered nurses (students) are on clinical practicum. These models have varying effects on student and preceptor experiences. This chapter reports on a structured literature review of the contemporary research around clinical supervision models, and their impact upon the students and preceptors who use them in practice. The chapter begins with an overview of the historical background of undergraduate nursing education in Australia. This is followed by the search strategy and methods guiding the review. A critique of identified significant literature is followed by a discussion of themes arising, their implications for practice, and the research gaps that were identified.

2.2 Registered nurse education in Australia

Prior to 1984, nursing education in Australia followed an apprenticeship-style, hospital-based, full-time training of three years (Commonwealth of Australia, 2002; Gaberson & Oermann, 2010; Palmer & Short, 2013). As part of the workforce, students attended to the care of patients every working day, acquiring skills and developing their competence on patients (Palmer & Short, 2013). They learned and developed their knowledge and skills whilst working with nursing staff, senior colleagues and with clinical educators/ facilitators, who were employed by the hospital (Palmer & Short, 2013). In 1984 the Australian Government transferred all pre-registration nursing education to the tertiary sector, due to issues with variation in the type and quality of training received (Commonwealth of Australia, 2002; Palmer & Short, 2013). In 1989 nursing educational requirements were upgraded from a three-year diploma, to a three-year bachelor's degree (Palmer & Short, 2013).

Since 1994, Australian registered nursing students have learned nursing theory and science in the university environment, with nursing skills taught in clinical skills laboratories or demonstration wards at the university (Commonwealth of Australia, 2002; Gaberson & Oermann, 2010). Clinical practicum experience is

essential for students undertaking their bachelor degree, both to develop necessary competence in practice and achieve registration (Australian Nursing and Midwifery Accreditation Council [ANMAC], 2012; Courtney-Pratt et al., 2012). Clinical practicums are undertaken in clinical facilities, are used to consolidate knowledge, practise developing clinical skills, and demonstrate competence in clinical situations on actual patients (Gaberson & Oermann, 2010). The majority of universities adopted a three-year undergraduate nursing program (Australian Nursing and Midwifery Accreditation Council [ANMAC], 2012; Commonwealth of Australia, 2002), and all programs include a minimum of 800 hours of practicum in a clinical facility, in a supernumerary capacity to meet accreditation requirements (Australian Nursing and Midwifery Accreditation Council [ANMAC], 2012).

Supervision of students in clinical settings is usually either wholly by a clinical facilitator (CF), or by a preceptor in partnership with a CF who meets with the student intermittently throughout their practicum, guiding the student to achieve their learning objectives, obtain clinical skills practice and gain competence (Gaberson & Oermann, 2010). The CF also communicates with preceptors to discuss the student's performance, to enable the CF to assess the student's clinical competence (Gaberson & Oermann, 2010).

The Australian Government conducted the National Review of Nurse Education in the Higher Education Sector in 1994, to examine the outcomes of the transition to university education (Commonwealth of Australia, 2002). This review exposed issues with the status of university education, as well as expectations and relationships between key stakeholders involved in nursing education (Commonwealth of Australia, 2002). The review established the importance of university's schools of nursing developing close, effective associations with key stakeholders, including employers within the health industry (Commonwealth of Australia, 2002; Palmer & Short, 2013).

A further review, The National Review of Nursing Education was conducted in 2001, to address the perceived mismatch between reduced levels of entry into nursing education, the increasing demands for qualified registered nurses and impending nursing workforce shortages (Commonwealth of Australia, 2002). There were 36 recommendations from this review, which included: establishing a national

nursing council of Australia; establishing nursing education and workforce forums for collaboration to address issues; nationally standardising nursing scope of practice, standards, legislation and regulations; encouraging nursing academics and teachers to undertake faculty practice to remain clinically current in practice; maximising education pathways; establishing a national framework for transition programs; ensuring the minimal level of qualification as a registered nurse remains as a university-based bachelor degree; establishing quarantined clinical education funding over five years; and providing commonwealth funding for additional undergraduate registered nurse university places (Commonwealth of Australia, 2002).

The Review of Australian Government Health Workforce Programs in 2013 was undertaken to analyse whether existing programs, including nursing, aligned with workforce priorities and also whether rural health programs were delivering optimal service (Australian Government, 2013). Points that emerged from the review included that: the health system should meet the needs of the patients and consumers rather than the practitioners or institutions; the current system focussed on expensive and specialised acute care in metropolitan areas; economic and population health needs required general skills, community care teams, and education of nursing and allied health workers; service provision in some rural and remote areas, as well as for disadvantaged populations was either insufficient or non-existing (Australian Government, 2013). Recommendations included: a coherent pathway for rural and regional education and training of health professionals; reform of some government programs, particularly the rural classification system which determines eligibility for incentives for students and professionals in rural areas; as well as the development of a regionally determined incentive model to encourage health professionals to practice in rural areas (Australian Government, 2013). All these reviews established the importance of collaboration between educational providers and industry, in providing clinical education opportunities to enable students to develop socialisation, clinical skills and competence in the work environment.

With increasing enrolment numbers into undergraduate nursing courses, there is growing pressure to find high quality clinical placements (Courtney-Pratt et al., 2012). Increasing staff shortages in hospitals, and decreased duration of inpatient stay, means the preceptor's priority is understandably on managing patient care acuity and deadlines, rather than education of students (Courtney-Pratt et al., 2012; Gaberson &

Oermann, 2010). It has become increasingly evident that students are missing out on opportunities to practice relevant clinical skills and gain confidence and competence, as preceptors working in the current demanding environment prioritise their care within the constraints of their patient allocation, time and a dedication to meet the needs of their patients safely (Courtney-Pratt et al., 2012).

2.3 Aim of the literature review

The purpose of this literature review was to examine contemporary research that focussed on clinical practicum supervision models in acute clinical settings. The aim was to identify the different clinical supervision models used in practice and their impact on key stakeholders.

2.3.1 Question guiding the literature review

The guiding question for the literature review was: "What are the different clinical supervision models used in practice, and what impact do these have upon the student and/ or preceptor experience, during undergraduate registered nurses' clinical practicum?".

2.4 Methods

2.4.1 Search strategy

The 12-step structured approach of Kable, Pich, and Maslin-Prothero (2012) was used to guide the search and review of the literature research. The search process is shown in Figure 2.1.

2.4.1.1 Databases and search engines used

Databases searched include CINAHL Plus with Full Text, MEDLINE, ProQuest (Nursing and Allied Health) and Informit, as these databases are principally used in the field of nursing. Manual searching was also conducted by reviewing the reference lists of articles found, for potential further articles. The initial search resulted in 30,521 articles.

2.4.1.2 Search terms used

In nurse education literature there were many different terminologies used for clinical educators, creating confusion in role identification. At times terminology was used interchangeably when relating to preceptors, clinical facilitators, clinical instructors, and clinical educators. Search terms were developed in collaboration with the study supervisors and with the assistance of a university librarian. Search terms included synonyms for terms which had been previously identified, as well as inclusion of truncated words, in order to encompass terms that were in plural or spelled differently within the articles found. Boolean operators were also applied in the search (Kable et al., 2012).

Index terms are a list of standard terms used to categorise articles based on their content (Aromataris & Riitano, 2014). Medical Subject Heading (MeSH) terms are index terms that are used in the Medline database, to categorise articles from broader terms to more specific terms (Aromataris & Riitano, 2014). The MeSH terms and index terms used in this search are included in Appendix C.

The search terms were derived from the research question and concepts of interest and were tested to ensure that they effectively located literature that was relevant (Kable et al., 2012). The search terms included ‘undergrad*’ OR ‘student’ AND ‘nurse’ in abstract; AND ‘nurs*’ OR ‘precept*’ OR ‘supervis*’ OR ‘facilit*’ OR ‘instruct*’ OR ‘educ*’ OR ‘teach*’ in abstract; AND ‘clin*’ OR ‘prac*’ in text; AND ‘skill*’ OR ‘competen*’ OR ‘experienc*’ in text; and NOT ‘simulat*’ in abstract.

2.4.1.3 Inclusion and exclusion criteria applied

The search included literature over the last 10-years, as there were several significant changes in Australian nursing which occurred between 2008 and 2010. These included the establishment of Health Workforce Australia in 2009, to provide a skilled, flexible innovative health workforce that meets the needs of the community (Australian Institute of Health and Wellness, 2012). In 2010, nursing registration also changed from separate state registration boards with different standards and guidelines, to the national Nursing and Midwifery Board of Australia (Nursing and Midwifery Board of Australia, 2013). The review of the literature was not

geographically restrained, however, it was identified that the context of Australian student practicum differs vastly from other jurisdictions (Australian Nursing and Midwifery Accreditation Council [ANMAC], 2012; Levett-Jones et al., 2009a).

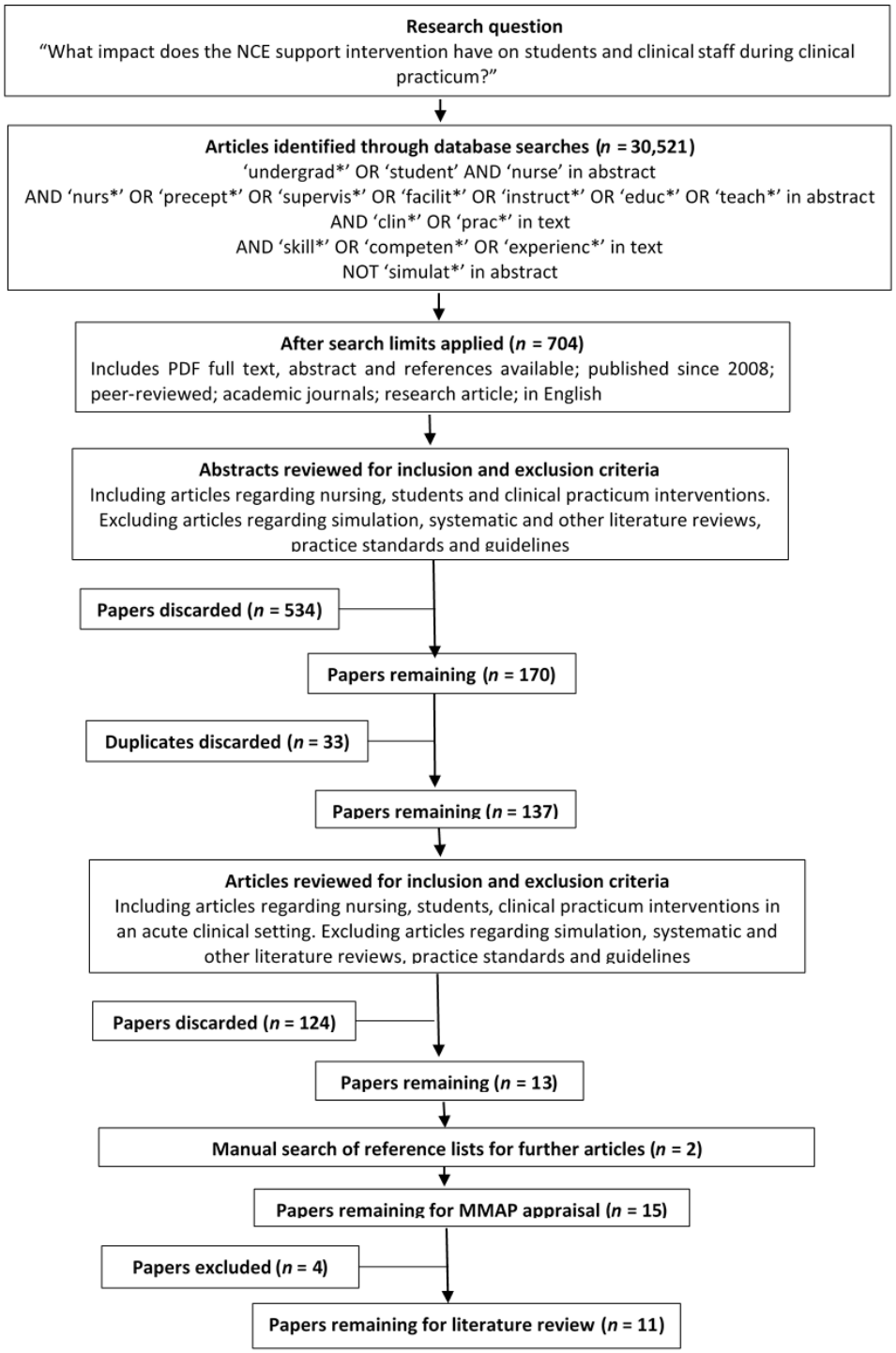

Figure 2-1: PRISMA Flow Diagram of Literature Search Process

Inclusion criteria for the search were:

- peer-reviewed, research articles published in academic journals since 2008;
- written in English;
- available as PDF full text with abstract and references;
- focusing on nursing, students and clinical practicum interventions.

Exclusion criteria were:

- articles regarding simulation;
- systematic and other literature reviews;
- practice standards and guidelines;
- research on clinical practicums which did not focus on nursing students.

Search limits, inclusion and exclusion criteria reduced the number of relevant articles to 704. Abstracts of these remaining articles were reviewed for applicability to the research topic, guided by the inclusion and exclusion criteria, resulting in 170 remaining relevant articles. Duplicated articles were removed, resulting in 137 articles remaining. These remaining articles were retrieved and added to the researcher's EndNote© X7.8 reference management program. The method, results and conclusion of each article were read to determine applicability to the inclusion criteria, resulting in 13 articles. Potential further articles with the same search criteria as above, were found in the reference lists of these articles, with two more articles retrieved and included, totalling 15 articles for appraisal.

2.4.2 Data extraction and quality appraisal

The 15 articles deemed appropriate for inclusion in the review were critically appraised using the Mixed Methods Appraisal Tool [MMAT] (Pluye et al., 2011). Critical appraisal excludes articles that are poorly designed, poorly executed, inadequately described, where results are biased or studies have been affected by their limitations (Kable et al., 2012). The articles retrieved as a result of the literature search are summarised in Table 2.1. All articles were then reviewed by the researcher and independently reviewed by each supervisor, with discussion over the outcomes when differences in opinions were found, until agreement was reached. Four papers were excluded during the appraisal, as they did not meet the methodological rigour requirements of the MMAT. This resulted in 11 articles for synthesis and discussion.

Table 2-1: Literature search results and MMAT appraisal

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
Congdon, G., Baker, T., & Cheesman, A. (2013). United Kingdom (UK)	Qualitative – focus groups (FG), thematic content analysis Aims • Enhance practice learning experience of undergraduate student nurses and establish consistent benchmark standards of excellence in each practice setting • Standardise the organisation and strategic management of practice learning provided for undergraduate student nurses • Strengthen the strategic partnership between the hospital and partner universities with particular reference to placement capacity, mentor capability, mentor engagement, mentor support, strategic contribution of Hospital Clinical Educator, and ongoing quality monitoring and enhancement of learning within practice.	1 hospital for 18 months Piloted with 6 wards in for 6 months, then project rolled out with 43 practice settings in same hospital over further 12 months FG stakeholders: Learning Environment Manager; hospital Clinical Educators, department and ward managers, mentors, university link lecturers, students Unclear if focus group with stakeholders combined or separately; or	Partnership model utilising the Learning Environment Manager (LEM) role. Three inter-related themes • Managing mentors – some of LEM role previously was role of Hospital Clinical Educators (HCE) – allocation of students to mentors, equity of mentor workloads, maximised placement capacity, source of advice, support for mentors, coordinated mentor training. Mentors felt valued, freed up HCE to develop benchmarks that were hospital-wide rather than setting-wide, ability to standardise organisation and management of practicums, monitor and enhance practicum learning. • Managing student experience – LEM central point for student-related matters, ensured student mentored to appropriate standard, established common-practice procedures for students including welcome pack, induction process, educational events, learning opportunities, allocation with names and contacts for mentors displayed on noticeboard, support meetings with students every 2 weeks, peer support for students, enabled hub-and-spoke learning areas • Managing quality – LEM worked with university link lecturers, coordinated quality metrics around practice learning, ensured	Include MMAT score =75

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
		numbers of participants	action plans from university audits were actioned promptly, conduit for feedback of evaluative data from students and mentors, maintained 'live' mentor database	
Courtney-Pratt, H., Fitzgerald, M., Ford, K., Marsden, K., & Marlow, A. (2012). Australia	Mixed methods - cross-sectional survey questionnaire with text fields for qualitative data. Concurrent collection of qualitative and quantitative data. Thematic analysis and descriptive statistics Aim – describe the quality of clinical placements provided to second-year students in an acute care hospital.	178 second-year undergraduates undertaking 3-week clinical practicum, 22 clinical facilitators (CF), 163 supervising ward nurses. Data collected in May and October (1week post practicum) in 2009 in an acute care hospital	Partnership model • Undergraduates and supervising ward nurses provided support from CFs employed by university – role was to manage aspects of clinical placement for up to 12 students across various wards, including direct supervision to undergraduates with identified specific learning needs. • Most undergraduates worked with several different nurses, and nurses often worked with several different students over the practicum, usually 1:1 ratio per shift. • Clinical teams at the hospital expected to support medical students, paramedics and other new staff, as well as nursing students. • Hospital has 1-day preceptorship course, with capacity for 250 nurses attending per year, however not mandatory for nurses to complete course prior to supervising student nurses. • CFs paid by university are RNs employed casual basis, previously worked at hospital, seconded to uni. • CF supervises 8-12 students, arranges orientation, monitors progression, ensures learning opportunities, and assesses some competencies.	Include MMAT score = 75

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
Delunas, L. R., & Rooda, L. A. (2009). United States of America (USA)	Quantitative, descriptive – questionnaire with Likert-scale and open-end text box No research questions or aims given	Pilot – two campuses of community hospital system over 1 semester, 1 fulltime Clinical Faculty member (CF) 4 staff nurses as Clinical Instructors (CI) 1 CI: 8-10 students Numbers of students and response rates not given	Model of partnership: • 1 CF teaches educational part of course, simultaneous supervision and management of 2 clinical groups of 8-10 students, providing knowledge reinforcement, evaluation and clinical instruction • CIs provide direct clinical instruction to one of these groups of students • CI paid by hospital, not allocated clinical assignments • All 3 CF/CIs are onsite throughout entire clinical experience – therefore ration 3:20, allowing university to provide clinical instruction to 2 clinical groups for cost of 1, and collaboration to assess students' knowledge and skills Evaluation: Overall evaluations were high (stated – information not given) Open-ended text reflected common theme of 'someone was always available' Capacity of CF doubled, students were satisfied with clinical experience, affiliation between hospital and SoN was strengthened	Exclude Didn't pass MMAT screening questions
Dobalian, A., Bowman, C. C., Wyte-Lake, T., Pearson, M. L., Dougherty, M. B., & Needleman, J. (2014). USA	Qualitative – interviews and focus groups Ethnographic approach identifying emergent themes Aims • What implementation activities and goal-specific outputs were	364 key informants 142 interviews with faculty and administrators 23 focus groups with 222 nursing staff and students	Partnership model Five key themes: • Inter-organisational collaboration critical influence in enabling partnerships to be successful • Challenges to creating partnerships due to blending different cultures, integrating	Include MMAT score = 75

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
	associated with a successful launch? • What program inputs and contextual factors also were associated with a successful launch?	15 partnerships across the nation Each site visited once within 18 months of joining Veterans Affairs Nursing Academy (VANA) 5-year project	activities across divergent organisational processes/ constraints • Challenges with recruiting nurses in faculty roles in timely fashion, expanding student numbers when faculty available, scheduling clinical and didactic courses • Expectations for partnerships to build faculty numbers, increase student numbers, using faculty to improve EBP in clinical setting, increase simulation-learning for nurses in-service training • Direct drivers for VANA initiative (nursing shortage, increasing faculty numbers, growing student interest in VA facilities) inhibited by financial decline and temporary easing of nursing deficiency	
Hannon, P. O., Hunt, C. A., Haleem, D., King, L., Day, L., & Casals, P. (2012). USA	Qualitative – focus groups, student feedback comments, student journals Research question: What is the nursing students' experience when partnering with the same RN throughout the clinical experience?	Not stated unsure 1 ward in 1 hospital unsure numbers of faculty, CI or students – not given Response rates not given Report not research	DEU • CI completed preceptor program and had experience as preceptor to new graduates or new RNs • Staff nurses became student's primary CI • Faculty provided coordination and support, met with student before and after clinical, were on unit to support CI, facilitated learning for each student • 2 students paired with each CI to receive personalised instruction • CI changed work schedule to accommodate student clinical days • Student researched 2 of CIs patients the evening before clinical, then provided care	Exclude Didn't pass MMAT screening questions

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
			for these patients during day, including clinical and off-unit procedures • CI questioned student to assess critical thinking and clinical judgement • Students assisted CI with remaining patients as needed • Genuine bond developed between students and CI • CI gained trust in student, which allowed for more independence as semester progressed • Students felt welcomed and became members of the unit, had an active and important role in patient care, never felt 'in the way', felt trusted by CI • Students stated self-confidence, critical thinking and clinical judgement increased, due to reliable support from CI • CI stated that rapport, development, teamwork, and collaboration what they enjoyed in DEU • Partnership of mutual respect and trust developed between staff nurses and faculty • NUM was crucial to establishing DEU, found experience transformative • Faculty stated that DEU allowed nurses who enjoyed working with student to have that experience and provided a richer learning environment	

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
Hall-Lord, M., Theander, K., & Athlin, E. (2013). Sweden	Quantitative – descriptive cross-sectional design Questionnaires, descriptive statistics Purpose: To develop a clinical supervision model which could reduce the deficiencies (of student academic learning in clinical placements) and facilitate a good academic learning environment in the clinical education.	30 head nurses 12 main preceptors 193 personal preceptors 11 clinical nurse lecturers 5 hospitals over 1.5 years (10 nursing students interviewed and reported elsewhere, but no students included in questionnaires)	Partnership model Supervision model contributed to accomplishment of goals for clinical nurse education and assessment of students • Students provided a 5-week basic placement, availability for shorter 'reference' wards/ clinics according to learning needs • 4 supervision levels created to protect quality of student learning (personal preceptors, main preceptors, clinical nurse lecturers, senior clinical nurse lecturer) • Meeting between student, personal preceptor and clinical nurse lecturer for goal-setting, plans student assessment • Clinical practice supported by academic assignments • Clinical seminars between students, main preceptor and clinical nurse lecturer for reflection and critical thinking • Protected supervision time provided for personal preceptor (4hr/week/stud) and main preceptor (8hr/week/ 5-7 stud) – financed by university	Include MMAT score = 100
Henderson, A., Twentyman, M., Eaton, E., Creedy, D., Stapleton, P., & Lloyd, B. (2010). Australia	Quantitative quasi-experimental design. Control group and intervention group. Feedback data from students using Chan's (2003) Clinical Learning Environment Inventory (CLEI). No research questions or aim	62 undergraduate nursing students in 1st, 2nd and 3rd year undertaking clinical practicum, and all nurses in two 28-bed acute surgical	• Undergraduate students worked alongside preceptor RNs. • Supernumerary CF assisted RNs and students, ensuring scope of practice adhered to and other practicum-related quality and safety considerations, directly supervised and assessed students integrating feedback from RN.	Exclude Didn't pass MMAT screening questions

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
		wards in Qld, Australia, over 6-month period.	• Experienced educator/researcher led capacity-building activities for RNs during intervention period. In-service education sessions lasting 20-25min every 2nd day during 6-week intervention period. • Capacity-building aimed at supporting RNs to engage students, identify learning opportunities and student's needs, and modify interactions to optimise student engagement with learning.	
Henderson, A., & Tyler, S. (2011). Australia	Mixed methods – Supervisor of Clinical Education (SCE) diary thematic analysis of learning activities; survey using Chan's (2003) Clinical Learning Environment Inventory (CLEI) analysed with descriptive statistics Aim: Assess the contribution of an SCE employed to assist RNs to partner with students and facilitate their learning during the clinical practicum.	700-bed large tertiary hospital, 3 medical wards, 3 surgical wards 27 students, 1 SCE 8-week with students on wards for 2 shifts	Partnership model SCE role: • met with RN re student rostering, suggestions for welcoming students • contacted RN and student 2x per shift and contactable by pager • identified learning activities through questioning and practice • informal teaching events designed to role-model to RN how to enable student learning • assisted with supervision of student skills • debriefing with students Thematic analysis identified 3 themes: • 'Filling the gap' for knowledge deficit of student or RN • Utilising clinical practice events when resources were strained, as educational opportunities • Learning responsibility of motivation Survey – Overall scores high, SCE directly enhanced student learning, SCE directly	Include MMAT score = 75

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
			interacting with student to address learning needs, SCE efforts to engage RN and student not successful, and efforts to improve relationships between RN and student were not rated highly	
MacIntyre, R. C., Murray, T. A., Teel, C. S., & Karshmer, J. F. (2009). USA	Not research No research questions or aim	nil	Discussion of recommendations for clinical practice education • Strengthen nursing student-staff nurse relationships • Reconceptualise the clinical faculty role • Improve development for school-based faculty and staff nurses working with students • Re-examine the depth and extent of the clinical factor • Strengthen the evidence for best practices in clinical nurse education	Exclude Didn't pass MMAT screening questions
Myler, L. A., Buch, C. L., Hagerty, B. M., Ferrari, M., & Murphy, S. L. (2014). USA	Quantitative – survey, descriptive statistics Open-ended questions not discussed response rate extremely low (0.025%) Aim: Examine mentor satisfaction in an academic-practice partnership	1 healthcare institution, 36 clinical units divided into 3 clusters 1 director lead, 1 CF lead, 2 CE, 1 lecturer, 1 clinical nurse mentor for each cluster First-year student nurses placed in cluster for their practicums	Partnership model Dedicated Education Unit (DEU) partnership model: • Overall satisfaction from mentors • Mentor satisfaction high that their role with student triggered them to reflect and aim for improvement • Mentors found it rewarding to be a mentor or preceptor for the students • No relationship found between mentors with higher level of education being more satisfied with this model	Include MMAT score = 75,

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
		Only mentors surveyed (not students or other stakeholders)	• No relationship found between degree of satisfaction and reflecting/ striving for improvement • No relationship found between satisfaction in regard to where mentor worked • Mentors with less experience were more satisfied with the model	
Newton, J. M., Cross, W. M., White, K., Ockerby, C., & Billett, S. (2011). Australia	Mixed methods – concept analysis of interviews and work observation notes; interview question survey with Likert-scale responses Aims: Investigate how the social practices of a clinical partnership model underpinned workplace learning for undergraduate students as they transitioned to graduate nurse	3-year study 1 healthcare organisation 23 students in either 2nd or 3rd year of study Series of 5 interviews over 3 years with four questions regarding work-readiness at final interview Part of bigger study – findings relating to preceptors reported elsewhere	Partnership model: • Partnership supported by healthcare organisation and university SoN through placement of CNE who facilitates relationships between student and preceptor • Preceptorship model • Student undertake placement across healthcare organisation in diverse settings • Students allocated to suitably trained preceptors on each ward • Student works same roster as preceptor (including weekends) • Preceptor supervises, supports, role-models, identifies and meets individual student learning requirements Four concepts identified in interviews: • Curriculum (timing and sequencing of clinical placements) • Pedagogy potentials (opportunities available for learning) • Personal epistemologies (individual belief and values) • Impact of workplace culture	Include MMAT score = 50

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
			• Sub-categories included work-readiness which enhanced transition to workplace – organisational acquaintance, continuity, social participation/ belongingness Quantitative findings not discussed/ integrated	
Nishioka, V. M., Coe, M. T., Hanita, M., & Moscato, S. R. (2014). USA	Mixed methods – focus groups, content analysis; surveys using Clinical Nurse Teachers Surveys (CNTS) Purpose: Compare the perceptions of nurses who participate in clinical education of students in DEUs and traditional education units	Focus groups 124 participants from clinical settings (12 nursing administrators, 35 nurse managers, 35 traditional nurse teachers, 42 DEU CIs); 51 university faculty (12 administrators, 11 CFC, 16 traditional faculty, 12 educational faculty); 32 students. Surveys 4 acute care facilities in 2 states 69 nurses from 17 units (9 DEUs and 8 traditional units)	Partnership model Dedicated Education Unit (DEU) model: • CIs are expert nurses assigned as primary educators of students • CIs receive specialised education and coaching from faculty members to support them • Each CI responsible for clinical education of 2 students during their entire rotation, whilst also caring for patients on the DEU • CI establishes positive mentoring relationships with students and understand their strengths and limitations, modifying teaching strategies to student needs • Clinical Faculty Coordinators (CFC) are university faculty providing clinical supervision, mentorship, coaching, and support for CIs and students • CFC educates and coaches CIs while managing clinical education of up to 18 students • CFC maintain collaborative relationships with CIs and other unit staff members, inform CIs about student learning requirements and expectations and facilitate teaching and learning strategies	Include MMAT score = 50

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
		Response rates not supplied	• CFC meet face-to-face with CIs at least 1x daily and available via pager • CFC collaborates with nurse managers and CIs to ensure student has relevant learning opportunities • CFC also oversees resolution of interpersonal, learning or discipline problems that may arise • CFC responsible for grading clinical paperwork, assigning grades with input from CIs Focus group findings: • DEU supported CIs • Positive academic and clinical partnerships • Satisfying supervisory relationships with students • Positive work-life satisfaction • Quality of clinical education provided a more 'complete picture' of nursing Survey findings: • Higher score for unit culture, nature of clinical supervisory relationships, professional development and faculty support, student benefits and learning	
Nishioka, V. M., Coe, M. T., Hanita, M., & Moscato, S. R. (2014). USA	Mixed methods – focus groups, content analysis; surveys using Clinical Learning Environment, Supervision and Nurse Teachers (CLES+T) survey, hierarchical	2-year study 6 focus groups 209 participants including 32 students, 35 nurse	Partnership model Dedicated Education Unit (DEU) model: • CIs are expert nurses assigned as primary teachers of students	Include MMAT score = 50

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
	linear modelling with repeated measures Purpose: Compare how students perceived their learning experiences in DEUs and traditional education units	managers, 75 nurses, 39 clinical and teaching faculty, 12 nurse program administrators, 16 clinical partner administrators Surveys completed by one university only 473 eligible students 98% responded	• CIs receive specialised education and coaching from faculty members to support them • Each CI responsible for clinical education of 2 students during their entire rotation, whilst also caring for patients on the DEU • CI establishes positive mentoring relationships with students and understands their strengths and limitations, modifying teaching strategies to student needs • Clinical Faculty Coordinators (CFC) are university faculty providing clinical supervision, mentorship, coaching, and support for CIs and students • CFC educates and coaches CIs while managing clinical education of up to 18 students • CFC maintain collaborative relationships with CIs and facilitate teaching and learning strategies Focus group findings: • DEU has several advantages over traditional models • Quality of clinical education was higher in DEU • Students felt welcomed, important members of unit, appreciated, integrated and established communication and organisational procedures • DEU promoted clinical education success, roles clearly defined, availability of CFC,	

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
			regular communication and learning opportunities identified • CIs were positive mentors important to student success, provided consistent and readily available support, knowledgeable and invested in student learning, knew student skill level as well as strengths and areas for improvement • CI expert in role and unit assisted with information about unit and routines, also worked side-be-side with student to answer questions, other interdisciplinary health care workers wanted to help student learn • DEU experience provided a realistic perspective of nursing, rather than glimpses of discrete clinical skills or tasks, learned time management, prioritising, communication and professional skills Survey findings: • DEU higher score for unit culture, leadership style of nurse manager, nursing care in the unit, nature of clinical supervisory relationships • Traditional higher score for faculty more supportive in connecting theory with practice and more active in cooperating with nurse educator	
Russell, K., Hobson, A., & Watts, R. (2011). Australia	Qualitative – participatory action research – content analysis of focus groups, feedback forms, verbal feedback notes, debrief group	4-year study 2 surgical wards 6 final-semester students on 10-week placement	Team Leader Model (TLM): • Moving obligation for supervision of students from one preceptor, to the ward staff together managing their placement and experience	Include MMAT score = 75

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
	feedback and observations by research staff Aim: Assess how well the Team Leader Model met the needs for which it was designed and to identify factors that facilitate its effective implementation in context of a tertiary hospital.	6 graduate nurses on their first rotation	• Teams of 3 (RN as team leader (TL) and supervisor), student, and other staff member who would profit from support (e.g. graduate nurse) • Reality of practice – apportionment of a patient load to student for shift depending upon student's scope • Inclusion of student on continuous practice as 'ward staff' (eg on roster) • Support role of ward Student Liaison Nurse • Culture change – importance of ongoing education Findings: Outcomes of 4-year evaluation have supported the Team Leader Model Students – learned crux of nursing, time management, interpersonal communication, critical thinking, self-confidence. Learned that policy and procedures must be adhered to, but subtle differences in how approached. Could identify skills and knowledge required by completion of degree and what to expect as graduate. Individual roster flexibility as had individual roster which could be negotiated. Some frustration with RNs not facilitating learning opportunities. Graduates – more experienced RNs readily available, TL provided primary link to resources available. TL – reduced supervision workload as not allocated as TL for every shift, responsibility of TL over-emphasised initially – reminded	

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
			staff TL not intended to supervise graduates. Positive findings for patient care delivery, organisation of shift, feeling of good day at work – due to allocation of adequate patient load for student. Students managed patient load and TL observed and answered questions. CIs – better overall picture of student progress as feedback from multiple staff. Struggling students allocated to 1 staff member. Simple to change student roster prn. Culture change – decreased perception that students meant an increased workload, and culture was changing	
Sanderson, H., & Lea, J. (2012). Australia	Qualitative – interviews, thematic analysis Aim: • Investigate effectiveness of facilitated placements • Explore CF perceptions of barriers to provision of effective learning during facilitated clinical placements • Identify strategies for improving clinical learning within facilitation model of clinical education • Identify strategies to improve/ maintain quality within the clinical component of the rural undergraduate nursing curricula	1 university, several rural health services utilised for practicum by that university Purposive sampling – 8 CFs who facilitated in small or large rural health services Length of study not advised No student context	CF Model: • CF has practicing licence, minimum 5-yrs experience in clinical practice, experience in clinical education of undergraduate students • CF attends workshop program and provided with hard-copy resources • 1 CF: 8 students • Employed casual basis by university to work in variety of health services, supernumerary on ward • to teach student and work in partnership with preceptors/ qualified nurses • Support nurses in their teaching and support students in their learning Findings: Three major themes: • Structuring the rural clinical placement – smooth and welcoming transition, building partnerships, student orientation,	Include MMAT score = 75

Author (year), country	Study design, research question/ aim	Sample size, participants, sites	Key findings, comments	MMAT quality appraisal- include/ exclude
			communication expectations, student learning goals, preparing for the culture of rural clinical environment, sometimes 'parent-figure' for students • Structuring student education in the rural health service – spending time working alongside student was vital aspect of CF, provided focussed learning experiences, organised for student cohort to manage a 6-bed ward under CF supervision. Student given opportunity to work within scope of practice and maximise learning, students taking caseload from day one (with supervision) to scaffold clinical experiences and progress away from tasks to more comprehensive care. CF allowed reinforcement, engagement and continuous assessment of learning, make the most of 'teachable' opportunities and reflective practice for learning, allowed positive sense of partnership within ward areas and clinical staff more accepting of students, group debriefing and focussed learning sessions at end of each day • Barriers to clinical education in the rural environment not discussed in this paper.	

2.5 Critical synthesis of the literature

Critical synthesis of the extracted literature was then conducted and the main issues and key findings within the literature were identified as per Kable et al. (2012). The 11 articles deemed suitable following the search and appraisal of the literature, presented evaluations of clinical placement models from around the world: five from Australia, one from Sweden, one from the United Kingdom, and four from the Unites States of America. These clinical placement models were developed to support students and/or preceptors, whilst students undertake their clinical practicum in an acute clinical setting.

Nine of the articles included a partnership model, involving an agreement between the university and the health service regarding clinical practicum placement and support roles provided (Congdon et al., 2013; Courtney-Pratt et al., 2012; Dobalian et al., 2014; Hall-Lord et al., 2013; Henderson & Tyler, 2011; Myler, Buch, Hagerty, Ferrari, & Murphy, 2014; Newton et al., 2011; Nishioka et al., 2014a, 2014b). Three of the partnership models included a Dedicated Education Unit (DEU), which was a specific clinical unit within the health service, dedicated to the education of students (Myler et al., 2014; Nishioka et al., 2014a, 2014b). One intervention utilised a Team Leader Model (TLM), where responsibility for students was moved from one preceptor per student to the ward staff as a team (Russell, Hobson, & Watts, 2011). Another intervention utilised a clinical facilitator (CF) model, where the CF supported both the preceptors in their teaching and the students in their learning (Sanderson & Lea, 2012).

2.5.1 Partnership models

All partnership models involved the development of relationships between the university and health services. Several models involved the employment of a supernumerary educator, employed either by the university or the health service to improve student outcomes (Congdon et al., 2013; Henderson & Tyler, 2011; Newton et al., 2011). These models were seen to free up hospital educators to focus on the education of staff in the organisation, rather than students, to improve the ability of preceptors to supervise students and improve students' learning experiences.

Other models involved the use of university-employed academics or CFs to undertake all supervision of students or assisting preceptors with the role of student assessment (Courtney-Pratt et al., 2012; Hall-Lord et al., 2013). These models were seen to assist in decreasing the theory-practice gap for students, as the understanding of university processes and knowledge taught at university assisted the supervisors to help students integrate theory with practice.

Dobalian et al. (2014) implemented a different partnership between the university and Veterans Affairs Nursing Academy (VANA) to meet nursing and faculty shortages. Clinical nurses recognised for their experience, expertise and teaching experience, were employed as extra academics within the model, who were utilised in the VANA to assist with the students. This model found that collaboration and structure of the partnership were important for the partnership to be successful, and that stable partnership relationships are based on long-term commitments (Dobalian et al., 2014). All models were seen to improve the clinical experience for students and improve the communication and relationship between educators at the university and health services.

2.5.2 Partnership models that utilised a Dedicated Education Unit

The partnership models that utilised a DEU placed students in a clinical unit which had a focus on student education. Students in these models were placed in education teams which included a supernumerary director, CF and mentors [preceptors] (Myler et al., 2014; Nishioka et al., 2014a, 2014b). Students were seen to learn more in these units, due to the focus on teaching and a welcoming environment (Nishioka et al., 2014a, 2014b). Mentors had a high satisfaction with these models, as they found the role rewarding, were encouraged to reflect on their own practice and strive for personal improvement (Myler et al., 2014).

2.5.3 Other models

Other models included Russell et al. (2011) TLM, which moved the obligation for supervision of students from one preceptor, to the ward staff as a team who managed the students' placement and experience. The TLM provided an improved allocation model of students supervisors, students had a greater sense of the

reality of practice, and graduates appreciated the extra support that the model provided for them (Russell et al., 2011).

Sanderson and Lea (2012) utilised several rural health services to investigate the efficacy of facilitated placements. Findings included that the structure of the rural clinical placement (support of clinical educators, preceptors and students) and the structure of the learning within the health service were important factors for effective learning (Sanderson & Lea, 2012).

In some models, the intervention role was a clinical staff member from the hospital, who had been recognised for their expertise with students and had been seconded to the position for the study (Congdon et al., 2013; Courtney-Pratt et al., 2012; Russell et al., 2011). Whereas in other models, faculty staff were placed within the clinical environment when students were on practicum, to add their educational expertise (Dobalian et al., 2014; Henderson & Tyler, 2011; Sanderson & Lea, 2012). Other models seconded both hospital and faculty staff to these roles (Hall-Lord et al., 2013; Myler et al., 2014; Nishioka et al., 2014a, 2014b).

2.6 Themes from the literature

A critical appraisal of the reviewed literature identified five prominent themes: the quality of the clinical partnership, the importance of focal point of contact and roles, the clinical learning environment, support available, and learning opportunities. Whilst these concepts are discrete, they are also complex, interrelated, and interdependent, therefore are not prioritised in the following discussion.

2.6.1 Quality of the clinical partnership

The quality of the clinical partnership refers to the degree of collaboration and liaison arrangement between the clinical area and educational facility. The quality of the clinical partnerships between universities and health services in establishing clinical placement partnerships was important in determining student outcomes. Having a high level of communication and teamwork between the different organisations, and identification of respective roles in managing the student placements, were important aspects in successful partnerships. This was found to

impact upon the experience of both supervising staff as well as students and the inter-organisational partnerships.

Inter-organisational collaboration was critical to positive results from a partnership (Dobalian et al., 2014; Newton et al., 2011; Nishioka et al., 2014a; Sanderson & Lea, 2012). Having consistency of key personnel from conception and throughout the program, assisted to overcome administrative and communication challenges, maintained morale and was a perceived benefit by all stakeholders (Dobalian et al., 2014). A successful partnership was built with a focus on belief in the relationship, taking opportunities, and co-responsibility of education and service (Myler et al., 2014).

Formal and regular meetings that included faculty and clinical staff, enabled the development of a solid, cohesive clinical placement team, who could be relied on for support and encouragement (Dobalian et al., 2014). Successful partnerships were recognised as important by all levels of stakeholders, however challenges to creating partnerships were often due to the blending of different cultures between universities and health services, and integrating activities across divergent organisational processes and strategic objectives (Dobalian et al., 2014). Innovative programs that enhanced the relationship between the two partners and the overall management of student placements included embedding faculty within clinical areas as expert resources, implementation of DEUs, and conducting evidence-based studies collaboratively between partnership members (Delunas & Rooda, 2009; Dobalian et al., 2014).

2.6.2 Importance of focal point of contact and roles

Having one point of contact between the university and health service was seen as vital to improve communication and improve the transition of students from the university to the clinical environment. This theme is further broken down into the sub-themes of: one dedicated partnership role for coordination, role for support and liaison in the clinical area, reallocation of other roles' workload, and allocation of students to preceptors.

Within the different models, there were variations in the titles used for intervention roles, however there were two main types of intervention roles utilised. For the purpose of this literature review, the intervention role that was a dedicated

nursing practicum coordinator who managed the practicum education experience and liaison between the university and the health service, will be referred to as the coordinator role. The intervention role which provided clinical education, support and liaison for students and nursing staff in the clinical area, will be referred to as the Clinical Facilitator role (CF role). In some models, different nurses undertook the individual roles, in other models the same person performed both roles, whilst in other models there were various levels of CF role.

2.6.2.1 One dedicated partnership role for coordination

Having one dedicated coordinator role in the health service for coordination and contact by the students and health service was seem as a vital link between the partners (Courtney-Pratt et al., 2012). The coordinator role ensured the appropriate allocation of preceptors, facilitated the student clinical practicum experience and enable efficient communication and liaison for students and staff for the practicum. Having a single person as coordinator role in the health service who worked closely with university academics and had ultimate responsibility for the student experience, had a pivotal influence on the management of practicum learning-related metrics in each clinical area and also ensured that action plans from educational partnership audits were actioned promptly (Congdon et al., 2013; Delunas & Rooda, 2009).

Having a single person responsible to coordinate placements in one model was found to enable accurate placement-related information and records to be maintained, enabling the facility and it's faculty partners to meet the requirements of professional bodies (Congdon et al., 2013). In this model, the coordinator role maintained a 'live' mentor database, collaborated between hospital educators and faculty staff, and ensured that the profile of the mentors was suitable for the purpose of mentoring in each clinical area (Congdon et al., 2013). In several models, the additional support of the coordinator role enabled placement capacity to be maximised and ultimately hospitals' student placement numbers increased (Congdon et al., 2013; Courtney-Pratt et al., 2012; Dobalian et al., 2014). The coordinator role was utilised to manage the coordination of the student experience and developed common-practice orientation processes for students, including welcoming packs, standardising the student induction across the facility, as well as coordinating allocation of students to specific mentors (Congdon et al., 2013). This assisted students to feel a sense of

belonging in the health service and assisted with the student experience (Courtney-Pratt et al., 2012; Newton et al., 2011; Sanderson & Lea, 2012).

Having a dedicated coordinator role as the point of contact in the health service facilitated communication between students or staff in the clinical area and staff at the university (Courtney-Pratt et al., 2012; Nishioka et al., 2014a). It ensured the smooth facilitation and communication of preceptor allocation, and provided information regarding upcoming educational events and specific learning opportunities to students (Congdon et al., 2013).

2.6.2.2 Role for clinical education, support and liaison in clinical area

Having a role dedicated to the clinical education and support in the clinical area, and liaison between the students and nursing staff in the clinical area and the coordinator role or university, was also seen to be important. CF roles were an expert in their role and the unit, assisting with information about the unit and routines, and also working side-be-side with the student to answer questions (Nishioka et al., 2014b). The CF roles were seen as knowledgeable nurses and invested in student learning, able to assess the student's skill level, and identify strengths and areas for improvement (Congdon et al., 2013; Nishioka et al., 2014b).

The supernumerary CF role was seen as being available and accessible to students, which aided in student learning (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011; Nishioka et al., 2014b; Sanderson & Lea, 2012). The ability of the CF role to work individually with students, to be focussed on learning routines, procedures and applying critical thinking skills, was seen as a great benefit for student learning to obtain a complete picture of nursing; without the distraction of having to wait or find an available preceptor, which is usual in traditional models (Nishioka et al., 2014a, 2014b; Sanderson & Lea, 2012). This allowed for reinforcement, engagement and continuous assessment of student learning, whilst also allowing staff to concentrate their time on essential patient care (Sanderson & Lea, 2012). Students also learned that although there were subtle differences in how policy and procedures were approached, they must be adhered to; and students understood where they needed to be by completion of their degree, their work-readiness requirement for enhanced transition to the workplace (Newton et al., 2011; Russell et al., 2011).

As the CF role was an supervision role, they were able to gain a better overall picture of each student's progress, collate feedback on students from multiple preceptors, monitor students' progress to meet learning objectives and complete evaluations, as well as support struggling students or students with concerning behaviour (Hall-Lord et al., 2013; Nishioka et al., 2014a; Russell et al., 2011). They were also able to attend to student-related issues and ensure that students were mentored to appropriate standards (Congdon et al., 2013; Hall-Lord et al., 2013).

Supervisory relationships were improved when roles were clearly defined and the CF role provided regular communication with students and staff (Nishioka et al., 2014b). The CF role was seen to benefit preceptors by providing them with feedback from students and acting as a resource for preceptors struggling with a poor-performing student or other issues (Congdon et al., 2013; Nishioka et al., 2014a). The CF role was able to provide the preceptors with advice and guidance regarding students' scope of practice, and encouraging the preceptors to assist students to be accountable for their own learning (Hall-Lord et al., 2013; Henderson & Tyler, 2011).

The CF role ensured that students were exposed to a variety of skills and practice, enabling students to achieve their time management, interpersonal communication, and critical thinking goals with confidence (Courtney-Pratt et al., 2012). Clinical practice events were utilised as teachable moments to maximise the learning opportunities for students, when moments arose or resources were strained (Henderson & Tyler, 2011; Sanderson & Lea, 2012). The CF role also 'filled the gap' for knowledge deficit of the student or preceptor, and student learning accountability or motivation (Henderson & Tyler, 2011; Sanderson & Lea, 2012).

2.6.2.3 Re-allocation of other roles' workload

The implementation of a dedicated coordinator role was found to result in a reallocation of workload. Prior to implementation of the new models, several hospital staff held managerial positions where their role included managing student placement and allocation (Congdon et al., 2013; Nishioka et al., 2014a). The employment of a coordinator role resulted in reduced student workload of the hospital educators by taking on roles such as the allocation of students to appropriate preceptors and ensuring fairness of preceptor workloads (Congdon et al., 2013), and a reallocation of roles

between nurses, CFs and faculty (Nishioka et al., 2014a). Nishioka et al. (2014a) transferred clinical education to the CF, and clinical supervision, as well as mentoring and support of CFs to the coordinator. This re-allocation of activities then enabled the hospital educator to have more time to address placement capacity issues, establish hospital-wide rather than setting-wide benchmarks, ability to standardise the organisation and management of practicum learning, and ensure the quality of the student experience (Congdon et al., 2013). The shift in the responsibility to the coordinator role for the collection and management of the audits was also welcomed by the faculty staff (Congdon et al., 2013).

2.6.2.4 Allocation of students to preceptors

Allocation of students to appropriate preceptors was seen as vital to the student and staff experiences (Congdon et al., 2013; Courtney-Pratt et al., 2012; Newton et al., 2011; Russell et al., 2011). The implementation of a dedicated coordinator role was seen as important to ensure that appropriate preceptors were allocated, utilised and trained to facilitate student learning (Congdon et al., 2013; Newton et al., 2011; Russell et al., 2011). In most models, a single person appointed to a coordinator role managed the student roster, which allowed for equity in the preceptors' mentoring workloads (Congdon et al., 2013; Newton et al., 2011). It also allowed students who were struggling to be allocated to one staff member to assist their learning (Russell et al., 2011).

Allocation of student supervision differed between models. Some models assigned students to one-to-two particular preceptors which met professional requirements, enhanced the organisational processes, and in some models attempts were made to match students with the talents of individual mentors whom worked better with particular groups of students (Congdon et al., 2013; Newton et al., 2011). Other models assigned students to a mixture of different preceptors (Courtney-Pratt et al., 2012; Russell et al., 2011), with one model incorporating students on the roster independent of preceptors, which students reportedly appreciated, as they could negotiate their roster (Russell et al., 2011).

2.6.3 Clinical learning environment

The theme of clinical learning environment refers to the importance of developing a strong learning environment in the health service or clinical area where students undertake their practicum. This theme includes familiarisation with the clinical area or organisation, belonging, and student relationships with preceptors.

2.6.3.1 Familiarisation with the clinical area

Students felt they were better able to learn when they were familiar with the clinical area. Familiarity with the staff and the environment enabled students to feel prepared for work, including their knowledge of policies, ward layout, documentation requirements and the normal requirements for care within that clinical area (Dobalian et al., 2014; Newton et al., 2011). Students felt that the continuity of returning to the same facility enabled them to feel that they were part of the team, enabled them to concentrate on the important part of practicum, engage in learning, and maximised their time so they could take on increased responsibilities (Dobalian et al., 2014; Newton et al., 2011). Returning to the same facility for ongoing placements provided students with a greater sense of continuity and confidence as well as assisting students with ongoing relationships with staff (Newton et al., 2011).

2.6.3.2 Belonging

The sub-theme of belonging describes the need for the students to integrate into the clinical area and participate socially as part of the team whilst they were on practicum. A sense of belonging was considered an instrumental component in providing maximum benefit to the student practicum experience and their ability to be work-ready (Courtney-Pratt et al., 2012; Newton et al., 2011). When students were acknowledged or greeted by staff that they worked with, were included in discussions, and staff were friendly, then students felt a sense of belongingness in the workplace (Newton et al., 2011). Students felt welcomed when staff learned their names and they were integrated as important members of the unit (Courtney-Pratt et al., 2012; Nishioka et al., 2014b). The students appreciated when the culture, leadership style of nurse managers, nursing care, established communication and organisational procedures in the clinical area enabled good unit atmosphere (Nishioka et al., 2014a,

2014b). Preparing students for the culture of the rural clinical environment was important, as the student's placement was often a recruitment strategy, particularly for rural nursing (Sanderson & Lea, 2012).

2.6.3.3 Student relationships with preceptors

Students indicated that the relationships that they had with their preceptors were important influences on their placement experiences, making a difference in how confident they were in seeking advice or assistance (Courtney-Pratt et al., 2012; Hannon et al., 2012). When preceptors made it obvious that they did not want to assist students, then students were left feeling nervous and incompetent (Courtney-Pratt et al., 2012). Preceptors also found it unhelpful if students were not enthusiastic to learn or motivated (Courtney-Pratt et al., 2012).

A dedicated CF role was seen to encourage clinical staff to be more accepting of students (Hannon et al., 2012; Sanderson & Lea, 2012). The assigning of students to one-to-two main preceptors was beneficial and preferred by students, as it allowed them to focus on their learning without conflicting instructions from their preceptors (Congdon et al., 2013; Courtney-Pratt et al., 2012). Preceptors also preferred to provide support and work with one-to-two students per rotation, as it allowed preceptors to be familiar with the students' strengths and weaknesses, and to understand the student's individual learning needs (Congdon et al., 2013; Courtney-Pratt et al., 2012).

2.6.4 Support available

The theme of support available refers to the assistance, supervision, moral support, bolstering, encouragement or guidance that was provided to both students and staff. Some of the models supported the students primarily (Henderson & Tyler, 2011; Newton et al., 2011), others primarily supported the preceptors and staff (Hall-Lord et al., 2013; Myler et al., 2014; Sanderson & Lea, 2012), whilst others supported both students and staff (Congdon et al., 2013; Courtney-Pratt et al., 2012; Dobalian et al., 2014; Nishioka et al., 2014a, 2014b; Russell et al., 2011).

2.6.4.1 Support for preceptors and staff

Support for preceptors and staff refers to the assistance, supervision, moral support, bolstering, encouragement or guidance that was provided for staff in the clinical area whilst students were on practicum in the staff working environment. This theme includes categories of support for preceptors, staff workload, professional development and role satisfaction.

2.6.4.1.1 Support for preceptors

Preceptors required support to undertake their teaching role, whilst still maintaining a full patient load. Support for preceptors was provided by the CF role in the form of direct advice and guidance for precepting, assistance with decision-making on issues regarding students, and education to enable them to develop confidence in undertaking the supervisory role (Congdon et al., 2013; Courtney-Pratt et al., 2012; Nishioka et al., 2014a).

2.6.4.1.2 Staff workload

Staff workload refers to the preceptors' assigned work which included nursing duties, clinical care, documentation, and student supervision. Staff usually work alongside students whilst also managing a patient load (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011). Although most preceptors enjoyed teaching, in traditional placement models, they stated it could be hard work and slowed them down (Nishioka et al., 2014a). When the ward was busy, this detracted from preceptors' ability to work with students, as there was limited teaching time, it could be difficult to focus on teaching and explaining things to students, and often opportunities for learning were lost to students (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011). Preceptors were better able to manage this load when the CF role was available to assist with supervising students clinical skills when the workload was high (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011).

Preceptors felt that they would benefit from having protected time for teaching students (Dobalian et al., 2014; Hall-Lord et al., 2013). Although one model did allocate protected time, the preceptors were rarely able to utilise the time for student education (Hall-Lord et al., 2013). In another model preceptors were not

allocated a student on every shift, which transformed preceptor perceptions that supervising students no longer meant an increased workload (Russell et al., 2011).

2.6.4.1.3 Professional development

Professional development refers to the ongoing education and further development for preceptors and nurses. Preceptors with limited teaching experience felt the need for training in how to precept students (Dobalian et al., 2014). Differing professional development was offered amongst the models. Some models included a preceptor workshop to educate nurses on how to be a preceptor, or to address specific needs of being a preceptor, with annual updates included as part of education days (Congdon et al., 2013; Courtney-Pratt et al., 2012). Other models used role-modelling or informal teaching of staff to facilitate preceptors' ability to assist student learning (Henderson & Tyler, 2011; Nishioka et al., 2014a; Sanderson & Lea, 2012). In one model, the CF role monitored and enhanced practice learning, engaged in peer-review of learning activities and provided feedback and advice on best practice in clinical education (Congdon et al., 2013). This model was felt to provide nurses with the ability to meet their obligation for learning in practice and re-establish the value of practice education (Congdon et al., 2013).

2.6.4.1.4 Role satisfaction

The sub-theme of role satisfaction refers to the balancing of teaching and work activities to a gratifying level, without being overly burdensome. Preceptors reported that precepting students was rewarding and valuable to them as well as the students (Courtney-Pratt et al., 2012; Dobalian et al., 2014; Myler et al., 2014; Nishioka et al., 2014a). As the preceptors worked with the students to consolidate and reinforce students' understanding of nursing practice, the benefits of working with students also enhanced the preceptors' own knowledge and skills, as they explained topics as they arose (Courtney-Pratt et al., 2012). Positive feedback and professional respect from students resulted in preceptors' confidence with students developing, which led to high satisfaction for their role with students, they felt that they also learned more, as students' questions stretched their knowledge, causing them to reflect and strive for improvement in their own clinical skills and knowledge (Courtney-Pratt et al., 2012; Myler et al., 2014; Nishioka et al., 2014a). Preceptors expressed

satisfaction in seeing their students develop new skills and the progression of learning over time (Nishioka et al., 2014a). The preceptors' enthusiasm was revitalised, they felt valued (Congdon et al., 2013), and felt that they had a 'good day at work' (Russell et al., 2011).

2.6.4.2 Support for students

Support for students refers to the assistance, supervision, moral support, bolstering, encouragement or guidance that was provided to the students whilst the students were on practicum. In one study, the students reported that a CF role provided a higher level of support, guidance and direction for students, when compared to preceptors alone (Courtney-Pratt et al., 2012). In a study by Congdon et al. (2013), students welcomed fortnightly support meetings with the CF role, which they felt assisted them to cope with their placement and personal issues and promoted a high level of peer support.

CF were seen positively, as mentors who were important for student success, providing consistent and readily available support, when compared to preceptors alone (Courtney-Pratt et al., 2012; Gaberson & Oermann, 2010; Nishioka et al., 2014b). These results were expected, as the core role for the CF role was to support students, whereas the preceptor's fundamental role was in the provision of patient care, and to support students as part of their clinical activities (Courtney-Pratt et al., 2012; Gaberson & Oermann, 2010).

2.6.5 Learning opportunities

The theme of learning opportunities refers to finding opportunities and empowering students to enable them to gain the clinical skills, knowledge, competencies and confidence to work as a nurse in the clinical area, within their scope of practice. The theme of learning opportunities includes the categories of the structure of the student placement, that students require time, identifying opportunities and focussed learning, as well as the structure of the students' workday.

2.6.5.1 Structure of student placement

The opportunity to develop knowledge and skills is an important component of student placement (Courtney-Pratt et al., 2012). When the clinical area had clear intentions of providing students with practical experience, the students valued the hands-on experience, and noted that their confidence grew with their skill development (Courtney-Pratt et al., 2012). Communicating the expectations and student learning goals was also deemed important (Sanderson & Lea, 2012).

Some models enabled hub-and-spoke learning circuits or reference wards for students to follow and experience the total patient journey across different departments and with the interdisciplinary healthcare team (Congdon et al., 2013; Hall-Lord et al., 2013). Other models were seen to provide students with a good quality of clinical education, a more 'complete picture' of nursing, and a realistic perspective of nursing, rather than glimpses of discrete clinical skills or tasks (Nishioka et al., 2014a, 2014b; Russell et al., 2011; Sanderson & Lea, 2012). The DEU model was seen to have several advantages over traditional models, as the quality of clinical education was perceived to be higher, it was seen to promote clinical education success, with students benefiting from the learning of time management, prioritising, communication, professional skills, and were comfortable to ask questions or for assistance (Nishioka et al., 2014a, 2014b). In one model, nurses and team members demonstrated a unit-wide commitment to teaching, including inviting students to participate in learning outside of their assigned patients or tasks, whilst other interdisciplinary health care workers also wanted to help the student learn (Nishioka et al., 2014a). In another model, the student cohort managed a six-bed ward under the CF role's supervision, as it was vital for the role to spend time working alongside students and provide focussed learning experiences (Sanderson & Lea, 2012).

2.6.5.2 Students require time

The sub-theme of students requiring time means the time during a working shift that preceptors needed to spend with students, supervising them in undertaking nursing care or clinical skills. As students are notorious for requiring substantial time to perform skills whilst learning, and the preceptor is required to manage their workload as well as supervising a student, the CF role supported the preceptor with

their workload by taking the student to perform clinical activities, thereby significantly relieving the impact for the preceptor to take the time with students (Henderson & Tyler, 2011). Preceptors felt that they were less stressed and able to get their work completed, when the CF role supported them with students and provided the necessary time with students (Henderson & Tyler, 2011).

2.6.5.3 Identifying opportunities and focussed learning

Identifying opportunities and a focus on student learning refers to the target for enabling opportunities for a positive experience for student learning. It was deemed that afternoon shifts could be an opportunity for students to research components of practice, however there were often less patients for students to practice skills and gain experience (Courtney-Pratt et al., 2012). Conversely, preceptors felt that when there were quieter times on the ward, this enabled opportunities for students to be involved in more concentrated learning time (Courtney-Pratt et al., 2012).

The perceived or actual knowledge deficit of the preceptor or student, was the most prevalent educational need for the CF role to assist with, particularly when students were allocated to graduate or junior nurses due to the skill mix present on particular shifts (Henderson & Tyler, 2011). In most studies, the CF role was regarded highly by the students, as it directly enhanced student learning and provided direct interaction with the student to address learning needs (Dobalian et al., 2014; Henderson & Tyler, 2011; Nishioka et al., 2014b). The CF role was able to utilise their knowledge and skills to role-model good teaching techniques to the junior nurses and enabled learning for both junior nurses and students, when students were allocated to a preceptor who had not been exposed to a particular skill previously, or were not confident to perform the skill with a student (Henderson & Tyler, 2011).

2.6.5.4 Structure of students' workday

There were positive findings for patient care delivery and organisation of the shift, when the allocation of a patient load for the students was adequate, as students managed the patient load within their scope of practice (Russell et al., 2011; Sanderson & Lea, 2012). Students were able to maximise their learning, scaffold their clinical experiences and progress away from tasks, to more holistic care (Sanderson & Lea, 2012).

Student group debrief and focussed learning sessions held at the end of each day after handover, allowed students to engage in handover, follow through with care and feel to be part of the team (Sanderson & Lea, 2012). Students also felt that the facilitation of critical reflection sessions were highly beneficial for them, allowing them to effectively communicate their experiences (Courtney-Pratt et al., 2012).

2.7 Gaps for further research/ relevance to clinical practice

Although there is extensive research which evaluates students' and preceptors' experience in the clinical setting, there were only eleven studies identified in this review of the literature, where a support model was deployed into the acute clinical setting and evaluated. To increase the existing body of knowledge, further research is recommended, aimed at implementation of a partnership educator role which supports both preceptors and students in acute clinical settings. Most models identified in the literature were conducted as qualitative research, whereas a mixed methods approach, or surveys including Likert-scale questions and open-text responses collected as pre-intervention and post-intervention data, are likely to produce more robust findings. Only one article in New South Wales was identified with research conducted from a rural perspective; research conducted in regional Western Australia would add to the rural and regional perspective of the existing literature. This study aimed to fill that gap by answering the question: "What impact does the NCE support intervention have on students and clinical staff during clinical practicum?".

2.8 Conclusion

Nursing education transferred from hospital-based learning, to a university-based bachelor's degree undertaking clinical practice in the clinical setting. Several national reviews have been conducted by the Australian government since this change in education requirements, to identify areas for improvement with nursing education models.

A review of the current international literature revealed 11 articles with nursing supervision models in the acute clinical setting, with five themes identified: the quality of the clinical placement, having one focal point of contact, the clinical

environment, support, and learning opportunities. Areas for further research were identified by the gaps in the literature, including the need for further mixed methods research from the perspectives of both students, preceptor and staff involved in the practicum; conducted from a regional perspective in Western Australia; for a duration of at least one-year; with an educator role and as a partnership model.

Chapter 3. Methodology

3.1 Introduction

In the previous chapter, the review of the literature identified the need for further research into models and impact of these on clinical supervision. While there has been research and development in nursing education models, little contemporary research was found evaluating the impact of a practicum partnership model between universities and health services, with a dedicated full-time educator employed in the regional health setting.

This chapter will discuss and justify the study's methodology. It begins with a discussion of the study's purpose and research question. This is followed by discussion and explanation of the framework of methodological principles guiding the study and the study design. Finally, the ethical considerations, and steps to maintain rigour of the study are detailed.

3.2 Research purpose

The aim of this research was to evaluate a Nursing Clinical Educator (NCE) support intervention that was implemented for undergraduate nursing students from an Australian university, whilst on clinical practicum. Specifically, the study aimed to evaluate the impact of the NCE intervention from the perspective of students and staff involved in the students' clinical practicum at the hospital, and with comparison with their previous traditional clinical practicum experiences.

This study aimed to determine the impact of the implementation of a ward-based NCE role on students and staff at one health service whilst students were on clinical practicum. The research question was: "What impact does the NCE support intervention have on students and clinical staff during clinical practicum?".

Specific objectives were to determine the impact of the intervention on:

- The students' learning outcomes;
- The students' clinical practicum experience; and
- The experience for hospital staff involved when students were on practicum.

3.3 Methodology

Methodology offers the framework or process for guiding the study and how to obtain the knowledge being sought (Polit & Beck, 2017; Schneider, Whitehead, LoBiondo-Wood, & Haber, 2013). The methodological assumptions influence the choices of data collection and data analysis (Schneider et al., 2013). Methodologies include quantitative, qualitative and mixed method approaches (Schneider et al., 2013). As the study aimed to explore students' and staff' experiences and measure outcomes, it was deemed a pragmatic approach using mixed methods would be most appropriate.

3.3.1 Paradigms

A paradigm is a view or understanding of the world we live in, including the shared philosophical assumptions and values which guide the research conducted within that world-view (Creswell, 2014; Schneider et al., 2013). Research has traditionally taken place using one of two paradigms – the positivist paradigm with a quantitative approach, or the interpretivist/ constructivist paradigm with a qualitative approach (Feilzer, 2010).

The positivist paradigm is the world-view of traditional quantitative research, using a variety of numerical or measurement-based approaches, from the classic randomised control trial, to descriptive surveys (Creswell, 2014; Schneider et al., 2013). A quantitative approach uses pre-determined methods for testing theories, by examining the relationship amongst the measurable variables, or by collecting and counting pre-determined data [variables in experimental research] (Creswell, 2014; Schneider et al., 2013). The measurement of the variables typically utilises data which is collected on instruments that provide numerical data that can be analysed, interpreted and reported statistically (Creswell, 2014). Data collection instruments may take the form of surveys, observations, or controlled trials – all of these are measurable, quantifiable and presented as numerical data (Creswell, 2014; Schneider et al., 2013).

Qualitative research approaches are used to examine those aspects of our world which cannot be measured: to gain insight into and understanding of the personal experiences of individuals or groups, or the interaction between people and

groups, and their impacts (Creswell, 2014; Schneider et al., 2013). A qualitative approach involves emerging questions and procedures, in that the questions and methods used will emerge, and may be modified as the study matures and collected information further informs the direction of the study (Creswell, 2014). There are several approaches to qualitative research which allows the researcher to garner the rich, descriptive information, including grounded theory, naturalistic inquiry, phenomenology, ethnography and case study being the most common amongst health researchers (Creswell, 2014; Schneider et al., 2013). Data is collected in the form of whatever can be observed or communicated, including but not limited to, observation of participants as they interact in the context of the research interest, audio-visual records of interviews or focus groups, open-ended questionnaires, as well as journaling or diarising (Creswell, 2014; Schneider et al., 2013). The researcher utilises inductive analysis of the text or images, to interpret or 'code' into themes or patterns (Creswell, 2014; Schneider et al., 2013).

A third research paradigm, the pragmatic, has gained a firm footing in health research in the last two decades (Feilzer, 2010; Johnson & Onwuegbuzie, 2004). Guided by the values of this paradigm, mixed methods researchers assert that quantitative and qualitative research approaches are not incompatible, but complimentary (Feilzer, 2010; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddie, 2010). Both are important and useful, and together provide a deeper understanding of the issue of interest (Feilzer, 2010; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddie, 2010). Mixed method methodology was chosen for this study, as it facilitated measurement and an in-depth understanding of the impact of the NCE role upon students and staff.

3.3.1.1 Pragmatic paradigm

This mixed methods research is guided by the pragmatic paradigm, which is a real-world, practice-orientated world-view concerned with actions or situations, as well as their consequences (Creswell, 2014). The concern is for the application of what works best to find solutions to a problem, using all available approaches to understand the issues (Creswell, 2014). The pragmatic paradigm applies to mixed methods research in the social science field, as it draws from both quantitative and qualitative

assumptions to choose the methods, techniques and procedures that best suit the purpose of the relevant study (Creswell, 2014).

3.3.1.2 Mixed methods research approach

A mixed methods research approach utilises both quantitative and qualitative research methods, integrating the two forms to formulate a distinct research design (Creswell, 2014). Mixed methods research has both pre-determined and emerging methods, collecting with closed- and open-ended questions, forming multiple types of data, analysed with both statistical and text analysis, interpreted both statistically and looking for patterns or themes (Creswell, 2014).

By using a mixed methods approach, a more detailed level of understanding of the data is obtained, than by quantitative or qualitative methods alone; hence comparing the quantitative data with the qualitative data, to provide stronger inferences, and a deeper, more comprehensive understanding of the issue or situation under examination (Creswell, 2014; Richardson-Tench, Taylor, Kermode, & Roberts, 2014; Tashakkori & Teddie, 2010). Mixed method research offers more meaningful, complete and purposeful research than using quantitative or qualitative methods alone, allowing the researcher to find what works best with the valuable tools from both approaches, to provide the desired outcome or resolve the problem (Richardson-Tench et al., 2014; Schneider et al., 2013).

3.4 Research design

This study was a mixed methods study, evaluating data collected before and after the NCE intervention during 2013. A convergent parallel mixed method design was used. The assumption of convergent parallel mixed methods is that together the quantitative and qualitative data should yield results which are similar (Creswell, 2014). A convergent approach collects quantitative and qualitative data simultaneously and then analyses the data separately to see if they give similar results (Creswell, 2014; Gillespie & Chaboyer, 2013). The quantitative data facilitates description of the extent of the problem by examining the numerical values in the data, whilst the qualitative data expands upon the human perspectives by collecting open-text where participants respond with their comments and the researcher codes these

into patterns or themes (Creswell, 2014). Figure 3.1 demonstrates the research process for this study.

3.4.1 Setting

The setting for this study was a 145-bed hospital in regional Western Australia. The clinical areas and the specialty of each area are shown in Appendix D, together with the timeframes that students from each stage in the course would attend each clinical area. The surgical and medical wards host students in both semesters, whereas all other clinical areas host students for one semester only.

3.4.2 Participants

Potential participants for the research included clinical nursing staff at the hospital, as well as students from the university who attended practicum at the hospital.

3.4.2.1 Participant selection and recruitment

Purposive sampling was utilised to invite participants to the study. Purposive sampling is used in qualitative research to select participants who will best help with understanding of the problem and research question (Creswell, 2014). All students from the university who undertook practicum at the hospital were invited to participate. An information session was held during the students' orientation on the first day of practicum, and recruitment was advertised verbally and on research information and disclosure forms at the facility in the clinical areas where students were to undertake practicum (see Appendix J).

All of the hospital's nurse managers (NUM), clinical nurses (CN), hospital nursing educational staff (CNE), and nursing preceptors (all collectively known as staff) were invited to participate in this research. Information sessions were held at monthly meetings in each clinical area, with involvement in the research being encouraged. Staff recruitment was also advertised through research information and disclosure forms at the facility in the clinical areas where students were to undertake practicum. Potential participants for this study included students from the university who undertook practicum at the hospital (*n=102*); and hospital nurse managers, clinical nurses, and clinical nursing staff (*n=227*).

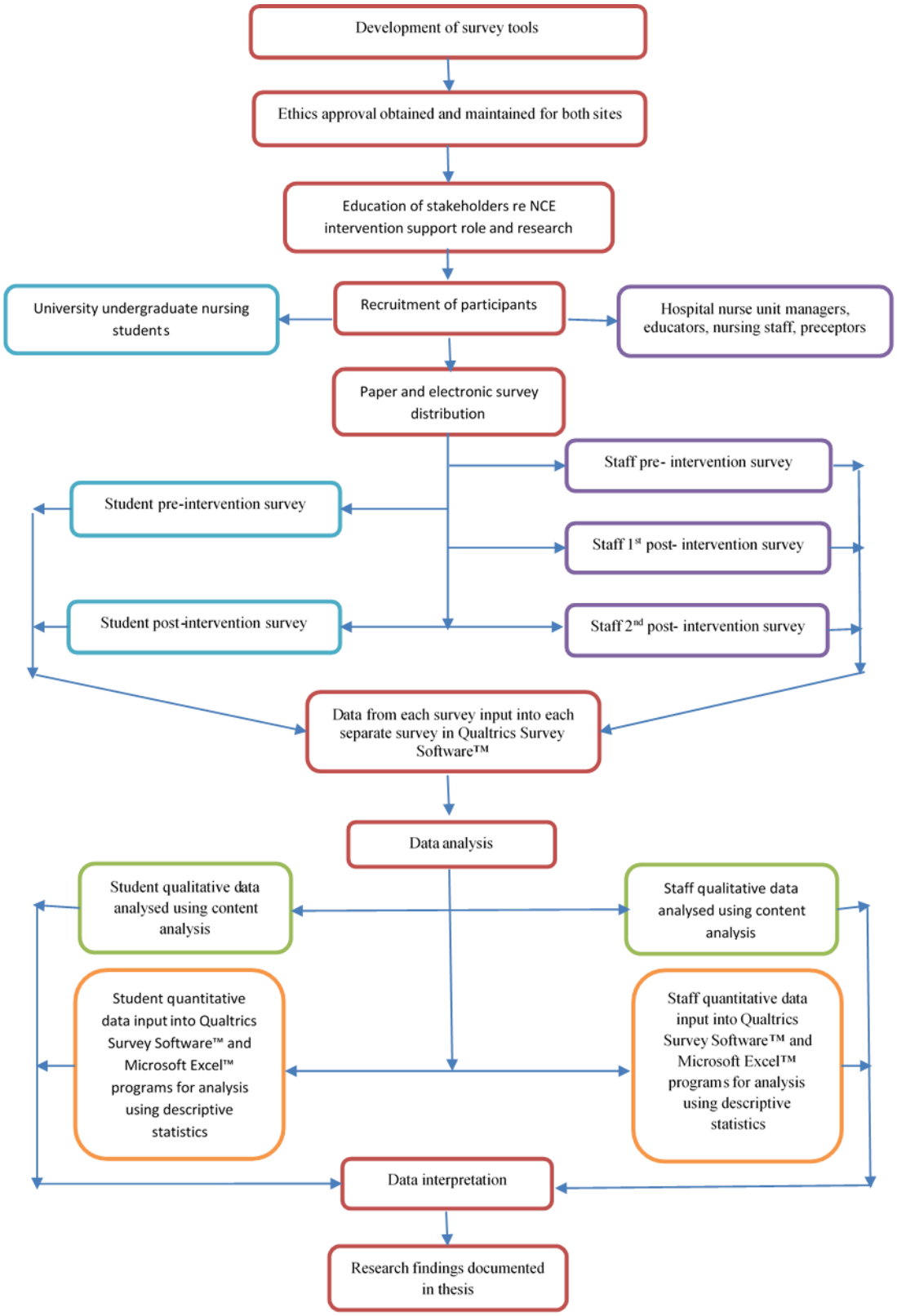

Figure 3-1: Research process utilised for this study

3.4.3 Data collection

Data collection included research information and disclosure form, distribution and submission of surveys, as well as data collection instruments. Ethical approval for the study was obtained from both: Edith Cowan University (ECU) HREC (9586) and the relevant health care facility, St John of God Health Care [SJOGHC] (622).

3.4.3.1 Data collection instruments

Data collection instruments in the form of surveys were developed by the chief investigator and the principal supervisor. These were developed after extensive revision of the literature in this field of study and using this understanding of the current literature when developing questions to answer the research question and specific objectives of this research, using current research as examples. The surveys were then reviewed by clinical educators and academics as experts in the field, to ensure that the tools were comprehensive for collecting the information that was pertinent for this study.

Similar to Courtney-Pratt et al. (2012) and Levett-Jones et al. (2009a), all surveys collected qualitative and quantitative data concurrently and sequentially, with quantitative data obtained in surveys using Likert-scale responses; and qualitative data obtained by open-text responses within the same surveys. Examples of the surveys are shown in Appendices E to I.

3.4.3.1.1 Undergraduate student surveys

Students were asked to complete surveys at the commencement of practicum (pre-intervention) to obtain baseline information and provide responses about their traditional placements (Appendix E), then again (post-intervention) at the conclusion of practicum (Appendix F). Both pre-intervention and post-intervention student surveys sought demographic information related to the clinical area where the student was undertaking practicum and what stage of the course the student was studying.

Students' pre-intervention surveys sought responses regarding their previous traditional practicums, including whether the students had felt supported by the university's clinical staff and hospital staff on previous practicums. They were also

asked to rate: their time taken to complete tasks, how rushed they felt completing tasks and how stressed they felt completing tasks within timeframes. The survey asked students which tasks or skills they would like support for during this practicum. The surveys concluded with two open-ended questions with text response availability for students to respond further. These questions sought to provide a deeper understanding of their experiences with both their preceptors on their clinical practicum and the NCE role. Their post-intervention survey asked the same questions as the pre-intervention survey, with an additional question requesting the participant to rate their responses using a Likert-scale, from 'much better' to 'much worse' in comparing their experience of the NCE intervention with previous traditional practicums.

3.4.3.1.2 Hospital clinical nursing staff surveys

Hospital clinical nursing staff were asked to complete surveys at the beginning of the year (pre-intervention), before student practicums began (Appendix G) to obtain baseline information and provide responses about their experience with traditional placements, as well as sequential surveys at two other intervals (post-intervention), at mid-year and at the end of the year (Appendices H and I). All surveys sought demographic information related to the clinical area the participant worked in and the participant's employed role.

The staff pre-intervention survey sought staff responses with respect to their experience with precepting during previous traditional practicums, including how much time they were involved: in any way with students, including precepting students, directly supervising students performing skills, planning rosters for students or involved in orientating students on their first day. Staff were also asked to rate their support from university clinical staff and asked which tasks or skills students undertake which staff would like support with.

The surveys concluded with two open-ended questions with text response availability for staff to respond further. These questions sought to provide a deeper understanding of their experiences with both the students and the NCE role. Staff post-intervention surveys asked the same questions as the pre-intervention survey, in addition to requesting the participant to rate their responses using a Likert-scale regarding the amount of time required to supervise students, from either 'much more

time' to 'much less time', and the amount of support they received for the precepting role from 'much worse' to 'much better' since the implementation of NCE intervention.

3.4.3.2 Distribution and submission of surveys

A survey information and disclosure form (Appendix J) was posted on noticeboards in each clinical area and attached to all collection boxes for paper surveys. For ease of participation and to maximise uptake, staff participants were able to submit surveys in hardcopy format, or via the electronic (Qualtrics™) link provided, dependent upon their access to computers. Students completed hard-copy paper surveys. Student pre-intervention surveys were distributed to all students on their first day of practicum, and post-intervention surveys were distributed during their final few days. Most clinical area nursing staff completed hard-copy paper surveys, whereas NUMs, CNs and CNE were all invited to participate via a given electronic survey link, or the completion of the same paper survey that clinical nursing staff completed. Staff pre-intervention and post-intervention surveys were distributed to staff by leaving blank surveys next to the survey collection boxes in each clinical area. Electronic survey links were made available to staff for the same period as paper surveys were available.

Completed surveys for students and staff were anonymously returned on each occasion, to survey collection boxes which were placed in each clinical area's handover room. All collection boxes for paper surveys were emptied at the end of each weekday by the researcher.

3.5 Data analysis

Data from all paper surveys was manually entered verbatim into Qualtrics™ Survey System by the researcher. NUMs, CNs and CNE who completed their surveys electronically, entered their responses via the same Qualtrics™ survey link, which had been provided for completion of the survey. All data was analysed from survey reports generated by Qualtrics Survey System™.

3.5.1 Quantitative data

The numerical data from the surveys was analysed using Qualtrics™ software's analytical operations, then interpreted using descriptive statistics.

3.5.1.1 Descriptive statistics

Descriptive statistics describes, organises and summarises the collected data, dependent on whether the variables are either categorical, by describing percentages; or numerical, by describing central tendency and dispersion through mean and median (Buettner, Muller, & Buhrer-Skinner, 2011; Fisher & Schneider, 2013; Polit & Beck, 2017).

For all surveys, an initial report of the distribution of the nominal data in each survey question was generated by Qualtrics™, listing the categories with count and percentage. The researcher transferred this data to a Microsoft Excel™ file, checking data accuracy by re-checking values had transferred correctly, then using the sum function in Microsoft Excel™ to total columns, and then checking count and percentage values were correct. As Qualtrics™ had used rounding for some percentage values, some corrections of percentage values were done to ensure these values correctly totalled as 100% for that question. However, count values remain unchanged. Once all values were ascertained to be correct, a bar graph was created in Excel™ for each question, from the categories and count figures. This bar graph was then utilised to demonstrate the count, categories, centre, spread and distribution of the nominal data.

3.5.2 Qualitative data

The descriptive data from the surveys' open-ended questions from the Qualtrics™ report were analysed and interpreted using content analysis.

3.5.2.1 Content analysis

Content analysis has been used by many researchers to identify and quantify words that appear frequently in communication (Chambers & Chiang, 2012; Elo & Kyngas, 2007; Jacob, McKenna, & D'Amore, 2014; Vaismoradi, Turunen, & Bondas, 2013). Large amounts of text data is explored to determine trends and patterns of the

words, as well as their frequencies and relationships, with the purpose of examining who was communicating and the effect of that communication, in order to describe the phenomenon in a conceptual form (Chambers & Chiang, 2012; Elo & Kyngas, 2007; Vaismoradi et al., 2013). Content analysis differs from thematic analysis, as it codes the text words which appear frequently and key points into categories [manifest content], then examines the common features of these categories to make themes [latent content] (Elo & Kyngas, 2007; Vaismoradi et al., 2013). In contrast, thematic analysis identifies, explores and reports on patterns within the data as themes, which include both manifest and latent content (Braun & Clarke, 2006; Vaismoradi et al., 2013).

The qualitative content arising from this study was examined using content analysis. For each survey, the researcher copied the qualitative open-ended free text responses from the Qualtrics™ report and pasted this text into a Microsoft Word™ document. This data was then sorted into the 'strengths', 'weaknesses' and 'suggestions' responses which were requested in the survey questions, in order to answer the research question. Open coding was performed to find emerging categories from respondents' answers, with these categories then being grouped into emerging themes. Analysis of the free text qualitative responses was conducted by the researcher coding independently, then conferring and re-evaluating the findings with the research supervisors.

The responses were analysed using open coding to find emerging categories. The response codes were then listed under each category that had emerged and were checked to ensure all responses were appropriate for the category that they had been allocated to. Each category was then assigned to emerging themes that were derived from the categories, and then checked for outlying codes which may have a suitable category to be assigned to. Analysis then began by ranking each category's percentage by dividing the number of codes counted for a common category by the total number of codes found for that survey question, and then multiplying the answer by 100 (Jacob et al., 2014). Data saturation was deemed to have occurred, as no new categories or themes emerged from the data.

3.6 Ethical considerations

The principles and practices of this research are guided by the *Australian code for the responsible conduct of research* (Australian Government, 2007). The Human Research Ethics Committee for both the university and the health service reviewed the ethics applications, and approval was gained, prior to the research commencing (ECU 9586 and SJOGHC 622 – see Appendices A and B).

3.6.1 Risk analysis

The researcher was the NCE on which the study was evaluated and hence had a power relationship with students. Due to this identified potential ethical issue, it was ensured that the researcher was not present when students filled in surveys or aware of which students completed surveys. Time was made available at disbursement of surveys during orientation, for the researcher to discuss the research, the contents of the survey information and disclosure form and answer any questions about the research that participants wished to ask. All efforts were made to ensure that students and staff did not feel coerced into participating, or to provide specific responses. Blank surveys were left with the survey collection box in the clinical area, for participants to complete surveys anonymously and return completed surveys back to the sealed collection box within the clinical area, without the researcher's presence.

Participants may have experienced minimal inconvenience when completing surveys, due to the time required to complete them. It was expected that consenting participants would require no longer than three-to-five minutes to complete the surveys and they were disbursed, completed and collected at the facility during work or practicum hours. Distress was not expected, and none was reported or observed. Should distress have occurred, the distressed participant(s) would have been offered support and would have been referred to counselling services at the health service or the university.

3.6.2 Research information and disclosure form

The survey information and disclosure form (Appendix J) was posted on noticeboards in each clinical area and attached to all collection boxes for paper surveys. This same disclosure material was included on the first screen when

participants entered their survey using the electronic survey link. This form indicated the purpose, methods, risks, and possible outcomes of the survey; and also indicated that the survey was anonymous, participation was voluntary, and that participating in the survey was inferring consent to participate.

3.6.3 Consent

Survey information and disclosure forms were provided in paper form for paper surveys and electronic form for electronic surveys (Appendix J). The front page of this form advised that participating in the survey and submission of surveys to the collection box was considered as informed consent.

3.6.4 Confidentiality

Surveys were anonymous, with no identifying data attached. As such, the researcher was unaware of who the participants were, or able to identify them.

3.6.5 Data storage

As per ECU's Conduct of Ethical Human Research policy (Edith Cowan University, 2015), data collected at the hospital was brought to the university and stored in a locked filing cabinet in the office of the Chief Investigator, and to which only the Chief Investigator has key access. All other research-related data is stored in a separate area of the same locked filing cabinet in the locked office of the Chief Investigator. All electronic documentation is stored on a password protected computer, however, no identifiable data is stored electronically. Data is required to be stored in the university's secure storage for a minimum of five years following publication of the results, as per ECU's Conduct of Ethical Human Research policy (Edith Cowan University, 2015). After this date hardcopy data will be shredded and electronic data deleted from computer files, by either the Chief Investigator, or a person approved and employed by ECU's Office of Research Innovation.

3.7 Rigour

Rigour is striving for excellence in research by being self-disciplined, strictly adhering to detail and accuracy, and representing the truth, and therefore the worth, of

the research findings (Grove, Burns, & Gray, 2013; Richardson-Tench, Taylor, Kermode, & Roberts, 2011). Rigour is established according to the research method employed, therefore is demonstrated differently for quantitative, qualitative or mixed methods approaches (Creswell, 2014).

3.7.1 Mixed methods studies

Mixed methods researchers work to maintain the rigour of their research findings, by utilising a combination of quantitative and qualitative strategies, thereby increasing the worth of the research findings (Creswell, 2014; Richardson-Tench et al., 2011). Rigour in this mixed methods study was initially established by providing a sound justification for choosing a mixed methods approach, with the research question lending itself to quantitative and qualitative investigation within the one study (Richardson-Tench et al., 2011).

3.7.1.1 Rigour in quantitative research

Rigour in quantitative research, is achieved through maintaining validity and reliability (Polit & Beck, 2017). Researchers using this approach seek to demonstrate that their data was collected on tools that captured data that reflected the situation of interest as closely as possible to reality [validity] and that these tools capture that information each time they are used [reliability] (Polit & Beck, 2017). The questions for the data collection instruments utilised in this study were developed from the contemporary literature and then refined in partnership with experienced clinicians and academics, thus establishing validity. They have not as yet been used in other fields or on other occasions to establish or allow claims of reliability.

3.7.1.2 Rigour in qualitative research

Rigour in qualitative research is maintained through establishing the trustworthiness of the data, by demonstrating the credibility, transferability, dependability and confirmability of the mixed methods research methodology and data collection (Grove, Gray, & Burns, 2015; Polit & Beck, 2017; Schneider et al., 2013).

3.7.1.2.1 Credibility

Credibility is concerned with evaluating the quality and confidence in the 'truth' of the qualitative data in the study (Polit & Beck, 2017; Schwandt, Lincoln, & Guba, 2007). In this criterion of trustworthiness, the researcher aims to link the data with the context in which it sat. This study has provided study background and historical background to the data. The voices of the students and staff in the clinical setting have been used to illustrate and add credibility to the concepts and themes that have arisen from the qualitative findings.

3.7.1.2.2 Transferability

Transferability is conferred upon study findings by conducting the study across several sites, several cohorts or with sufficient numbers to be able to claim the results could be 'transferred' across similar populations (Polit & Beck, 2010). Although this research is a true representation of the two cohorts of participants, this research was conducted with the nursing staff cohort and the cohort of students in the clinical settings at one hospital, thereby possibly limiting external replication of the results.

3.7.1.2.3 Dependability

Dependability in the trustworthiness of qualitative research is important as it asks the researcher to demonstrate the consistency (reliability) of their findings with the data collected (Polit & Beck, 2017). The researcher wants to make sure and demonstrate that, should another researcher review their data, they would come to much the same findings and conclusions. To this end, an audit trail (Appendix K) is kept and was kept during this study, and all analysis and interpretations of data were examined and re-examined by two other researchers as the study progressed.

3.7.1.2.4 Confirmability

As a measure of trustworthiness, confirmability refers to the level of confidence the reader can have that the findings arise from the participants' words, rather than from the researcher's biases. This can be ensured/ conferred through provision of an audit trail (Appendix K) of the unique aspects of data collection and

the thought processes guiding analysis (Polit & Beck, 2017; Schwandt et al., 2007). An audit trail of the data analysis process (Appendix K) was maintained by the researcher for each survey, to demonstrate a transparent process for each of the surveys.

3.8 Conclusion

This chapter has discussed the methodology and design guiding the evaluation of a NCE support intervention, implemented for undergraduate nursing students from an Australian university on clinical practicum at the hospital. The methodological principles of the pragmatic paradigm guiding this study were discussed to identify how this approach best suited the study's aim. The study's design was then discussed, followed by consideration of ethics and rigour related to this study.

Chapter 4. Findings from undergraduate students

4.1 Introduction

This chapter will report on the findings from the student surveys. All undergraduate nursing students (students) from the university who were undertaking practicum at the hospital were invited to complete a pre-intervention survey on commencement of their practicum, and then and a post-intervention survey in the final few days of their practicum. The surveys aimed to determine students' perceptions of the learning experiences and support received from the NCE intervention role.

4.2 Undergraduate nursing student survey results

The university placed 104 students for practicum at the hospital during the intervention period (see Table 4.1). Of these, 98% (n=*102)* of the students returned the pre-intervention survey; and 89% (n=*93*) of the students returned the post-intervention survey.

4.2.1 Student placement details

As part of their clinical practicum learning experience, students were placed in the health service for two practicums per semester, with placement duration of two weeks per rotation, except for stage six final semester placement, which was for five weeks (Table 4.1 and Appendix D). All students had previously attended practicum in aged-care during their first year and were either in their second year (56%, *n=56),* or third year (44%, *n=45*) of undergraduate studies (see Appendix D). Of the respondents, 44% (*n=45*) had only undertaken an aged care practicum previously, thus most students (56%, *n=57*) had also attended a practicum other than aged-care. Responses indicated that 44% (*n=45*) of students were attending the hospital for their first practicum for the semester; 52% (*n=53*) of students were attending the hospital for their second rotation of practicum for the semester, whilst 4% (*n=4*) of students were attending for a third practicum for the semester. This last small cohort were students making up practicum hours or were being given a second opportunity to

Table 4-1: Numbers of students on placement per clinical area and survey response rates

Clinical area	Student placement *n*= Semester one	Student placement *n*= Semester two	**Total student placements *n*=**	**Pre- survey Student response rate *n*=**	**Post- survey Student response rate *n*=**
Surgical	27	12	**39**	39	38
Medical	24	11	**35**	35	31
Maternity	0	8	**8**	8	8
Palliative care	5	1	**6**	6	5
Day Procedure	4	0	**4**	4	4
Theatre/ Recovery	6	0	**6**	6	6
Oncology	2	0	**2**	2	1
Renal	2	0	**2**	2	0
Community palliative care	0	2	**2**	0	0
Total *n*= student placements	**70**	**34 ***	**104**	**102**	**93**

* Placements for semester one were all 2-week placements; semester two includes 26 student placements of 2-weeks and 8 student placements of final semester continuous practicum

demonstrate their competence on practicum.

Students were placed in various clinical areas around the hospital, with varying student numbers in each area depending on the area's ability to accommodate students, as well as wards suitable for the student stage or skill level. Therefore, some areas only had students for one of the two university semesters, whilst other clinical areas had students for both semesters. The surgical and medical wards hosted the most students, with smaller student numbers in specialty areas.

4.2.2 Student support

Students were asked to rate their support from university staff and hospital staff, based on their previous placement experience (pre-intervention survey) and the current practicum (post-intervention survey).

4.2.2.1 Support from the university

Eighty-eight percent of students (*n=90)* responded to the question on the support provided by university staff in the pre-intervention survey, and 99% (*n=92*) for the post-intervention survey. Responses in the pre- survey ranged from 'not supported' to 'well supported', with the majority of students rating their support provided as 'adequately supported' (23%, *n=21*), 'reasonably supported' (26%, *n=23)*, or as 'well supported' (36%, *n=32*) (see Figure 4.1).

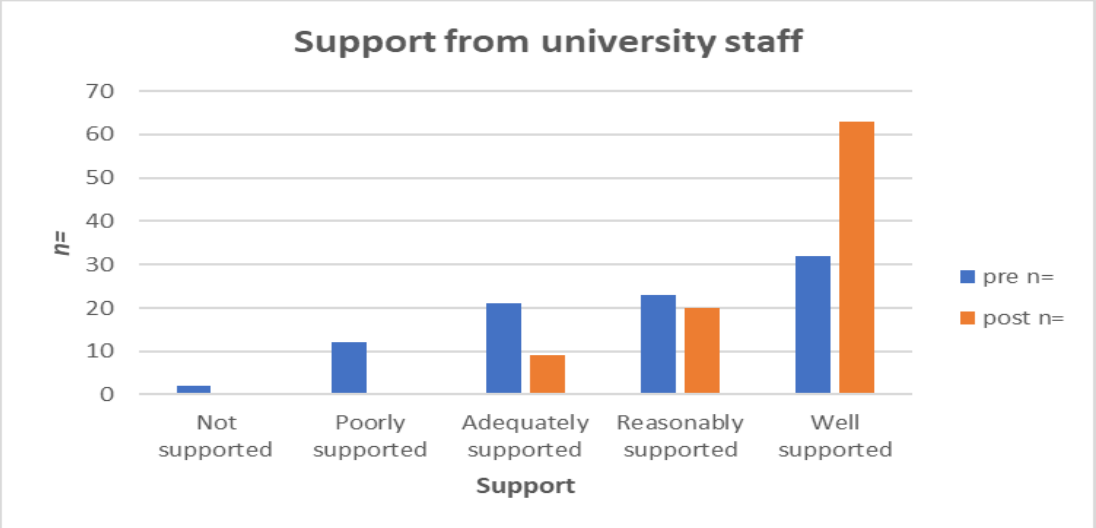

Figure 4-1: Student rating of support from university staff

There was a large difference in reported support from students in the post-intervention survey, following implementation of the NCE intervention role. In the post-intervention survey students were much more positive about the support received from the university staff, with all responses now ranging between 'adequately supported' and 'well supported', with the majority (68%, *n=63*) of responses as 'well supported'.

In rating the change in support from university staff for this practicum, no students rated the change as 'much worse', 1% rated their support as 'worse', 29% as 'about the same', whilst 24% rated the support as 'better' and nearly half of the responses (46%) rated their support provided by university staff as 'much better' than traditional placements (Table 4.2).

Table 4-2: Question percentage rates for how items had changed for students post-intervention

Question/ item	Much worse	Worse	About the same	Better	Much better	Total %	Mean
# allocated by Qualtrics for mean	1	2	3	4	5		
Support from university (%)	0	1	29	24	46	100	4.15
Support from hospital (%)	0	5	37	31	27	100	3.80
Time taken for tasks (%)	0	4	18	49	29	100	4.05
Feeling stressed (%)	0	7	47	31	15	100	3.55
Feeling rushed (%)	0	6	45	34	15	100	3.59

4.2.2.2 Support from the hospital

Response rates for the support provided by hospital staff was 56% (*n=57*) for the pre-intervention and 99% (*n=92*) for the post-intervention survey. In the pre-intervention survey, responses ranged from 'not supported' to 'well supported', with nearly half of the students (44%, *n= 25*) rating their support from hospital staff as 'adequately supported', 19% (*n=11*) of students rating support as 'reasonably supported' and 21% (*n= 12*) as 'well supported' (Figure 4.2).

The post-intervention survey indicated that students felt increased support from hospital staff following implementation of the NCE intervention. No students responded as 'not supported', whereas the majority of responses (43%, *n=40*) rated as 'well supported'. The majority of students rated the support as improved from previous

placements, with 31% (*n=26*) rating their support as 'better' and 27% (*n=23*) rating their support provided by hospital staff as 'much better' than previous support.

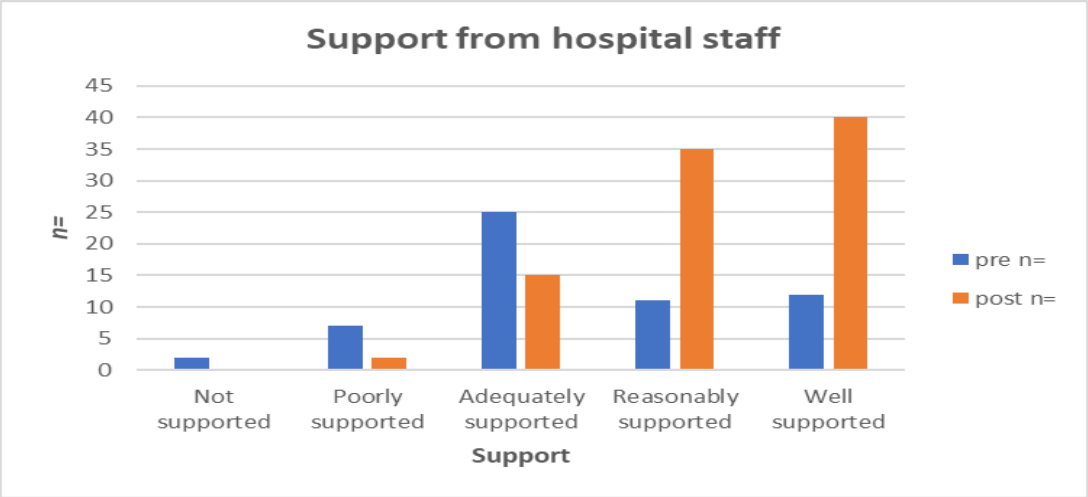

Figure 4-2: Student rating of support from hospital staff

4.2.3 Student skill and knowledge development

Students were asked to rate the time taken for them to complete clinical skills and patient care compared to staff nurses.

4.2.3.1 Time taken to complete clinical skills and patient care

Response rates for the time taken to complete tasks was *n=91* returned for the pre-intervention and *n=90* returned for the post-intervention survey. In the pre-intervention survey, students' self-rating of their time taken to complete clinical tasks compared to clinical staff demonstrated that 16% (*n=15*) rated that they took more than twice the time, 66% (*n=60*) rated themselves as taking one-and-a-half times longer, whereas 18% (*n=16*) rated themselves as taking a similar time to clinical staff (Figure 4.3).

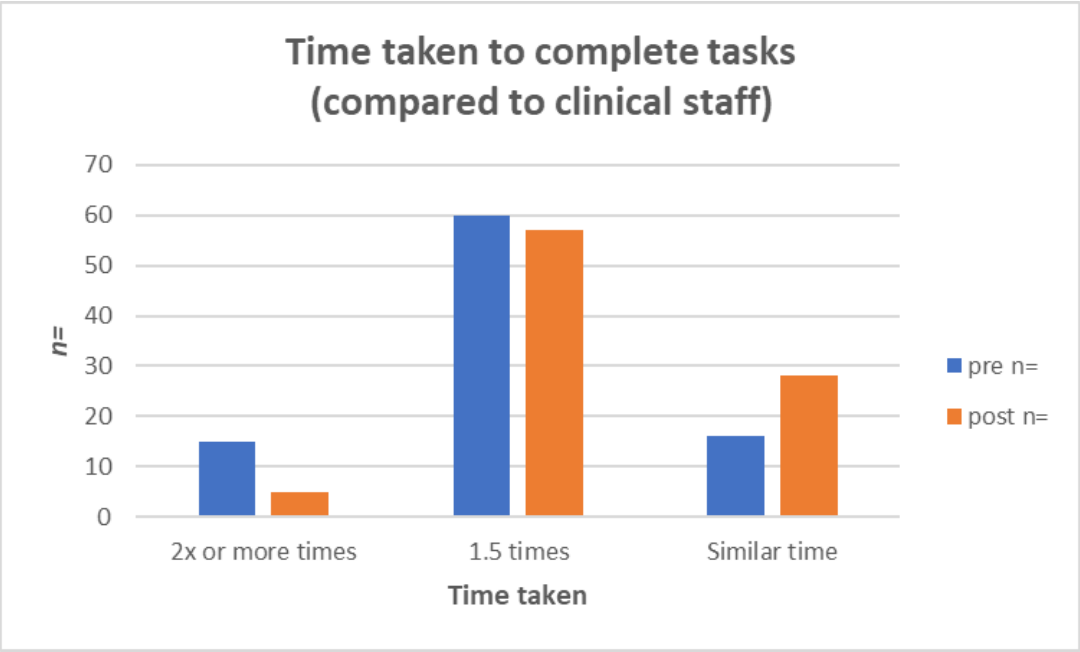

Figure 4-3: Student rating of their time taken to complete tasks

Time taken to undertake clinical skills decreased in the post-intervention survey, with fewer students rating themselves as taking two or more times longer or one-and-a-half times longer. The post-intervention survey increased to 31% (*n=28*) of students rating themselves as taking a similar time to clinical staff, which may have resulted from students gaining more practice in these skills during the practicum. Student rating of the change in their time taken to complete tasks demonstrated that 49% (*n=42*) of the students rated their time taken as 'better' and 29% (*n=25*) rated their time taken to complete tasks as 'much better' than previous practicums.

4.2.3.2 Areas of clinical practice which students wished to be supported by NCE

Students were asked to indicate in which areas of clinical practice they felt support from the NCE might be particularly helpful (see Table 4.3). In both pre-intervention and post-intervention surveys, students indicated the areas where they would appreciate support most were related to clinical skills and medications.

Student responses in the pre-intervention survey included requests for support with clinical skills (*n=132*), followed by medication administration (*n=97*), orientation (*n=44*) and for liaison (*n=6*).

Table 4-3: Summary of tasks with which students wished to be supported by the NCE

Support *n=*		*Pre n=*	*Pre n=*	*Post n=*	*Post n=*	%	*Total n=*	%
Orientation	Orientation	44	42	52	41	18.68	83	16.15
96	Care pathways		1		0		1	0.19
	Ward routine		0		3		3	0.58
	Lanyard cards		0		1		1	0.19
	Clin documentation		0		1		1	0.19
	Admissions		0		2		2	0.39
	Discharges		0		2		2	0.39
	Referrals		1		1		2	0.39
	Policies		0		1		1	0.19
Liaison	Staff liaison	6	1	6	5	2.33	6	1.17
12	Prac documentation		4		0		4	0.78
	Technique		1		0		1	0.19
	Parking permits		0		1		1	0.19
Meds	Medications	97	84	65	56	31.52	140	27.24
162	IV meds		3		5		8	1.56
	IVT		2		0		2	0.39
	IV		3		2		5	0.97
	parental nutrition		1		0		1	0.19
	Blood transfusion		2		2		4	0.78
	IM		1		0		1	0.19
	SC		1		0		1	0.19
Skills	Dressings	132	90	112	72	47.47	162	31.52
244	Complex dressings		2		0		2	0.39
	PICC		1		0		1	0.19
	Pt obs		14		8		22	4.28
	Pt hygiene		6		13		19	3.70
	All skills		2		3		5	0.97
	New skills		4		6		10	1.95
	IDC		7		2		9	1.75
	Drains		3		3		6	1.17
	NGT		2		2		4	0.78
	ECG		1		1		2	0.39
	Hoist/ transferring		0		2		2	0.39
Total		**279**	**279**	**235**	**235**	**100**	**514**	**100**

The post-intervention survey demonstrated a decrease in requests for support with clinical skill (*n=112*), particularly with simple, complex or peripherally inserted central catheter (PICC) dressings, as well as indwelling catheter (IDC) insertion, which are all skills that take students a greater time to complete and may have resulted from students gaining more practice in these skills during the practicum. There was also an indication of decreased need for assistance with medication administration (*n=65*), which is also likely to have resulted from students gaining more practice in these skills. A slight increase was seen in requests for orientation (*n= 52*), with these requests being for areas such as ward routine, lanyard cards, clinical documentation, policies, admissions and discharge documentation, which may all have not been considered by

students until they encountered the ward routines on practicum. Liaison remained at *n=6,* although the areas requested for support had changed from a focus on documentation and technique, to staff liaison and arranging parking permits, with most students requesting the NCE's support to continue for staff liaison.

4.2.4 Student experiences on practicum

Students were asked to self-rate on a Likert-scale, both how stressed they felt and how rushed they felt, due to their time taken to complete clinical skills.

4.2.4.1 Stress when completing clinical skills

Response rates for how stressed students felt when completing clinical skills that take time were *n=93* returned for the pre-intervention and *n=91* returned for the post-intervention survey. In the pre-intervention survey, students responded to the question on a scale ranging from 'no stress' to 'very stressed', with the majority of students (37%, *n=34*) indicating they felt 'reasonably stressed' due to their time taken to complete clinical skills (Figure 4.4).

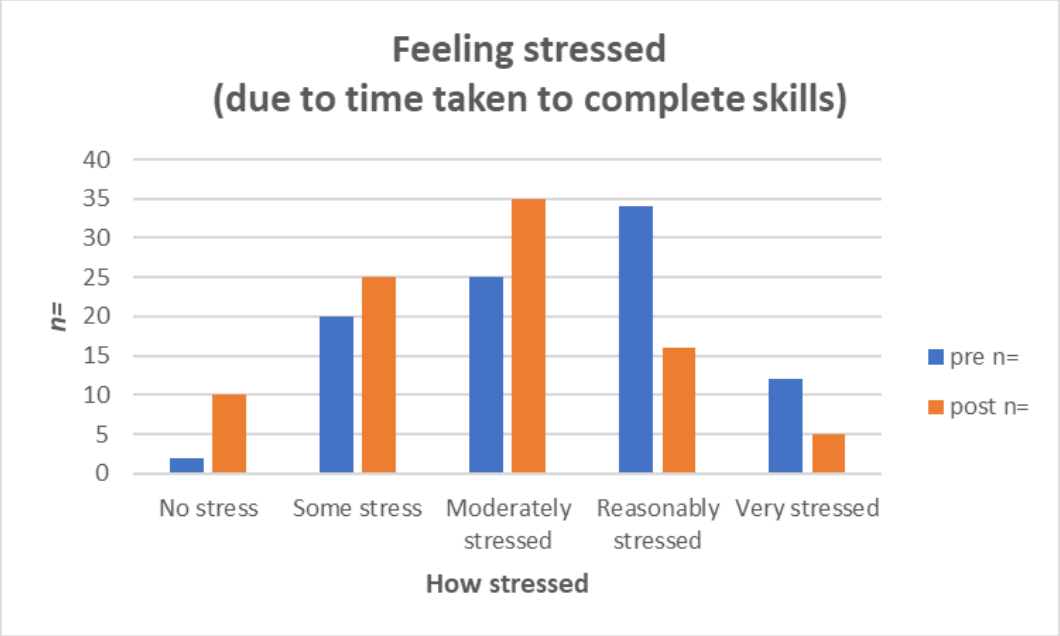

Figure 4-4: Student self-rating of feeling of stress

Students self-rating of how stressed they felt demonstrated a shift to less stressed by the end of the NCE intervention. In the post-intervention survey, there was an increase to 11% (*n=10)* of students indicating 'no stress', an increase to 27% (*n=25*)

rating themselves as having 'some stress', with the majority 38% (*n= 35)* of responses now rating themselves as 'moderately stressed'; whilst 'reasonably stressed' almost halved with a decrease to18% (*n=16*), and 'very stressed' more than halved, with a decrease to 5% (*n=5*).

This reduction in students' stress was supported by their indicated change in how stressed they felt when undertaking tasks after the NCE intervention, with 31% (*n=27*) of students rating their stress as 'better' and 15% (*n=13*) rating how stressed they felt when completing tasks as 'much better' after the NCE intervention. Again, this may have been due to the practice in undertaking tasks whilst on practicum. Further responses regarding students' perception of their stress was found in the qualitative (text answers) component of the surveys (discussed later in this chapter).

4.2.4.2 Feeling rushed when completing clinical skills

Response rates for the how rushed students felt, due to the time they took to complete clinical skills were *n=93* returned for the pre-intervention and *n=91* for the post-intervention survey. In the pre-intervention survey, nearly half (45%, *n=42*) of the students indicated they were 'moderately rushed', whilst 23% (*n=21*) rated themselves as 'marginally rushed' and 5% (*n=5*) rated themselves as 'not rushed at all' (Figure 4.5).

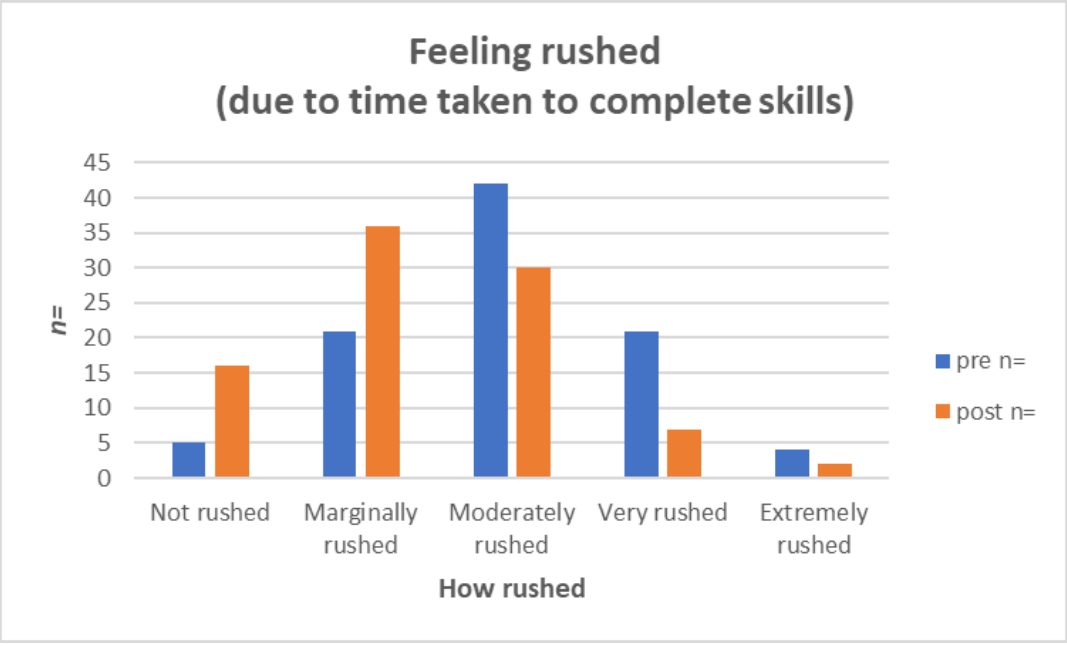

Figure 4-5: Student self-rating of feeling rushed

Students self-rating of how rushed they felt demonstrated a shift to less rushed by the end of the NCE intervention. In the post-intervention survey, there was a decrease to 33% (*n=30)* of students rating themselves as 'moderately rushed', whilst there were increases to 40% (*n=36*) rated as 'marginally rushed' and 18% (*n=16*) rating themselves as 'not rushed at all. The change in how rushed students felt when undertaking tasks after the NCE intervention supported this, with 34% (*n=29*) of students rating how rushed they felt as 'better' and 15% (*n=13*) rating as 'much better' after the NCE intervention.

4.2.5 Summary of student rating of the impact of the NCE role

Students' perception of the change for each question after the NCE intervention role, was shown in Table 4.2. As has been discussed for each question, there was a significant shift in students' ratings to 'better' or 'much better' for all questions. The NCE assisted students with: support provided by university staff (mean average of 4.15- better); support provided by hospital staff (mean of 3.80 - about the same, approaching towards better); students' time taken to complete clinical skills and patient care compared to their perception of the time that clinical staff took (mean of 4.05 - better); how stressed students felt, due to their time taken to complete clinical skills (mean of 3.55 - about the same); and how rushed students felt, due to their time taken to complete clinical skills (mean of 3.59 - about the same). Students' text responses in the qualitative component of the surveys (discussed next) clarified the anomalies indicated here by the mean average in the change of how stressed and rushed students felt.

4.3 Findings from students' response to open-ended questions

Students were asked to give responses to open-ended questions within the survey, to provide greater understanding of their experiences and perceptions of the contributions of both their preceptors and the NCE intervention, to their clinical practicum and learning. The same open-ended questions were asked in the pre-intervention and post-intervention surveys.

Content analysis was performed on the data and category percentage was calculated by dividing the number of codes for a category in the question, by the total number of codes found in the question and then multiplying the answer by 100 (Chambers & Chiang, 2012; Jacob et al., 2014). The number of codes identified for a question was higher than the number of respondents, as many comments contained more than one code (Jacob et al., 2014).

4.3.1 Students' experience with preceptors

Students were asked to comment on anything relevant to the time that they spent with their preceptors in undertaking clinical skills and patient care. In the pre-intervention survey, a total of 33 students responded to this open-ended question, with student comments producing 91 codes within seven categories. The majority of the students' comments were about the skill and knowledge development that they expected to gain with their preceptors' support (Table 4.4).

Table 4-4: Pre-intervention summary of student experience with preceptors

Ranking	Category	Code count	Percentage	Theme
1	Clinical skills and knowledge development	40	43.96	Enabling skill and knowledge development
2	Preceptor's attitude and skills	14	15.39	Impact on student experiences on practicum
3	Preceptor as a liaison person	10	10.99	Impact on student experiences on practicum
4	Preceptor workload	9	9.89	Enabling skill and knowledge development
5	Preceptor being available	7	7.69	Support to student
6	Stress and pressure for students	6	6.59	Impact on student experiences on practicum
7	Support provided by preceptor	5	5.49	Support to student
Total		91	100.00	

In the post-intervention survey, 53 students responded to this question, with student comments producing 216 codes within eight categories (Table 4.5). Changes in category rankings found the preceptor's attitude and skills moving to most prominent with over a third of the responses, closely followed by students' clinical skills and knowledge development. In the post-intervention survey, students'

comments created a further category of ‘no time for learning’ with nearly ten percent of the responses.

Table 4-5: Post-intervention summary of student experience with preceptors

Ranking	Category	Code count	Percentage	Theme
1	Preceptor’s attitude and skills	77	35.65	Impact on student experiences on practicum
2	Clinical skills and knowledge development	65	30.09	Enabling skills and knowledge development
3	No time for learning	21	9.72	Enabling skills and knowledge development
4	Preceptor workload	16	7.41	Enabling skills and knowledge development
5	Support provided by preceptor	16	7.41	Support to students
6	Preceptor as a liaison person	12	5.56	Support to students
7	Stress and pressure for students	5	2.31	Impact on student experiences on practicum
8	Preceptor being available	4	1.85	Support to students
Total		216	100.00	

The content analysis of students’ perspectives of their preceptors before the intervention fell into three major themes of: ‘enabling skill and knowledge development’ (53.85%); ‘impact on student experiences on practicum’ (32.97%); and ‘support to students’ (13.18%). After the intervention, the students’ perspectives fell into the same three themes in the same order of: ‘enabling skill and knowledge development’ (47.22%); ‘impact on student experiences on practicum’ (37.96%); and ‘support to students’ (14.82%). The highest-ranking category in the post-intervention survey discussed the preceptors’ attitude and skills.

4.3.1.1 Enabling skill and knowledge development

The theme of enabling skill and knowledge development referred to how preceptors empower students to enable them to gain the clinical skills, education, knowledge, competencies and confidence to work as a nurse in the clinical area, within their scope of practice. In the pre-intervention survey, this theme contained two categories, ‘clinical skill and knowledge development’ and ‘preceptor workload’. In the post-intervention survey, this theme now contained three categories, which

included the category of ‘clinical skill and knowledge development’, the new category of ‘no time for learning’, and also the ‘preceptor workload’ category.

4.3.1.1.1 Clinical skills and knowledge development

The category of clinical skills and knowledge development refers to the ability of the preceptor to facilitate the development of students’ clinical skills, knowledge, competencies and confidence to work as a nurse in the clinical area. In the pre-intervention survey, comments included the positive aspects of having preceptors to work with during practicum, such as students’ expectations that preceptors would enable them to ‘*attempt new or specific skills’*, ‘*gain knowledge and skills’*, ‘*answer questions’*, ‘*provide guidance’*, ‘*give advice’* and ‘*teach’* the students. Practicum was seen by students to be an opportunity to gain as much experience as possible, learn how individual nurses manage their clinical areas and develop confidence in their clinical skills. Students commented on their difficulties with time management, pharmacological knowledge; completing competency assessments, achieving set learning outcomes and performing a procedure from start to finish with their preceptors. Students felt that the quality of preceptors differed, as some preceptors encouraged students to undertake new skills, whilst others did not allow students to do some tasks. Students felt that being precepted by an enrolled nurse (EN) was a disadvantage when ENs were not able to assess and deem them competent in clinical skills. Other issues included the student writing reflections, in asking for help, not being able to demonstrate autonomy or initiative, their lack of experience in some specialty areas and that it was difficult for them not to let some of these issues get in the way of them just experiencing their practicum. Students wanted time to undertake clinical skills that were relevant to their educational stage and the clinical area that they were in.

In the post-intervention survey, students felt that preceptors were aware that students were required to complete specific skills during their practicum, which included medication administration, wound dressings, care planning and time management, which was unlike previous placements. Students were able to complete some skills independently in areas such as undertaking observations, once the preceptor felt that they were competent, however some preceptors either preferred to do skills themselves or only allowed students to undertake basic skills, rather than

undertake skills at their level of learning, therefore opportunities were lost for student exposure to further learning. Students found preceptors beneficial to have in providing guidance, imparting knowledge and practical experience. This enabled the student to build confidence in their own clinical skills and enabled them to experience different ways of managing a clinical patient load. Students suggested that they experienced differences in preceptors' ability, with some nurses being easy to approach, appeared to enjoy teaching students and were proficient at explaining procedures and protocols in a way that students were able to understand.

Conversely, preceptors were found to undermine students' confidence when they required skills to be performed differently to how students were taught at the university. Several students felt that they had not learned much from their preceptor during their practicum, and that "*if students aren't able to do skills, it will mean that we haven't been exposed to as many skills as we need to feel competent when doing our grad programs*".

4.3.1.1.2 No time for learning

In the post-intervention survey, the new category of no time for learning emerged, referring to preceptors not being able to grant the time in a working shift to supervise students in undertaking the clinical skills, competencies, documentation and patient care, which allowed the student to work as a nurse in the clinical area. Responses included only two positive comments indicating preceptors providing the student the time that they needed and having patience when the student took time to complete the skills. Most student responses described their difficulties with preceptors who were unable to take the time to explain and complete tasks with them, due to preceptors' time constraints from their clinical workload. Preceptors were reportedly rushing students because they took too much time to complete skills, whereas students expected preceptors to spend time with them to undertake their skills despite it requiring more time, and commented that the "*time we take to do skills really needs to be taken into account*".

4.3.1.1.3 Preceptor workload

The category of preceptor workload referred to how students viewed the precepting nurses' assigned work, nursing duties, clinical care, documentation and

expected amount of work to be done on any shift, which restricted their ability to spend time supporting students and assisting them with learning. In the pre-intervention survey, students discussed how preceptors had their own time constraints as they also had a patient load, were often rushed and too busy to help them, or supervise them doing a skill. Comments included difficulties with some preceptors unable to take the time to teach or give feedback, alluding that some of this was due to preceptor workload.

In the post-intervention survey, this category had many responses indicating that due to the patient load of the preceptor, they were often too busy to assist with student learning. Students indicated that preceptors appeared to be under pressure most of the time. One student experienced difficulty when she was being "*precepted by the ward coordinator who was too busy to precept students as well"*, and students requested for "*extra staff when students were on*". Students comments could be summed up by this statement from one student "*Preceptors were often much too busy to take the time to explain and complete clinical skills with me - result being unable to practice clinical skills if Clinical Educator was not available*".

4.3.1.2 Impact on student experiences on practicum

The theme of the impact on the students' experiences during practicum described the encounters of actions, attitude, contact, involvement, observations, communications, or sense that students had from their preceptors regarding their learning, whilst they were on their practicum. In the pre-intervention survey, this theme included three categories of 'preceptor's attitude and skills', the 'preceptor as a liaison person' and the 'stress and pressure for students'. In the post-intervention survey, this theme now only consisted of two categories: the 'preceptor's attitude and skills' (which had increased in prominence) and the 'stress and pressure for students'.

4.3.1.2.1 Preceptor's attitude and skills

The preceptor's attitude and skills category included the expectation that students would be learning from experienced nurses to enable them to benefit from the preceptors' skill level, critical thinking and analysis. In the pre-intervention survey, students expected their preceptors to be willing to help them with their professional development, be kind, patient and looking out for learning opportunities for students.

Students also described their difficulties with being placed with an RN who stated that she "*did not want to precept*" and found some preceptors' level of willingness to precept or teach was detrimental to their learning. Students suggested that a preceptor's attitude influenced learning for them, with some students feeling that they were being bothersome, or having preceptors who left them without explanation, as students expected to be precepted by nurses who were enthusiastic about their role as teacher.

In the post-intervention survey, this category demonstrated a mixed response, with some students citing preceptors' positive attributes of being friendly, welcoming, inclusive, understanding, kind, willing to help, encouraging and having patience with the students. Students felt that some preceptors were very generous in sharing their skills with students, happy to have students and enabled students to feel valued as part of the nursing team. Students found it beneficial to learn from preceptors who worked on a permanent basis and admired their expertise, teamwork, understanding of procedures, ability to put theory to practice, rapport with patients, patient communication skills and ability to prioritise patient care.

Contrarily, some responses were of negative student experiences, suggesting that it depended upon the attributes of the particular preceptor, as to whether their experience was positive or negative. Comments suggested that some of the staff had "*bad attitudes towards students*", were not helpful, not enthusiastic, or could be very unwelcoming. Students reported being left alone a lot, that the preceptor did not trust them because they were a student and feeling like they were a nuisance when with their preceptor.

The number of different preceptors that students had supervising them also appeared to influence student satisfaction with practicum. Students did not like preceptors being changed regularly, as they suggested that different preceptors had different expectations of students, therefore they preferred to be allocated one or two preceptors for the duration of their practicum. Students felt that some preceptors appeared to be confused on how to allocate patient loads to students when working in a team allocation model. When time management grids were not used by preceptors in the team allocation model, it made it difficult for students to determine what they were allocated to do and be able to work as part of the nursing team. Students indicated that they felt uncomfortable hearing preceptors "*bitching*" or gossiping about each other

when students were around. Students found some preceptors did not want to work with lower stage students and suggested that preceptors who had forgotten what it was like to be learning, were detrimental to student confidence and learning. Students expected preceptors to be willing to spend the time with them, wanted more rigorous selection of nurses who wanted to be preceptors, and for preceptors to have "*mandatory preceptor training, so that preceptors know what to expect – for all staff*".

4.3.1.2.2 Stress and pressure for students

Stress and pressure for students related to their perceived mental pressure or burden. Prior to the intervention, some students felt rushed, hurried or harried when undertaking skills, which left them feeling incompetent when working with preceptors. In the post-intervention survey students included responses of how some preceptors rushed students when they were performing a skill, making them feel nervous and uncomfortable, which they found stressful.

4.3.1.3 Support for students

The theme of support for students refers to the assistance, supervision, encouragement or guidance that preceptors provided to the students whilst the students were on practicum. In the pre-intervention survey, this theme included the two categories of the 'preceptor being available' and the 'support provided by preceptor'. In the post-intervention survey, this theme included three categories of 'support provided by preceptor', 'preceptors as a liaison role' (which had shifted from the impact on student experiences theme in the pre-intervention survey), and the 'preceptor being available'.

4.3.1.3.1 Support provided by preceptors

In the pre-intervention survey, some students indicated positive responses of preceptors actively encouraging students and providing support if students needed help or were unsure. Students recognised the benefit of having preceptors that were helpful and supportive. Conversely, students complained they were often stressed by having to run around looking for preceptors that had disappeared. In the post-intervention survey, similar responses were found, with students valuing the support provided by the preceptor, which included being helpful, and assisting or supervising students, with

some students feeling well supported. Not surprisingly perhaps, some students reported that "*some of the RN preceptors knew that (university) staff were available to supervise and expected them to come supervise me - instead of doing it themselves*".

4.3.1.3.2 Preceptor as a liaison person

The category of the preceptor as a liaison person refers to the preceptor performing any written or verbal dissemination of information, disclosure, clarification or contact between the student and other interdisciplinary healthcare team members or university staff. In the pre-intervention survey, students discussed their appreciation for preceptors' well-developed interpersonal or communication skills, setting clear expectations, and providing orientation, all of which allowed for the development of better relationships and enhance adaptation to the clinical area. Students expected their preceptor would sign their assessments in the practicum workbook and comment on their observation of the student in general, however, at times students found it difficult to get feedback about their practicum and comments from their preceptors (as opposed to facilitators).

In the post-intervention survey, students' expectations and points of discussion had not altered. Their focus was on orientation and education on documentation on their first day of practicum, and enhanced communication with the clinical areas as their practicum progressed. When this occurred, students reported that preceptors were good at ensuring that students were progressing satisfactorily and were provided with plenty of opportunities for learning. They did comment however, that the NCE role meant that preceptors were informed of students coming on practicum and what to expect.

4.3.1.3.3 Preceptor being available

The preceptor being available category refers to the preceptor's accessibility, presence, or being at disposal for the student. In the pre-intervention survey, positive responses were made by students including being able to have someone with them for most of the time and that some preceptors took time with them, as students expected to have time with preceptors. Nonetheless, students commented that some preceptors were not available when students required their assistance. In the post-intervention survey, this was a small category with students' comments referring to the preceptors'

availability and presence. Students reported that most preceptors took time with students and were available when needed.

4.3.2 Nursing Clinical Educator

The second open-ended question asked students to comment on how they perceived the NCE role could assist them with their practicum at the hospital, to ensure that they had opportunities to obtain meaningful experience and fulfil the practicum requirement of the course. Seventy-three students responded to this open-ended question in the pre-intervention survey, with student comments producing 234 codes within seven categories (Table 4.6).

Table 4-6: Pre-intervention summary of student survey experience with NCE

Ranking	Category	Code count	Percentage	Theme
1	Enabling clinical skills and knowledge development	71	30.34	Enabling skill and knowledge development
2	NCE being available	56	23.93	Support to students and staff
3	Support provided by NCE	35	14.96	Support to students and staff
4	NCE as a resource person	26	11.11	Impact on student experiences on practicum
5	NCE allowing time for learning	22	9.40	Enabling skill and knowledge development
6	NCE reducing burden on staff	17	7.27	Support to students and staff
7	NCE reducing stress and pressure on students	7	2.99	Impact on student experiences on practicum
Total		234	100.00	

The post-intervention survey saw a marked increase in responses from students, providing many more coded responses and the addition of new categories emerging that had not previously been considered (Table 4.7). New categories included the NCE being a ‘valuable role to students’, the ‘NCE’s attitude and skills’, (a variation of preceptors’ attitudes and skills), and the ‘development of student confidence’. Sixty-seven students responded to this open-ended question, producing 391 codes within ten categories. Nearly half of the comments from students fell into the two main categories of how the NCE had enabled student’s clinical skills and knowledge development and the NCE had been available to assist them.

Table 4-7: Post-intervention summary of student survey experience with NCE

Ranking	Category	Code count	Percentage	Theme
1	Enabling clinical skills and knowledge development	98	25.06	Enabling skill and knowledge development
2	NCE being available	77	19.69	Support to students and staff
3	NCE as resource person	49	12.53	Impact on student experiences on practicum
4	Valuable role to students	37	9.46	Impact on student experiences on practicum
5	Support provided by NCE	35	8.95	Support to students and staff
6	NCE reducing burden on staff	27	6.91	Support to students and staff
7	NCE's attitude and skills	24	6.14	Support to students and staff
8	NCE allowing time for learning	21	5.37	Enabling skill and knowledge development
9	NCE reducing stress and pressure on students	13	3.33	Impact on student experiences on practicum
10	Development of student confidence	10	2.56	Enabling skill and knowledge development
Total		391	100.00	

Content analysis of students' perspectives of the NCE role before the intervention fell into three major themes of: 'support to students' (46.16%), 'enabling skill and knowledge development' (39.74%); and 'impact on student experiences on practicum' (14.10%). After the intervention, the students' perspectives fell into the same three themes in a different order of: 'support to students' (41.69%); 'enabling skill and knowledge development' (32.99%); 'impact on student experiences on practicum' (25.32%). The highest-ranking category in the post-intervention survey discussed the NCE enabling skill and knowledge development.

4.3.2.1 Support to students and staff

The major theme of support to students and staff refers to the assistance, supervision, encouragement or guidance that the NCE provided to the students and staff whilst the students were on practicum. In the pre-intervention survey, this theme contained the three categories of 'NCE being available', 'support provided by NCE' and 'NCE reducing burden on staff'. In the post-intervention survey, this theme included the same three categories, plus a new, fourth category of 'NCE's attitude and skills'.

4.3.2.1.1 NCE being available

The category of the NCE being available refers to expectations from students that as a supernumerary educator, the NCE would be freely available to assist them with skills and learning when preceptors were busy, that the NCE would have more time to assist, and that students could request the NCE to help. In the pre-intervention survey, some students thought the role would be inhibited in being available to spend time with each student, due to '*…the number of students to see',* as the '*ratio of one NCE to 11 (or more) students may cause difficulty',* that there was '*only one NCE to go around all of the students* and *to fulfil all shifts'.*

Students felt that when they had the opportunity to undertake a skill, they may not have time to wait for the NCE to be finished with other students, which meant that the students may not be able to utilise the NCE when they required assistance. As the students had been advised in the information session that the role would be implemented for one year, there were many student suggestions that as well as *"continuing with the availability of the NCE role whilst on prac (sic)",* that *"more NCEs would be needed",* with a suggestion of *"one for each ward"* and also to *"keep Clinical Educator role and gain funding for other hospitals for same role"* as well.

In the post-intervention survey, this category discussed the benefit of "*having someone around that does not have a patient load*", with the availability of the NCE for assistance being a common point mentioned. Other comments included that it was reassuring to know that the NCE was there if needed and having the NCE as a 'floating' skills educator was handy for the students to do skills. Students discussed some difficulties largely due to student ratios of one NCE for up to 14 students in different clinical areas around the hospital, therefore sometimes the NCE was not available when needed. This led to students experiencing difficulties with having to book the NCE. The amount of time that students were able to spend with the NCE was limited by the number of students on the practicum, resulting in the NCE sometimes being late to assist students. Students also requested the NCE continue being available, including comments such as "*wish there was someone in her position for all the pracs (sic)*", and the benefit of "*continuation of such role for the benefit of the student and staff*".

4.3.2.1.2 Support provided by NCE

In the pre-intervention survey, the category of support provided by the NCE included positive comments that students expected that the NCE would be helpful throughout their practicum, provide supervision during clinical procedures, provide clinical skills direction and education, as well as provide them with extra support if they required it. Students considered that having the NCE would be beneficial to assisting with practicum, by enabling students to practise skills in a supported manner and provide direction if required, without the pressure of time.

In the post-intervention survey, the support provided by the NCE was epitomised with the comment "*I felt well supported*". Other comments included that the NCE was always there for support, was very supportive, that I found her very helpful and was great support to have on the ward. The NCE had provided valuable support to students in an awkward and foreign student learning environment and that "*I have felt supported and encouraged throughout the prac (sic) which has increased my confidence*".

4.3.2.1.3 NCE reducing burden on staff

The NCE reducing burden on staff referred to the lessening of the preceptors' expected workload in supervising students, due to the NCE's presence. In the pre-intervention survey, students perceived that the NCE's availability would mean that students would not have to interrupt their preceptor or delay them from completing their required work. Students felt the role would take the burden of students off the preceptor, particularly when they were busy.

In the post-intervention survey, this expectation was confirmed as students commented on how they could work with the NCE when their preceptor was busy, or was not available, so students did not have to '*bug*' the nurses all the time. The NCE was seen to be a benefit to staff as the NCE *"takes the pressure off the preceptors to take time out of their busy schedule"*.

4.3.2.1.4 NCE's attitude and skills

As mentioned, in the post-intervention survey, a new category emerged relating to the NCE's attitude and skills and their impact on the students' learning

experiences. Students stated that the NCE had current contemporary skills, was very knowledgeable, patient and encouraging. All students found the NCE well prepared, helpful and a great and thorough teacher. At the same time, students appreciated that the NCE left it to them to contact her if they needed any help and was not looking over their shoulder every five minutes. Students stated that "*I felt that our Clinical Educator had our best interests at heart"* and that *"she made this prac (sic) experience a very productive and enjoyable opportunity that I learnt a lot on".*

4.3.2.2 Enabling skill and knowledge development

In the pre-intervention survey, the second theme of enabling students' skill and knowledge development included two categories of 'enabling clinical skills and knowledge development' and 'NCE allowing time for learning'. In the post-intervention survey, this theme now incorporated three categories: the same two previously found, with the category of 'clinical skills and knowledge development' now producing over a quarter of the codes, as well as 'NCE allowing time for learning' and a new category of 'development of student confidence'.

4.3.2.2.1 Enabling clinical skills and knowledge development

In the pre-intervention survey, students commented that the NCE would enable clinical skills and knowledge development as they expected that the NCE could support them with complex dressings, intravenous therapy, time management, more complex skills and spend time focussing on clinical skills relevant to each practicum, which "*will allow students to gain confidence in performing skills using correct procedure*".

In the post-intervention survey, students discussed that the NCE was "*exactly what most placements need to consolidate skills*". The NCE was '*thorough with explanations and direction'* given, '*provided education to assist student learning', 'was a good person to ask questions of',* she gave good advice to improve skills, as well as ensuring that the skills and assessments were performed correctly. Students stated the NCE had added a new depth to their understanding, as she made the understanding of the importance of the task much easier, which made them perform the task more thoroughly, and that the NCE "*has reinforced my learning*".

Students stated that *"the Clinical Educator was paramount in ensuring that we had the opportunity to practice as many skills as possible",* which "*made it much easier to fulfil my practicum requirements*" and *"better preparing us for graduate programs post our degree".* One student commented "*I was able to perform some important skills with good support that I would not have been able to do otherwise*".

4.3.2.2.2 NCE allowing time for learning

The NCE allowing time for learning referred to the NCE being able to provide unhurried time, to enable the students to have time to learn how to work as a nurse in the clinical area. In the pre-intervention survey, the NCE was expected to have time dedicated to students, to allow students to carry out time-consuming tasks, providing time for effective learning and consolidation of skills. The NCE could take time to accommodate their learning and allow "*adequate time to appropriately obtain clinical skills"*.

In the post-intervention survey, this category included that the NCE spent more time with students than hospital staff, that this practicum was not like the hurried approach they have felt in the past, they had the benefit of the NCE having the time to go through a skill with them, so that they could take more time performing the skills, without feeling rushed. Students stated that the NCE allowed them time, "*so I could systematically work through the task at hand*", without worrying about "*performing tasks too fast and know we're possible making errors to the patient's detriment*".

4.3.2.2.3 Development of student confidence

A new category in the post-intervention survey, the development of student confidence referred to the growth and evolution of the student's self-assurance, believing in themselves and their abilities. Comments included *that the 'NCE's orientation started the practicum on a more confident note',* that they felt *'much more confident in their skills',* that the *'NCE had increased their belief in themselves and their ability to work competently within their scope of practise',* and *"I feel so much better equipped to tackle my next rotation at the Emergency Department*".

4.3.2.3 Impact on student experience

The theme of impact on student experiences on practicum refers to the encounters of attitude, behaviour, involvement, observations, communications, or sense that students had from the NCE towards their learning, whilst they were on practicum. In the pre-intervention survey, this theme contained two categories of 'NCE as a resource person' and 'NCE reducing stress and pressure on students'. In the post-intervention survey, this theme now contained three categories: the same two previously found, as well as a new category of 'valuable role to students'.

4.3.2.3.1 NCE as a resource person

The NCE as a resource person refers to the expectation that the NCE would be able to provide material for the benefit of the students, which could include written or verbal dissemination of information, disclosure, clarification or contact, that liaises between the university and hospital. In the pre-intervention survey, this category includes the benefits that the NCE had scheduled an almost "*full day of orientation to familiarise them with the hospital and equipment"*. The NCE would be a liaison for students, would "*support and advocate for students*", and would be someone to approach to solve any concerns or issues that students had. Other benefits included providing a support network, "*having someone helps us seek out learning opportunities*", ensuring our practicum provides us with the most opportunities as possible, whilst supporting students by "*checking on us regularly, ensure we're on the right track*".

In the post-intervention survey, the NCE as a resource person discussed the benefit that "*we had contact with our Educator every single day of our prac (sic)*", *that the NCE had worked at the hospital,* the NCE provided more orientation, was a liaison for the benefit of the students and provided opportunities. Comments included that the NCE ensured students were getting as much experience as possible, ensured that they were exposed to and undertook clinical skills and nursing practice that they could get signed off as competent, that the NCE felt the need to ensure that every student was doing well and up-to-date. Students stated that the NCE was available for asking questions about their practicum requirements, that the NCE had liaised for

increased opportunities for skill attainment in all clinical areas and the "*Educator ensured that each student had reached their requirements*" of their practicum.

4.3.2.3.2 NCE as a valuable role to students

A new category in the post-intervention survey, the NCE as a valuable role to students relates to the respect and appreciation of the role by the students. This category included comments such as ***the NCE was "by far the biggest strength" to the practicum,*** that having a NCE was such a wonderful practice, was paramount to their learning and that the "*Clinical Educator was such a big help and definitely appreciated*". Students stated that the NCE had helped them immensely in their practicum, was exactly what most practicums needed, and that they were "*not sure how prac (sic) would have gone without her".*

4.3.2.3.3 NCE reducing stress and pressure on students

The last category in both surveys was the NCE reducing stress and pressure on students. In the pre-intervention survey, this included suggestions that the NCE would take the pressure off students and preceptors, that the NCE would provide support through stressful situations, which would help them build confidence. One student stated that *the role would assist them with "performing procedures without too much pressure as compared to working with rostered staff*".

In the post-intervention survey, students felt that the NCE had decreased the pressure on them, demonstrated in comments such as "*she made us feel calm*" and the NCE took that stress off the students. Students stated it was reassuring to know the NCE was there and "*I was very, very nervous being my first prac (sic), this reassured me*".

4.4 Conclusion

The surveys sought responses from students regarding their preceptors, and also how they perceived the NCE role could assist them with their practicum at the hospital. The trend in surveys demonstrated a significant shift in students' perception of support by university staff and its impact on their learning experience from adequately supported to well supported. At the same time, students also reported

enhanced perceptions of the support offered by hospital staff. The surveys demonstrated a major shift in perceptions from adequately supported to reasonably or well supported with the NCE intervention, with student ratings of the changes in both of these as being better or much better than their traditional placements. After the NCE intervention, students felt that they were now taking much the same time as clinical staff when completing clinical skills, which was rated as better or much better than previously. Student rating of their stress and how rushed they felt when undertaking clinical skills also showed they felt less stress and less rushed, with ratings of both being better or much better after the NCE intervention.

Quantitative findings supported the qualitative findings with the content analysis of student responses related to preceptors and the NCE role producing the same three major themes of the students' clinical skill and knowledge development, impact on student experiences on practicum, and support to students, emerging in all surveys. The degree of relevance of each theme for the students changed depending upon the timing and focus of the survey, as well as whether they were discussing their preceptors or the NCE. The categories contributing to these themes were similar across both the pre-intervention and post-intervention surveys.

Student responses regarding their preceptors in both the pre-intervention and post-intervention surveys showed their clinical skill and knowledge development remained as the most relevant theme; followed by the impact on student experiences when on practicum; and then support to students. It was also seen that the NCE intervention role allowed for more student nurse placements at the hospital than previously provided. This combined with the responses from students, demonstrate that the NCE intervention had a very positive and valuable impact on the students' learning outcomes and the students' clinical placement experiences. The NCE enabled students' attainment of clinical skills, competence and confidence; as well as being a valuable resource person, providing a supportive learning environment, allowed students time to learn, which reduced the stress and pressure on them, made the practicum an enjoyable and meaningful learning experience.

This response from one student summarises the student responses: *The NCE "allows for growth in confidence and competence. Having (the NCE) on the ward to help us with our skills when our preceptors are busy has added a new depth to my*

understanding, as I never felt pressured to hurry through a skill, so I could systematically work through the task at hand (not like the hurried approach I have felt in the past). Having this 'time' has reinforced my learning and has enabled me to become more proficient".

Chapter 5. Findings from hospital nursing staff

5.1 Introduction

The previous chapter explored the students' perceptions of the NCE role as reflected in the findings from the surveys conducted prior to and following its implementation. This chapter will present the findings from the surveys from the perspectives of the clinical staff, with a particular focus on the staff' perceptions of the impact of the intervention role.

5.2 Hospital clinical nursing staff survey results

From a potential participant pool of 227 permanent clinical nursing staff (Table 5.1), the staff return rate was 34% *(n=77)* for the pre-intervention survey and 27% (*n=61)* for the post-intervention survey. Staff surveys were answered by registered nurses (RN), enrolled nurses (EN) and registered midwives (RM) at the hospital in both the pre-intervention and post-intervention surveys. Staff numbers include nurses working on permanent night shift, in theatre and other specialty areas, who have limited contact with students.

5.2.1 Hospital clinical nursing staff details

The following section details the demographics for the hospital clinical nursing staff in terms of their area of employment and the time that they were involved with students.

5.2.1.1 Areas of employment

Nursing staff were located within various clinical areas around the hospital (Table 5.1). Several nurses worked in or managed more than one clinical area, such as nurse unit managers (NUM), clinical (shift) coordinators (CC), hospital clinical educators (CNE), clinical nurses (CN) and staff learning and organisational development coordinator (LOD). Clinical staff precepted students who attended any of the areas in Table 5.1, with the exception of the LOD position, which coordinated the student practicum placements at the hospital and is shown as 'general'. Student

placements varied between clinical areas in both the number of students and the amount of time over the year that students were placed in the clinical area (Appendices D and L).

Table 5-1: The hospital's permanent clinical nursing staff numbers per clinical area

Clinical area	*NUM*	*CC*	*CN*	*CNE*	*RN*	*RM*	*EN*	*LOD*	*Total*
Surgical ward	1	1	3	1	30	0	10	0	46
Medical ward	1	1	5	1	18	0	7	0	33
Maternity ward	1	1	1	0	3	20	3	0	29
Palliative care ward	0	1	2	0	9	0	2	0	14
Community palliative care	0	0	2	0	2	0	0	0	4
Oncology unit	1	1	1	0	10	0	0	0	13
Renal unit	0	1	1	0	11	0	0	0	13
Day procedure unit (DPU)	0	1	0	0	6	0	3	0	10
Theatre/ Recovery unit	1	1	1	1	45	0	15	0	64
General	0	0	0	0	0	0	0	1	1
Total	**5**	**8**	**16**	**3**	**134**	**20**	**40**	**1**	**227**

As shown in Figure 5.1, over half of the staff who responded to the survey were employed as RNs (54%), with smaller numbers for CN (12%), RM (11%), EN (9%), CC (5%), CNE (4%), NUM (3%) and LOD (2%).

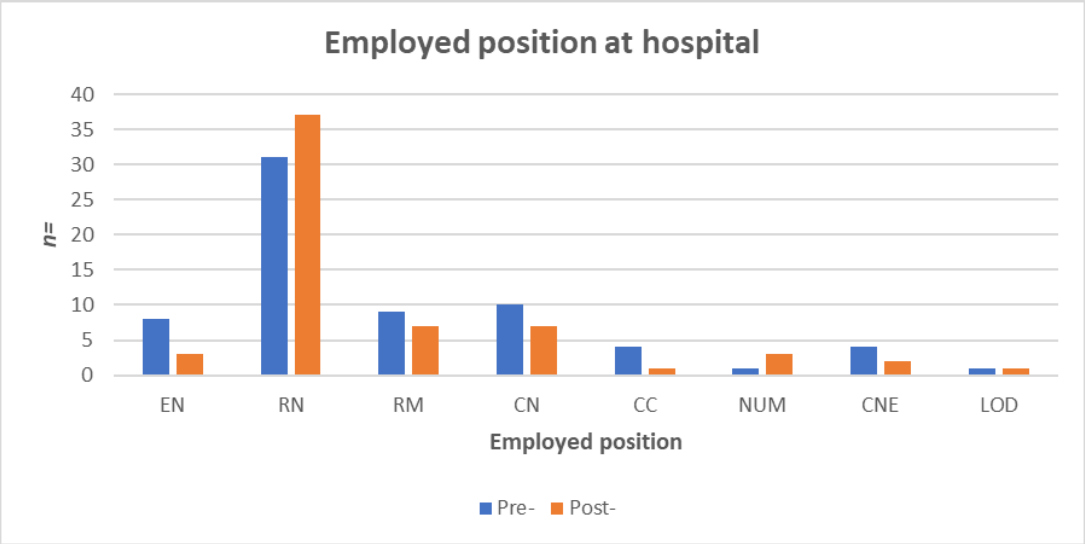

Figure 5-1: Respondents' employed position at the hospital

5.2.1.2 Time involved with students

The surveys sought responses regarding the time that staff spent with students on practicum, in the areas of overall time spent with students in any way, precepting,

directly supervising clinical skills, planning student rosters and orientating students (Tables 5.2 and 5.3). The survey did not ask staff how many hours respondents worked per fortnight, although as per the rosters (Appendix M), most staff worked part-time between 40-64 hours per fortnight. This became relevant in the context of the number of hours worked per fortnight, as in some cases the respondents' answers indicated that they dedicated most of their rostered hours to some aspect of student support.

The pre-intervention survey identified that 12% *(n=9)* of staff never spent time with students, whilst the mean overall time spent with students was 9-16 hours per fortnight and no staff spent the whole fortnight with students. After the NCE intervention, all staff spent time with students (i.e. there were no responses for never working with students), whilst the mean response had increased to 17-24 hours per fortnight spent with students and some spent up to 80 hours with students overall. Significantly, the NCE intervention appeared to increase the average overall time staff spent with students per fortnight.

In this study, precepting refers to the hospital nurse being 'buddied' one-on-one with a student, providing supervision and clinical instruction in the clinical area. Responses for time spent precepting students for the pre-intervention survey showed 27% *(n=21)* of staff spent 17 or more hours per fortnight precepting students. This changed considerably with the NCE intervention, with 42% *(n=25)* of staff spending greater than 17 hours per fortnight precepting students. Following the NCE intervention, staff time spent precepting students appeared to increase, with an average time spent of 9-16 hours. This may have been due to the increase in student numbers undertaking practicum at the hospital.

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Table 5-2: Percentages for hours spent with students per fortnight

Hours per fortnight	0 hr	≥0-8 hr	9-16 hr	17-24 hr	25-32 hr	33-40 hr	41-48 hr	49-56 hr	57-64 hr	65-72 hr	73-80 hr	Mean hours
Overall time % – pre-survey (*n=77*)	12	31	22	16	5	5	3	0	5	1	0	9-16 hr
Overall time % – post-survey (*n=61*)	0	23	23	13	11	11	5	3	5	3	2	17-24hr
Precepting % – pre-survey (*n=75*)	25	24	23	13	5	3	1	1	4	0	0	≥0-8 hr
Precepting % – post-survey (*n=61*)	13	20	26	20	10	5	2	3	0	2	0	9-16 hr

Table 5-3: Percentages for hours spent with students per shift

Hours per shift	0 hr	≤1 hr	1 hr	2 hr	3 hr	4 hr	5 hr	6 hr	7 hr	8 hr	Mean hours
Supervising skills % – pre-survey (*n=75*)	24	11	5	19	3	11	7	4	3	15	2 hr
Supervising skills % – post-survey (*n=59*)	10	17	5	10	12	15	14	7	0	10	3 hr
Planning rosters % – pre-survey (*n=74*)	81	9	1	0	5	3	0	0	0	0	0 hr
Planning rosters % – post-survey (*n=60*)	83	8	0	5	0	2	0	2	0	0	0 hr
First day orientation % – pre-survey (*n=76*)	47	20	8	8	3	11	1	0	0	3	≤1 hr
First day orientation % – post-survey (*n=59*)	54	20	10	5	3	5	0	0	0	2	≤1 hr

Direct supervision of clinical skills and patient care involves the nurse being physically in the presence of the student, observing the student's performance with clinical skills and patient care. Responses for the hours per shift that staff spent directly supervising students performing skills and patient care (not including notes, paperwork or clinical workbook), demonstrated that most staff increased their time supervising students, with a mean time increase from two hours in the pre-intervention survey, to three hours per shift supervising students.

The amount of staff spending time planning rosters decreased slightly between the pre-intervention and post-intervention surveys, with the majority of staff (81%, *n=60*) in the pre-intervention and 83% (*n=50*) in the post-intervention survey), indicating that they never spent time planning student rosters. Of the remaining staff who reported that they planned rosters, 10% *(n=8)* in the pre-intervention and 8% *(n=5)* in the post-intervention survey spent one-hour or less, with the remaining few respondents spending up to four hours in the pre-intervention survey, and up to six hours in the post-intervention survey.

Staff time spent on first day orientation decreased with the NCE intervention. Pre-intervention, 47% *(n=36)* of the staff responded that they never spent time orientating students, increasing to 54% *(n=32)* in the post-intervention survey. Staff who orientated students was similar between the pre-intervention and post-intervention surveys and varied up to eight hours, with most in the pre-intervention survey spending up to five hours and in the post-intervention survey up to four hours.

Despite the recorded increase in overall mean hours that staff indicated that they spent with students, staff reported that the overall time spent with students was either similar to the pre-intervention time or had decreased (Table 5.4). After the NCE intervention, when asked how the time spent performing different activities with students had changed, staff indicated that they felt they spent less time precepting, supervising skills, planning rosters and orientating students.

Table 5-4: How the time spent with students had changed

Hours per shift (%)	Much less time	Less time	About the same	More time	Much more time	Qualtrics mean	Related mean change
# allocated by Qualtrics for mean	1	2	3	4	5		
Overall time *(n=54)*	11	13	63	11	2	2.80	Less time
Precepting *(n=57)*	11	12	61	14	2	2.84	Less time
Supervising skills *(n=56)*	20	13	59	9	0	2.57	Less time
Planning rosters *(n=48)*	15	8	73	4	0	2.67	Less time
First day orientation *(n=51)*	14	8	76	2	0	2.67	Less time

The surveys had not asked staff how they perceived this change in time spent with students had impacted upon their workload, which would be relevant in the context of the qualitative findings of staff' perceptions of having the addition of a student to preceptor with their often-heavy workloads.

5.2.2 Staff support

The surveys also sought responses for the staff's perception of the support that they received from university staff and the areas in which staff sought support from the NCE.

5.2.2.1 Support from university clinical staff

Prior to the NCE intervention, 66% *(n=48)* of the staff felt adequately, reasonably or well supported by university staff, whilst 34% *(n=25)* felt poorly supported or not supported by university staff. After implementation of the NCE intervention, there was an overwhelming increase in perceived support, with 96% *(n=55)* of the staff now indicating they felt adequately, reasonably or well supported by university staff, whilst only 4% *(n=2)* felt poorly supported or not supported by university staff (Figure 5.2). This would suggest the implementation of the NCE intervention did enhance clinicians' perception of support from the university staff.

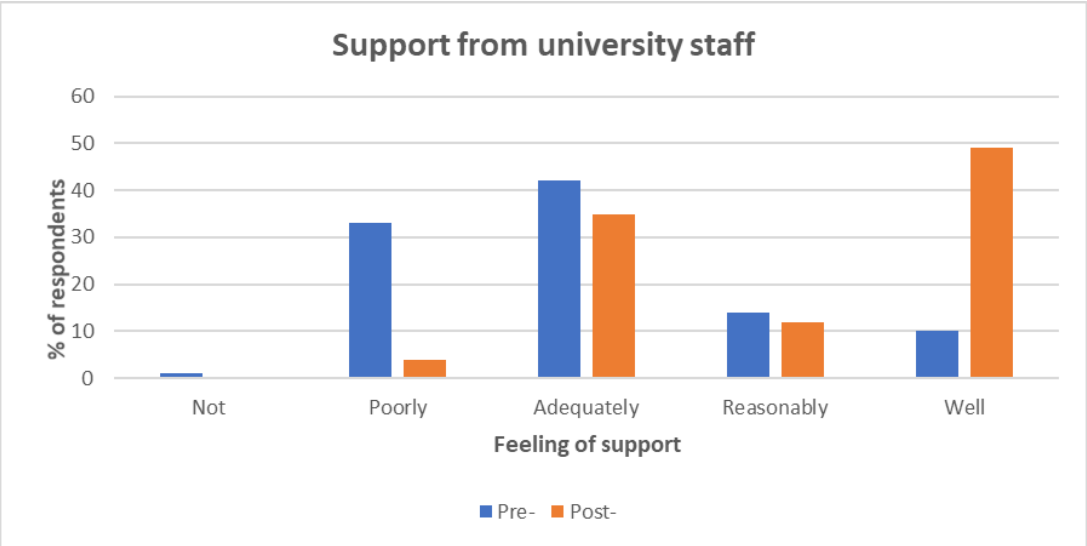

Figure 5-2: Staff feeling of support from university staff

Staff responses to how this had changed, indicated a significant change to much better support (Figure 5.3), with the mean average of the responses indicating 'better' (2.15).

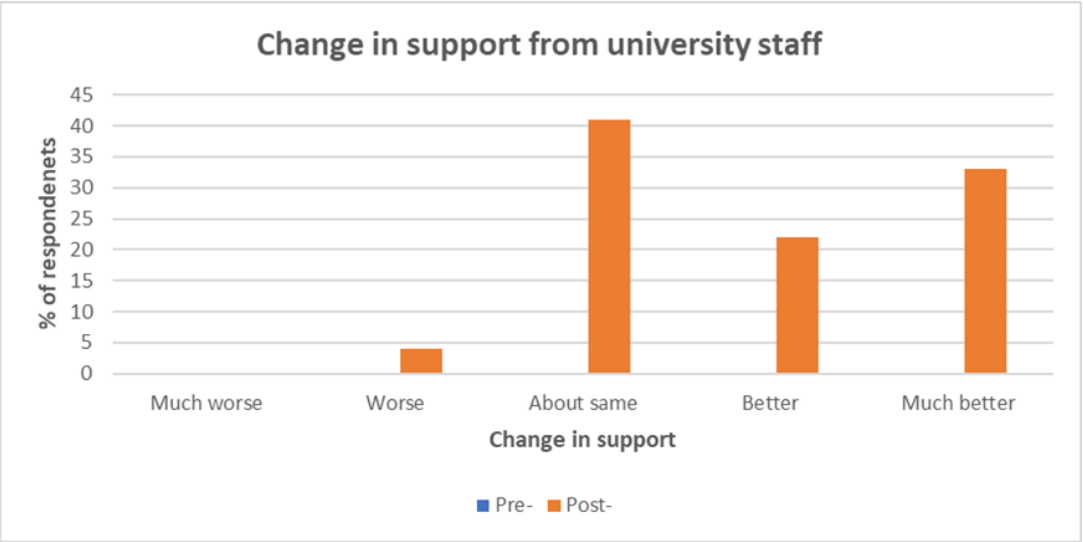

Figure 5-3: Staff changes in feeling of support from university staff

5.2.2.2 Support from NCE

Staff were asked to indicate in which areas of clinical practice they felt that support from the NCE might be helpful (Table 5.5). A list of skills which may be commonly needed was included in the survey. Areas in which staff responded that they would

like support from the NCE, were mainly in undertaking clinical skills and the administration of medications.

Nearly half 47% *(n=59)* of staff responses indicated that staff would appreciate support mostly with clinical skills, followed by 26% *(n=34)* specifically for assistance with medications, 15% *(n=18)* for orientation and 11% *(n=17)* for liaison between the hospital and university.

Table 5-5: Summary of tasks staff wished to be supported by the NCE

Support *n=*		*Pre n=*	*Pre n=*	*Post n=*	*Post n=*	%	*Total n=*	%
Orientation	Orientation	29	26	18	18	15.31	***44***	14.33
47	Admissions		3		0		**3**	0.98
Liaison	Rosters	18	16	17	16	11.40	***32***	10.42
35	Technique		2		1		**3**	0.98
Medication	Medications	47	47	34	33	26.38	***80***	26.06
81	Blood transfusion		0		1		**1**	0.33
Skills	Dressings	**85**	44	**59**	34	46.91	***78***	25.41
144	Pt obs		18		9		***27***	8.79
	Pt hygiene		11		8		***19***	6.19
	Time-cons/ first-time skills		0		5		**5**	1.63
	All skills		4		0		**4**	1.30
	Drains		1		2		**3**	0.98
	Time/ pt management		2		1		**3**	0.98
	IDC		2		0		**2**	0.65
	AM shifts		1		0		**1**	0.33
	Post-op		1		0		**1**	0.33
	Airway management		1		0		**1**	0.33
307		**179**	**179**	**128**	**128**	**100**	**307**	**100**

5.3 Findings from staff' responses to open-ended questions

Staff were asked to give responses to open-ended questions within the survey, to provide greater understanding of their experiences and perceptions of both the time they spent with students on practicum and the contribution of the NCE intervention to their experiences when students are on practicum. The same open-ended questions were asked in the pre-intervention and post-intervention surveys.

Content analysis was performed on the data obtained from the staff responses to open-ended questions at the end of each survey, as for the student surveys. Findings from this aspect of the surveys are discussed below.

5.3.1 Preceptors perception of students

Nursing staff were asked to comment on anything relevant to the time that they spent with the university's students on practicum at the hospital, in undertaking clinical skills and patient care. In the pre-intervention survey, a total of 38 (49%) staff responded to this question, with comments producing 115 codes within eight categories. Nearly half of the staff' comments were related to students' clinical skill and knowledge development, whilst the balance of responses were mainly regarding the impact students had on staff' experiences (Table 5.6).

Table 5-6: Summary of staff experience with students – before NCE intervention

Ranking	Category	Code count	Percentage	Theme
1	Standard of clinical skills and knowledge	35	30.44	Students' clinical skill and knowledge development
2	Communication between university and hospital staff	21	18.26	Impact on staff experiences
3	Preceptor workload	13	11.30	Students' clinical skill and knowledge development
4	Staff experiences	13	11.30	Impact on staff experiences
5	Student's attitude and behaviour	12	10.43	Impact on staff experiences
6	Support for students	9	7.83	Support for staff and students
7	Students require time	6	5.22	Students' clinical skill and knowledge development
8	Support for staff	6	5.22	Support for staff and students
Total		115	100.00	

In the post-intervention survey, a total of 42 (69%) (staff responded to this question, producing 99 codes within eight categories (Table 5.7). Similar to the pre-intervention survey, just over half of the staff' comments were about students' clinical skill and knowledge development, whilst most of the balance of responses were regarding the impact that students have on staff experiences.

Table 5-7: Summary of staff experience with students – after NCE intervention

Ranking	Category	Code count	Percentage	Theme
1	Standard of clinical skills and knowledge	35	35.35	Students' clinical skill and knowledge development
2	Student's attitude and behaviour	15	15.15	Impact on staff experiences
3	Staff experiences	12	12.12	Impact on staff experiences
4	Communication between university and hospital	9	9.09	Impact on staff experiences
5	Students require time	9	9.09	Students' clinical skill and knowledge development
6	Support for staff	9	9.09	Support for staff and students
7	Preceptor workload	6	6.07	Students' clinical skill and knowledge development
8	Support for students	4	4.04	Support for staff and students
Total		99	100.00	

In the pre-intervention survey, staff' perspectives of students fell into three major themes: 'students' clinical skill and knowledge development' (46.96%); 'impact on staff experiences' (39.99%); and 'support for staff and students' (13.05%). After the intervention, the staff' perspectives fell into the same three themes in the same order: 'students' clinical skill and knowledge development' (50.51%); 'impact on staff experiences' (36.36%); and 'support for staff and students' (13.13%). The highest-ranking category also discussed the students' standard of clinical skills and knowledge.

5.3.1.1 Students' clinical skill and knowledge development

The theme of students' clinical skill and knowledge development refers to the clinical skills, knowledge, competencies and confidence that students were expected to develop as a nurse in the clinical area. In the pre-intervention survey, this theme included the three categories of 'standard of clinical skills and knowledge', 'preceptor workload' and 'students require time'. In the post-intervention survey, this theme included the same three categories as the pre-intervention survey, but in a different priority of 'standard of clinical skills and knowledge', 'students require time' and 'preceptor workload'.

5.3.1.1.1 Standard of clinical skills and knowledge

The category of standard of clinical skills and knowledge referred to the level of clinical nursing skills, comprehension, experience and patient care that was attained by students. In the pre-intervention survey, staff comments acknowledged that students usually had a good understanding of their scope of practice and were keen to learn. Several preceptors felt that the students had not received enough practice in skills prior to attending placement, which was reflected in their time management ability and confidence with some basic skills. Staff felt that students would benefit from greater direct supervision with skills, to enable them to develop clinical skills and gain knowledge from the preceptors.

In the post-intervention survey, staff commented on differences in clinical areas within the hospital to offer students the ability to practice and acquire more skills. Students with decreased confidence were found to require more nurturing, developing and consolidating of their learning. Staff commented that some students in their final practicums were not taking opportunities to take a full patient load, or more complex patients, and felt that these students should be allocated a lower number of patients who required more complex care, to further their skills. Some staff commented that students who were rostered on night shift had less exposure to opportunities for multidisciplinary communication and skills of benefit for their learning. Students' clinical skills were deemed to be of a high standard, with staff stating that it was rewarding to see the knowledge gained and that "*the students seem to be very confident and efficient in general."*

5.3.1.1.2 Students require time

The category of students requiring time meant the amount of time in a working shift that preceptors needed to spend with students, supervising them in undertaking nursing care or clinical skills. Before the NCE intervention, staff indicated that they were unable to supervise students effectively or give students as many learning opportunities as possible, due to time constraints and heavy patient loads, as students were slower at undertaking nursing care and that educating students to an appropriate level means each task took longer to complete. Staff recommended that consideration be given for the NCE or presence of nurse educators to be available to

assist students with learning experiences. Suggestions were made for *"... preceptors (to) take less demanding patient load to spend time/ energy with students - or full-time educator to assist students with learning*."

After the NCE intervention, the category of students requiring time included that as well as being slower than their preceptors in performing skills, some students required a lot of time to be spent with them to develop skills and confidence. Students with poor skills and decreased confidence take extra time to explain rationales for decisions and manage poor performance. Staff stated that they would like to spend more time with each student to be able to meet students' educational needs.

5.3.1.1.3 Preceptor workload

The preceptor workload category referred to the precepting staff members' assigned work which included: nursing duties, clinical care, documentation, student supervision and a high level of work expected to be completed on any shift. In the pre-intervention survey, staff stated that they tried to provide a supportive learning environment, however sometimes students were left lingering due to staff workloads, and that staff required more supervision time, to better assist students. Many staff commented on the busyness of the wards, heavy patient loads, low staff numbers, and how this workload is compounded by student supervision. Staff suggested that preceptors be allocated quarantined time in their workloads for student supervision.

Similarly, in the post-intervention survey, the preceptor workload category recognised that staff precepting students also had a patient load and/ or leadership role. Consequently, when patient numbers or acuity were higher, preceptors were often too busy for student learning or support, sometimes they felt *'burnt out'*, and they were worried that this would contribute to a negative experience for students. Staff felt that sometimes they needed respite from students, to get on top of their workload again.

5.3.1.2 Impact on staff experiences

The theme of impact on staff experiences refers to the effect that encounters with students or university personnel had on individual staff and the relationship between them, including the person's attitude, behaviour, involvement, or communication. In the pre-intervention survey, three categories were identified under

this theme: ‘communication/ liaison between university and hospital’, ‘staff experiences’ and ‘students’ attitude and behaviour’. In the post-intervention survey, the same three categories were identified, but in a different order of: ‘students’ attitude and behaviour’, ‘staff experiences’ and ‘communication/ liaison between university and hospital’.

5.3.1.2.1 Students’ attitude and behaviour

The students’ attitude and behaviour category refers to the students’ actions, involvement, communications, or expressions that they conducted themselves with when they were on practicum. In the pre-intervention survey, staff commented that most students were enthusiastic, motivated, eager to participate and that there had been some exceptional students. In contrast, comments suggested that some students appeared lost, stood back too much or were unwilling to be involved. This was demonstrated by students using their mobile phones in the clinical area or completing practicum documentation requirements, instead of involving themselves with hands-on clinical skills. Staff also requested that only those students who wished to undertake practicum in specialised areas, to be placed in those areas.

In the post-intervention survey, staff commented that most students demonstrated an eagerness to learn and strove to be independent, were willing to help, and were generally efficient in managing their patient care. Other students were found to be very timid and it was felt that some needed to work on their communication skills and courtesy. Similar to the pre-intervention survey, some staff felt that students were not engaged, some students spent too much time on practicum documentation requirements, whereas they needed to spend more time working hands-on.

5.3.1.2.2 Staff experiences

The staff experiences category relates to the staff impact of students’ or university personnel’s actions, attitude, behaviour, involvement, or communication, had on individual staff and the relationships between them. In the pre-intervention survey, this included positive commentary that precepting students assisted those involved with them, to keep up-to-date with current practices. Several staff requested for students to be rostered on with the same RN as often as possible, for continuity for both staff and student.

In the post-intervention survey, the staff experiences category discussed how some students needed lots of assistance with developing clinical skills and knowledge precepting, and that sometimes nurses dreaded going to work with the perpetual increased workload with students. Comments suggested that precepting students was beneficial to the clinical practice of staff, as it encouraged preceptors to be more thorough with patient care and pay attention to detail in patient care.

5.3.1.2.3 Communication between university and hospital

The category of communication between university and hospital staff refers to any written or verbal facilitation of information, clarification or contact between the staff at the university and hospital. In the pre-intervention survey, staff comments reflected the need for more communication on all levels, particularly when university personnel intervened in student placements. Staff were often unclear of students' skill and ability level, or when students could be expected to be placed on the ward. They sought preceptor education, as well as clear, accessible guidelines from the university, regarding what students were allowed to do. Staff also requested for pre-reading to be available if students were being placed in specialised areas, to assist with a smooth transition to the clinical area.

In the post-intervention survey, staff comments advocated strongly for students to be allocated to a designated preceptor and not just to an area; to ensure that students brought their objectives for the practicum with them; and for university staff to have meetings with the preceptors when students required mediation, and not just with the students. Staff appealed for greater collaboration between university clinical staff and preceptors in the interest of *"…forming relationships between student nurses and (hospital) staff for future."*

5.3.1.3 Support for staff and students

The support for staff and students theme refers to assistance, supervision, encouragement or guidance that staff or students received, whilst students were on practicum in the staff working environment. In the pre-intervention survey, the support for staff and students theme included the two categories of 'support for students' and 'support for staff'. In the post-intervention survey, this theme included the same two categories in reverse order.

5.3.1.3.1 Support for staff

The category of support for staff refers to the support that staff received to assist them with the role of precepting whilst students were on practicum. Pre-intervention survey comments indicated dissatisfaction with the hospital educator role which was intended to support hospital staff and not university students. Most staff requested for more support be available for them whilst they were precepting students. Many staff specifically indicated that the physical presence of an educator to support preceptors and provide them with regular education would empower them.

In the post-intervention survey, staff commented on the difficulty for shift coordinators to undertake their supervisory role whilst preceptoring students. Other staff discussed feeling 'burnt out', particularly when continually having a student each shift. Staff requested some respite from students and the busy workload as *"not all shifts go well and it is too much to preceptor as well",* therefore staff needed a break sometimes, *"to get on top of the workload again."*

5.3.2 Nursing Clinical Educator

The second open-ended question asked staff to comment on how they perceived the role of the NCE could assist them with supervising the university's students at the hospital. In the pre-intervention survey, a total of 37 staff responded to this open-ended question, with staff comments producing 155 codes within nine categories. Before the commencement of the NCE role, over forty percent of the staff' comments were about how the NCE role would enable students' clinical skill and knowledge development, whilst the remaining responses were divided between the support that would be provided and the impact that the NCE role would have on staff experiences (Table 5.8).

Table 5-8: Summary of staff expectations of NCE role – before NCE intervention

Ranking	Category	Code count	Percentage	Theme
1	Students' clinical skills and knowledge development	36	23.24	Students' clinical skill and knowledge development
2	Being available	26	16.77	Support for staff and students
3	Collaboration between university and hospital	26	16.77	Impact on staff experiences
4	Support for staff and students	21	13.55	Support for staff and students
5	Allowing time for student learning	18	11.61	Students' clinical skill and knowledge development
6	Preceptor workload	10	6.45	Students' clinical skill and knowledge development
7	Student's attitude and behaviour	6	3.87	Impact on staff experiences
8	Reducing stress and pressure on staff and students	6	3.87	Impact on staff experiences
9	Valuable role to staff and students	6	3.87	Impact on staff experiences
Total		155	100.00	

In the post-intervention survey, a total of 50 staff responded to this question, with comments produced 278 codes within ten categories (Table 5.9). After the NCE role intervention, just over one-third of the staff' comments were about the impact that the NCE role had on staff experiences, with similar for the support that the NCE role provided to staff and students, whilst the balance of responses discussed how the NCE role enabled students' clinical skill and knowledge development.

Table 5-9: Summary of staff experience with NCE role – after NCE intervention

Ranking	Category	Code count	Percentage	Theme
1	Being available	57	20.50	Support for staff and students
2	Collaboration between university and hospital	48	17.27	Impact on staff experiences
3	Support for staff and students	41	14.75	Support for staff and students
4	Students' clinical skills and knowledge development	28	10.07	Students' clinical skill and knowledge development
5	Allowing time for student learning	28	10.07	Students' clinical skill and knowledge development
6	Preceptor workload	22	7.91	Students' clinical skill and knowledge development
7	Valuable role to staff and students	21	7.55	Impact on staff experiences
8	Reducing stress and pressure on staff and students	12	4.32	Impact on staff experiences
9	Staff experiences	12	4.32	Impact on staff experiences
10	NCE's attitude and behaviour	9	3.24	Impact on staff experiences
Total		278	100.00	

The nine categories of staff' perspectives of the NCE role in the pre-intervention survey fell into three major themes: 'students' clinical skill and knowledge development' (41.30%); 'support for staff and students' (30.32%); and 'impact on staff experiences' (28.38%). In the post-intervention survey, there were ten categories, which fell into the same three major themes as previously, however the themes were in a different order of significance of: the 'impact on staff experiences' (36.70%); 'support for staff and students' (35.25%); and 'students' clinical skill and knowledge development' (28.05%). The highest-ranking category discussed the NCE being available.

5.3.2.1 Impact on staff experiences

In the pre-intervention survey, four categories were included in the impact on staff experiences theme: 'collaboration between university and hospital', 'students' attitude and behaviour', and 'reducing stress and pressure on staff and students'. In the

post-intervention survey, the same four categories were reflected together with a new category of 'staff experiences' although their order of significance had changed.

5.3.2.1.1 Collaboration between university and hospital

The category of collaboration between university and hospital refers to the partnership, association, or joint effort of communication that provides liaison between the university and hospital. In the pre-intervention survey, staff commented that the university staff did not traditionally pass on information that was relevant to students, such as practicum expectations or remediation processes, to the staff responsible for the students. Staff expected that the NCE role would improve communication regarding students, between the university and hospital. Staff suggested that the NCE role would work closely with each clinical area, and ensure frequent communication with preceptors, to monitor students and staff needs. Staff comments requested provision of an information package for staff outlining duties the students could perform while on practicum, and for staff education on what staff can do to assist students. It was also anticipated that the NCE could communicate any issues with students to staff, as well as assist staff with dealing with any difficult students, as the NCE knew the students and could assist the staff, as the NCE was "*someone to see problem and can fix them before student has to be failed."*

After the NCE intervention, staff post-intervention comments indicated that the NCE was very knowledgeable and was a point of reference for staff and students. Staff commented on the benefits that the NCE as a university delegate who had experience in both the university and the hospital setting and could therefore establish strong ties between the hospital and the university. The NCE provided knowledge to staff regarding the expectations of what students can do at each stage, which staff stated had not been clear previously. Staff comments requested further preceptor training around students' scope, expected progress, and what was expected of a preceptor. As one nurse commented, *"nurses do not have the time to lay ground work or assist with smooth transition from Uni to clinical practice in hospital setting".*

5.3.2.1.2 Reducing stress and pressure on staff and students

Reducing stress and pressure on staff and students relates to decreasing the mental weight or significance of a burden for staff or students, due to the requirements

of practicum. In the pre-intervention survey, staff comments were all positive, including expectations that students would be able to perform skills without being pressured or rushed, and that the NCE would *"take pressure off of preceptors by taking students to do tasks that take considerable time."*

This was similar to the post-intervention survey where comments included that the NCE *"had reduced the burden of the LOD coordinator"*, had taken pressure and stress off the nurses, that having the NCE to be with the students for the more time-consuming tasks, allowed the students to not feel pressured or rushed, and that having the NCE *"alleviates the stress of ensuring students have a meaningful learning experience, as she is able to take some of the burden".*

5.3.2.1.3 Staff experiences

Staff experiences was a new category in the post-intervention survey, referring to the staff encounters with the NCE's contributions, involvement, or communication involving staff had whilst students were on practicum. Comments referred to the changing role of the hospital educators who were relieved from undertaking student practicum management and were now able to focus on education of clinical staff. Preceptors expressed satisfaction with the support from the NCE role, with one comment stating, "*I am much happier to take students now*".

5.3.2.2 Support for staff and students

The support for staff and students theme included two categories for both the pre-intervention and post-intervention surveys, with a category of 'being available' included with 'support for staff and students', in the same relevance for both surveys.

5.3.2.2.1 NCE being available

The category of being available refers to the NCE being accessible and available to support students, due to the supernumerary nature of the role. In the pre-intervention survey, staff comments indicated an expectation that with the supernumerary nature of the NCE, students would have greater accessibility to that individual for supervision, support and assistance. Staff comments expressed concern that it would be difficult for the NCE to be available to various clinical areas at the

same time. Staff commented that full-time support may prevent students missing out on learning experiences.

Post-intervention surveys reflected the benefits of the NCE being available as an extra person for the students to gain support and supervision. that NCE is much more present on the ward to assist and oversee students with nursing responsibilities. Staff comments suggested there would be benefits with additional NCEs, as there were times when multiple students were requesting the NCE's assistance at the same time.

5.3.2.2.2 Support for staff and students

The category of support for staff and students refers to the assistance, supervision, encouragement or guidance that staff or students received from the NCE whilst students were on practicum. In the pre-intervention survey, staff suggested the NCE would provide the students with support and clinical supervision, so there would be a thorough and supportive learning environment for students. The NCE was expected to assist preceptors, as "*having someone on the floor with students more of the time will take pressure off nursing staff and give students more support, therefore improving education experience*."

After the NCE intervention, post-intervention staff comments suggested that the role had supported both staff and students. and that the NCE had provided "*valuable assistance in supporting the team when having (university) students."* Staff comments stated that the NCE provided support on the floor, regularly checked on students throughout the shift and supported staff in providing patient care and developing supervision skills. The NCE assisting with supervision of students was seen to benefit students, as it allowed students to feel a lot more supported and guided, especially when the ward was busy, and that "*this year (university) students have felt well supported and have been able to enjoy their pracs (sic) more*".

5.3.2.3 Students' clinical skill and knowledge development

In both the pre-intervention and post-intervention surveys, the theme of students' clinical skill and knowledge development' included the same three categories in the same order of relevance as: 'students' clinical skills and knowledge development', 'allowing time for student learning' and 'preceptor workload'.

5.3.2.3.1 Students' clinical skills and knowledge development

The category of students' clinical skills and knowledge development referred to the students' attainment of clinical nursing skills, comprehension and experience to an accepted theoretical and practical competency level for their stage of learning. In the pre-intervention survey, staff comments expressed expectations that the NCE would be able to help students plan their day to undertake full patient care, enable students to also achieve their competencies and provide them with a better understanding and knowledge of the clinical areas. Comments also indicated expectations that the NCE would be able to assist with morning medication rounds, administration of intravenous antibiotics [IVAB] and injectable medications; as well as skills that take time to perform, such as drain removal, dressings, and peripherally inserted central catheter [PICC] dressings; indwelling catheter [IDC] insertion, patient handovers, documentation, or for assessment of clinical skills. One staff member commented that the benefit of the NCE would be "t*o have someone to teach students basic skills and those things that are specific to (the hospital) so that the RN role becomes more supervisory, and students are able to do more tasks that they need to learn."*, and another that the NCE "*would assist with giving the (university) students thorough training and giving them the correct training they need, without being rushed."*

After the NCE intervention, staff comments in the post-intervention surveys reflected the benefit of the NCE in assisting to complete tasks with students the *'university way',* particularly for students whom were completing tasks for the first-time, or for procedures requiring checking of policies. Staff found the NCE beneficial in enabling students to undertake skills which require extra time, such as dressings, complex dressings, removal of drains or stitches, administration of blood transfusions, medication administration; and assistance with skills and paperwork. Staff commented that the NCE provided students with plenty of resources to ensure they use the opportunities that presented themselves effectively, help them apply the theory to practice, was able to go through the skills with students in a thorough way, made the students feel confident, and had assisted by educating and assessing students.

5.3.2.3.2 Allowing time for student learning

The category of allowing time for student learning means granting time during a working shift with students, to supervise them in undertaking the clinical skills, competencies, documentation and patient care. In the pre-intervention survey, staff comments suggested that students needed more time to spend on clinical skills, which preceptors were not able to provide due to their clinical workload. The NCE was expected to spend time with students for time-consuming skills, which *"gives the students time to learn without feeling pressured by time and nursing duties"*, so that students did not have to rush their skills.

Comments in the post-intervention surveys, staff suggested that the NCE was able to provide one-on-one time for students learning, to teach practical skills and enable them to enhance their learning experience. This was seen to be particularly beneficial for undertaking time-consuming tasks with students, or for students who took longer to learn, as the NCE could work with students who were struggling to achieve their practicum requirements. This enabled the student to take their time doing their task without feeling rushed, as the NCE ensured that there was *"someone always there for students"*.

5.3.2.3.3 Preceptor workload

The pre-intervention survey comments suggested that the NCE would be beneficial to preceptors when the ward was very busy or under-staffed, to enable students to complete their skills. Staff suggested that *"having the Clinical Educator present ensures that students can gain experience without being pressured to hasten the speed of the task they are undertaking, and hereby help, rather than hinder my workload."*

Staff comments following the post-intervention survey suggested that the NCE was beneficial especially when the ward was busy, when shift coordinators had a patient load as well as a student, or when "*things go pear-shaped*". The NCE was seen to reduce the work load for everyone involved with students, by providing *"support for clinical skills when acuity is high so that adequate time is spent with student"*.

5.4 Conclusion

The survey sought responses from staff regarding the time that staff spent with students on practicum; as well as how they perceived the role of the NCE could assist them with the university's students at the hospital, to ensure students had opportunities to obtain meaningful experience and fulfil the practicum requirements of their courses.

The same three major themes of 'students' clinical skill and knowledge development', 'impact on staff experiences' and 'support for staff and students' emerged in all surveys; however, the degree of relevance of each theme for the staff, differed between the surveys. Staff responses regarding the students in both the pre-intervention and post-intervention surveys showed 'students' clinical skill and knowledge development' remained as the most relevant; followed by 'impact on staff experiences'; and then 'support for staff and students'. The relative importance (or relevance) of the categories changed depending upon the timing and focus of the survey.

Quantitative data supported the qualitative findings with the trend in surveys showing a significant shift of staff support from university staff from 'poorly supported' to 'well supported' over the duration of the intervention; with a request for NCE support with students' clinical skills, medication administration, student orientation and collaboration/ liaison. In the qualitative responses, there was demonstrated appreciation for the support the role was able to provide for both students and preceptors.

The NCE was seen to support staff with an already heavy workload. It reduced stress and pressure on staff by supporting students undertaking skills and relieving the supervisory workload of preceptors. The role also facilitated collaboration between the university and the hospital staff to enable the appropriate management of struggling students. The supernumerary nature of the NCE role enabled them to be available when needed by students, and able to provide time for student learning. Staff comments can be summarised with the following respondents' comments: *"Having the ECU Clinical Educator is an absolute necessity. She has been able to ease the workload for everyone involved with students from rostering to orientation and clinical teaching".*

These last two chapters have outlined the findings of the research study. The following chapter will provide a discussion of these findings, within the context of contemporary literature.

Chapter 6. Discussion and conclusion

6.1 Introduction

This chapter discusses how the findings from this research addresses the study objectives and research question, situating the discussion within the context of contemporary literature. Students and staff contributing to this study demonstrated satisfaction with the NCE support intervention and its impact on the clinical practicum experiences and its outcomes. The data from this study has shown the main impact of the NCE role has been upon stress and time. Stress has been reduced for both students and preceptors. There has been an increase in time available for skill development for the students. There was a concurrent increase in available time for the preceptors on the wards to undertake their clinical responsibilities. This in turn led to more time for preceptors to assist students, less time taken by students to undertake skills, increased student' confidence, and reduced stress for everybody.

The chapter begins with discussion of what the findings have revealed about the impact of the NCE role upon the students' learning outcomes (knowledge and skill development). Next, the impact of the NCE support intervention upon students' and preceptors' experience of the clinical practicum is explored. This is followed with a discussion on the conclusions reached and the recommendations made related to these conclusions. The implications for practice follow and the chapter closes with acknowledgement of the strengths and limitations of this research.

6.2 Discussion

The implementation of the NCE intervention role was found to enhance student learning outcomes, as well as improve students' and hospital staff' experiences.

6.2.1 Impact of NCE on students' learning outcomes

One aim of the study was to learn what impact the NCE support intervention had on the students' learning outcomes. The NCE intervention was found to impact students' learning outcomes by developing students' skill and knowledge through

enabling additional time for student learning, providing more opportunities to develop and practice more skills, whilst providing education and feedback, and decreasing the time taken for students to complete their clinical skills.

6.2.1.1 NCE's availability allowing time for student learning

The major contribution of the NCE intervention related to its supernumerary nature. Students discussed that the benefit of the NCE's availability in a supernumerary capacity meant that the NCE was always available to contact, providing students with the assurance that assistance was available when needed. Similar to other studies, the supernumerary nature of the NCE role made them easily available to provide students with support and assistance to undertake tasks and enhance their learning (Courtney-Pratt et al., 2012; Delunas & Rooda, 2009; Henderson & Tyler, 2011; Nishioka et al., 2014b; Sanderson & Lea, 2012). The supernumerary nature of the role enabled the NCE to be present on the ward to supervise students with nursing tasks, without students having to wait or find a nurse, which is usual in traditional models. This was also found in several other studies (Nishioka et al., 2014a, 2014b; Sanderson & Lea, 2012). This study adds to the known data as it evaluates the impact of the supernumerary role on student learning outcomes and student and preceptor experiences.

Similar to studies by Courtney-Pratt et al. (2012), Henderson and Tyler (2011) and Raines (2012), preceptors in this study felt that patient care took longer when supervising students, due to the time required to provide explanations and the inexperience of the students requiring them to perform procedures at a slower rate than experienced staff. Gleeson (2008) discussed preceptors' time constraints due to the busy ward environments, as a highly significant factor inhibiting preceptors in facilitating student learning. Preceptors in this study stated that some students require a lot of time to be spent with them, were very slow, or took longer to learn, and that students with decreased confidence needed more time. This study was similar to Henderson and Tyler (2011) study, in finding that students are notorious for requiring substantial time to perform skills whilst learning, and the preceptor is required to manage their workload as well as supervising a student. The NCE supported the preceptor with their workload, by taking the student to perform clinical activities,

thereby significantly relieving the impact for the preceptor to take the time with students.

Students understood that preceptors often had heavy patient loads, which impacted on their ability to provide time to explain concepts and complete tasks with them. Like other studies, the heavy workload of preceptors, meant that students were often rushed to complete tasks with preceptors, which did not allow time for them to develop confidence in undertaking skills (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011). Students requested that the time that they "*take to do skills really needs to be taken into account*" and this was also reflected in the staff comments. Staff stated that they would like to spend more time with each student, however they did not always have the time to educate students.

Students found the supernumerary role of the NCE allowed them time for learning, which was similar to Henderson and Tyler (2011) study. The NCE was able to spend more time with them than hospital staff and students found this practicum was unlike the hurried approach they had in the past, as the NCE had the time to go through skills with them, enabling them to systematically work through their task, without feeling rushed. The NCE reduced the pressure of time for students, as they were not stressed with performing tasks too fast or under pressure, knowing that they were possibly making errors to the patient's detriment. This is not the first time that students or graduates have been concerned with patient safety being compromised by nursing or medical actions in the busy clinical environment (M. Murray, Sundin, & Cope, 2019).

The NCE spent time teaching the students practical skills, utilising teaching strategies to focus on specific learning needs, going through the skills with students in a thorough way, ensuring adequate time was spent with students for them to learn, which was particularly beneficial for supervising time-consuming tasks with students, or for students who took longer to learn. Staff also stated that the NCE worked with students who were struggling, which the ward staff did not have time to do, therefore the students could take their time doing their task without feeling rushed, and the benefit of the NCE to ensure that there was "*someone always there for students when shift is busy and nurses are unable to spend as much time with them as they would like".*

6.2.1.2 Providing opportunities to practice skills

The development of learning in healthcare settings is influenced by how students participate and learn, the social culture of the workplace, tensions that exist, and the ability of preceptors to maximise the sharing of knowledge and the subsequent learning, requiring all three elements for students to engage in learning (Newton et al., 2011). As found in Houghton et al. (2013) and Ralph, Walker, and Wimmer (2009) studies, students commented that although valuable learning opportunities were available in the clinical environment, opportunities for learning were lost when the ward was busy, if preceptors preferred to do the skills themselves or were not offering tasks for students to do, or when students were assigned trivial tasks that did not further their development. This in turn added stress for students.

Similar to supernumerary roles in other studies, the NCE enabled the students to practice more skills by providing supervision time, enabling them to provide increasing care to their allocated patients (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011; Nishioka et al., 2014b; Sanderson & Lea, 2012). The NCE also assisted students to achieve proficiency in clinical skills by enabling them to practice a variety of skills multiple times, whilst providing feedback for improvement, making it less stressful for them to fulfil their practicum requirements. Like other studies, the NCE provided focussed learning with each student, assisting them to apply critical thinking skills, and obtain a complete picture of nursing (Nishioka et al., 2014a, 2014b; Sanderson & Lea, 2012). This allowed for reinforcement, engagement and continuous assessment of student learning, whilst also allowing staff to concentrate their time on essential patient care (Sanderson & Lea, 2012). This ensured that students had opportunities to obtain meaningful learning experience, assisted them to better determine agreed outcomes for their patients and enhanced their ability to work competently within their scope of practice. Findings from the study indicated that without the NCE, student learning would have been reduced greatly, as the NCE was paramount in ensuring that students had the opportunity to practice as many skills as possible, better preparing them for their graduate programs after they completed their degree. There were, of course, a few occasions of difficulties for students due to the high ratio of students to NCE, which resulted in a few lost opportunities for learning, as some procedures could not wait for the NCE to be available. This could be rectified with lower student to NCE ratios, however this may be cost-prohibitive.

Students also attributed their learning and competence to the provision of opportunities for learning, which enabled them to find strategies to meet their learning objectives and needs (Courtney-Pratt et al., 2012; Dobalian et al., 2014; Henderson & Tyler, 2011; Nishioka et al., 2014b). Similar to Courtney-Pratt et al. (2012), students stated that the NCE ensured their exposure to different areas of practice and provided guidance and direction to achieve their goals, supporting their understanding of the importance of linking practice to theory. In this study, students also reported a greater understanding of working in the clinical environment; achieving competence and confidence in clinical skills and documentation. This was also found in Courtney-Pratt et al. (2012) study, which created positive experiences with supervision, practicum experience and reducing theory-practice gap; students felt a sense of belongingness; developed self-confidence, skill and knowledge acquisition and professional independence.

Students felt that the NCE looked for opportunities to benefit the students' development, ensured students were exposed to a variety of skills, enabled students to gain as much experience as possible, and made sure all students practiced the skills that they required. Other studies have also found that supernumerary roles had ensured that students were exposed to a variety of skills, enabling the students to achieve their skills, and critical thinking with confidence (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011; Sanderson & Lea, 2012).

Students stated that the NCE having updated skills, being very knowledgeable, well prepared and a great and thorough teacher, had helped them immensely on their practicum, and made their practicum experience a very productive and enjoyable opportunity that they learned a lot on. Interestingly, most students also rated their time taken to complete clinical skills after the NCE intervention, as better or much better, than compared to their traditional placements. This demonstrates that the students perceived that the NCE had assisted them in their skill development and competence and led to an increased confidence. This is an aspect of clinical placement support that has not been investigated until now. Further investigation with a larger, more diverse group is suggested.

The majority of student responses could be summed up with this response from one student "*Preceptors were often much too busy to take the time to explain and*

complete clinical skills with me - result being unable to practice clinical skills if (NCE) was not available". Students undertaking practicum where a partnership model was being utilised, have been reported to develop a greater understanding of working in the clinical environment; achieved competence in documentation, information technology and communicating with the interdisciplinary team; as well as developed confidence and self-esteem (Hannon et al., 2012; Henderson & Tyler, 2011; Newton et al., 2011; Nishioka et al., 2014b).

When staff discussed students' standard of clinical skills and knowledge before the NCE intervention, they indicated that the majority of students were aware of their scope of practice, however, those students attending a specialised clinical area needed more background knowledge beforehand. Staff noted the benefits of the NCE, both in helping to complete tasks with students the 'university way' and in keeping them up to date. Staff particularly acknowledged the NCE's assistance in supporting students completing tasks for the first time, or for procedures requiring checking of policies (tasks which notably take longer than usual), such as dressings, complex dressings, removal of drains, stitches, blood transfusions, administering medications. Other studies also found their supernumerary intervention role was available to work individually with students, to be focussed on learning routines, procedures and applying critical thinking skills, to obtain a complete picture of nursing (Nishioka et al., 2014a, 2014b; Sanderson & Lea, 2012); and could assist students by guiding them through performing their first skills, so students could acquire skills and knowledge in the clinical environment (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011).

Staff stated that the NCE had assisted to educate and assess students, was able to go through the skills with students in a thorough way, and enabling students' confidence. Sanderson and Lea (2012) study also allowed for reinforcement, engagement and continuous assessment of student learning, whilst also allowing staff to concentrate their time on essential patient care. After the intervention, staff stated that students' clinical skills were of high standard, although some students with decreased confidence required more nurturing and some students in later stages of their degree did not take the opportunity to take a full patient load or more complex patients to further their skills, therefore should be allocated to manage a few more complex patients.

Staff also stated that some clinical areas in the hospital offered higher amounts of certain skills, and also that students being rostered on night shifts had less exposure to skills or multidisciplinary communications. Staff found that students now had a broader insight into how the clinical area functions, most students had good communication with patients, it was rewarding to see the knowledge gained and that the students seem to be very confident and efficient in general. Staff deemed this as important, so that students could also get the best out of their practicum and learning experiences, ensuring that students had a meaningful learning experience, as "*it is often difficult (for staff) to provide all rounded training, particularly when very busy, so the NCE provides support to the team to educate students and assess when staff busy*".

6.2.1.3 NCE as a resource person

Unsurprisingly, in regard to skill and knowledge development, staff tended to focus more on the resources available to themselves and the students, through the provision of the NCE intervention. Staff stated that the NCE provided plenty of resources to help students apply the theory to their practice and use the opportunities that presented themselves effectively. Students found there were some preceptors who were good at following up with them and providing opportunities for students, which students appreciated as it made them feel wanted, part of the team, and enabled their confidence and skill development.

The NCE was seen as a resource person, with students feeling that they had contact with the NCE every day of their practicum, which was helpful for answering questions about their requirements, which was also found in Delunas and Rooda (2009) study. Students discussed how the NCE provided more orientation for them, enabling them to start the practicum with confidence. Courtney-Pratt et al. (2012) study also found that a comprehensive orientation provided students with a welcoming environment where they felt that they belonged and were accepted.

The students also deemed that the NCE having worked at the hospital and that knowing the routines and procedures was beneficial; as the NCE could also liaise between the university and the clinical area, knew what was expected of the students and how they had been taught, as well as knowing the routines and documentation of the clinical area. This was also seen in other studies (Congdon et al., 2013; Courtney-

Pratt et al., 2012; Russell et al., 2011). Knowing the clinical area's documentation, protocols and policies were found to be integral to students' readiness, engagement and degree of confidence (Dobalian et al., 2014; Newton et al., 2011).

Students in this study also deemed that the NCE felt the need to ensure that every student was doing well with their placement, were up-to-date with learning requirements, ensured that each student had reached the required skill levels to be deemed as competent, and continually asked if students needed skills or assessments completed. Students stated that the NCE also liaised for students from wards that had less opportunities to undertake skills, to undertake some skills on wards that had multiple opportunities for skills, therefore they were able to perform important skills with good support from the NCE, that they would not have been able to undertake otherwise.

6.2.1.4 Providing education and feedback

There was a mixed response from students regarding their preceptors providing education and feedback, with some finding their preceptors were very good at this and others were not. The NCE provided education and feedback to individual students, which reinforced their learning, providing advice to improve their skills, which assisted them to consolidate skills and ensured that skills were performed correctly, including that assessments were able to be undertaken and performed correctly. Students stated that the NCE had added new depth to their understanding and made them perform the skills more thoroughly. Delunas and Rooda (2009) also found students stating that they now had more instructors to answer questions and were able to receive more individualised attention when they required instruction. Newton et al. (2011) partnership model also found students discussing the benefits of having the same clinical educator, who got to know them, and was therefore able to provide feedback about the development of their learning and progress.

These findings are consistent with other studies, where intervention roles were also perceived to be more beneficial than preceptors in providing education and feedback, opportunities for active learning, opportunities to support students in learning by reflection, utilisation of evidence-based research in their work, and assess

skills effectively (Courtney-Pratt et al., 2012; Hall-Lord et al., 2013; Sanderson & Lea, 2012).

6.2.1.5 Summary of the impact of the NCE on students' learning outcomes

The impact of the NCE on students' learning outcomes is demonstrated, as the role worked with the preceptors and students to complete placement objectives and allow time for student learning. The students found the NCE had the time to go through skills with them, enabling them to systematically work through their task, and not feel rushed, which also reduced their stress, pressure and worry of performing a clinical error. The NCE assisted with the development of students' clinical skills and knowledge whilst they were on practicum, as the NCE ensured that students had opportunities to complete skills thoroughly and correctly and developed their confidence. This ensured that students had a meaningful learning experience, as the NCE could be with the students for the more time-consuming tasks that staff did not have time to do. The NCE was seen as a resource person for students, in providing more orientation, enabling students, providing opportunities for skills, ensuring skills were accessed, as well as the benefit of the NCE's liaison between the university and the hospital. The NCE also provided education and feedback to individual students, providing advice to improve their skills, which also reinforced their learning.

6.2.2 Impact of NCE on students' and hospital staff' experiences

The supernumerary NCE role had an impact on the students' and hospital staff' clinical practicum experiences. Students valued the support as described in the previous section. Apart from reducing the time that preceptors spent with students, staff expressed appreciation for the support that was provided to staff, in assisting with their own development with working with students on practicum.

6.2.2.1 Staff experiences with students and NCE

Staff stated their experience of working with students was beneficial, as it encouraged them to be more thorough in their patient care and pay attention to detail. Other studies also reported staff stating that they felt positive about working with students (Courtney-Pratt et al., 2012; Dobalian et al., 2014; Myler et al., 2014;

Nishioka et al., 2014a). Courtney-Pratt et al. (2012) found that preceptors working with students supported the development of their knowledge of the undergraduate curriculum, consolidated and reinforced their understanding of nursing practice, and that students' questions stretched the preceptors to find out what they did not know and extended their own knowledge. Staff in McCarthy and Murphy (2010) study described working with students as satisfying, with some staff also commenting positively about students' interest, enthusiasm and motivation to learn. Positive feedback and professional respect from students resulted in preceptors' confidence with students developing, which led to high satisfaction with their role with students (Congdon et al., 2013; Courtney-Pratt et al., 2012; Myler et al., 2014; Nishioka et al., 2014a). Preceptors felt satisfaction in seeing their students develop new skills and the progression of learning over time (Nishioka et al., 2014a).

In this study, staff stated that some students required "lots of precepting" and that with the perpetual increased workload with students, sometimes nurses dreaded going to work. or would be reluctant to preceptor students if they were also managing the ward. With the availability of the NCE, preceptors were much happier to take students and felt that students were able to enjoy their practicums more. This demonstrates the benefit of the NCE for a positive staff experience when precepting students.

6.2.2.2 Preceptors' time spent with students

Preceptors' time spent with students included their overall time with students, time spent precepting students, supervising students performing skills, planning student rosters and with students for first day orientation. Most preceptors reported not spending time, or a significant shift to much less or less hours involved in planning student rosters, however a few staff reported a higher number of hours spent planning rosters. Although there were only small changes, this is an interesting finding as planning rosters was previously performed by hospital educators and NUM roles, and not the role of preceptors. With the introduction of the NCE role, all student rosters and pairing of students to preceptors during the intervention period were undertaken by the NCE. The findings may be due to the very limited number of staff, that had previously planned student rosters, resulting in only a slight change in time spent overall by staff in planning rosters for students.

Most staff reported never orientating students, whilst most of the remaining staff spent approximately one-hour orientating students on their first day, with a significant shift to much less or less hours. There were, however, a couple respondents rating that they spent eight hours orientating students on students' first day and that this was more time than previously. Whilst this demonstrated less time spent with students overall, once again this is an interesting finding, as the NCE conducted an almost full first-day student orientation with all students, and prior to this the hospital educators conducted a half-day orientation, then paired students with preceptors. Those responding as spending more time on orientation may be due to new staff or graduate staff at the hospital during the intervention, who had not supervised students previously, or the increased number of students on practicum during the intervention period. Most staff' shift in perception to less time spent with students is to be expected, as the NCE was also rated by staff as being available to spend time with students and support students alongside the preceptors. *No other studies were found that quantified preceptors' time spent with students. Further investigation with a larger, more diverse group is suggested.*

Students and staff all acknowledged the positive impact of the NCE as it freed up more time for clinical staff to manage their workload and undertake their patient care. The role was shown to shift the burden of student support from hospital staff, to the specific role of the supernumerary, hospital-based, university-funded NCE partnership role; thus, aiding in decreasing the stress and pressure on preceptors to assist students with undertaking skills in a fast-paced clinical environment. The implementation of the NCE role was found to take the pressure of teaching away from clinical staff.

6.2.2.3 Stress and pressure during the clinical practicum

Students reported that some preceptors made them feel nervous, rushed and uncomfortable when performing their skills. After the NCE intervention, students reported less stress and less rushed when completing clinical skills, compared to their previous experiences. Students stated that the NCE made students feel calm, they never felt pressured by the NCE, as the NCE took the stress from the **s**tudents, which they attributed to their reduced stress and pressure, and developing confidence. Student also

stated that it was reassuring to know the NCE was there, that they had been very, very nervous, but the NCE being there had reassured them.

Students self-rating of how rushed they felt due to their time taken to complete clinical skills also demonstrated a major shift, with most students rating themselves as either not rushed or only marginally rushed after the NCE intervention. Students discussed the benefit of the NCE in allowing them the time to complete their skills without feeling rushed, reducing their stress and pressure and allowed them to develop their confidence. The students feeling less rushed and stressed when completing clinical skills is to be expected, as students were also now rating that they were taking much less time to complete their clinical skills. *No other studies were identified that quantified students stress and pressure. Further investigation with a larger, more diverse group is suggested.*

Stress for staff can occur with excessive workloads, due to the imbalance of workload demands and the resources available, leading to the staff members' coping abilities reaching their limits, which may in turn reduce their performance (Kuntz, Mennicken, & Scholtes, 2015). Increased clinical workloads add to the demands for preceptors, who are also expected to educate and assess students on practicum, which becomes stressful and burdensome, leading to burnout and the possibility of experienced nurses leaving the profession (McCarthy & Murphy, 2010). Staff stated that the NCE had reduced the burden of the staff development coordinator and reduced the pressure and stress for the preceptors, as the NCE could be with the students for the more time-consuming tasks, which alleviated the stress of ensuring that students had a meaningful learning experience.

Interestingly, following the introduction of the NCE intervention, staff perceived themselves to be spending less time with students, although the quantitative survey results did not show this. More preceptors reported spending a greater number of hours with students overall, precepting students and supervising students, however felt that they were spending less time with students compared to traditional practicums. There appeared to be more staff now precepting and supervising students, which may be due to new staff or graduate staff at the hospital at the beginning of the intervention, or the increased number of students on practicum during the intervention period. As

the NCE was now spending time with most students, this may have reduced the preceptors' perception of time they spent precepting and supervising students.

The re-allocation to the NCE of some roles involved with students attending practicum, which were previously attended by hospital staff, was welcomed by those hospital staff, as was also found in Congdon et al. (2013) study. New hospital educators reported having not spent any time during the NCE intervention period in preparing rosters, orientating students, or precepting, which was traditionally the role of hospital educators. During the intervention period the NCE had attended to these roles, allowing the hospital educators to now focus on hospital staff, the staff that the hospital educator role was intended to support. One staff member responded that "*Having (the NCE) is an absolute necessity. She has been able to ease the workload for everyone involved with students from rostering to orientation and clinical teaching*".

6.2.2.4 Development of student confidence

In this study, development of student confidence was a category that emerged in the findings. In some partnership models, students were assigned to the same preceptors, which was found to provide continuity and an ongoing relationship between students and preceptors, allowing students to concentrate on their patient care, making it easier for students to engage in their learning as well as maximise their time in the clinical area (Congdon et al., 2013; Courtney-Pratt et al., 2012; Newton et al., 2011). In this study, although students were assigned to two main preceptors, there were occasions when this did not happen. Similar to Congdon et al. (2013) and Courtney-Pratt et al. (2012), students in this study preferred to work with one or two primary preceptors during their practicum, to enable them to have a more positive experience without conflicting instructions from preceptors, as they had found discrepancies in different preceptors' practices, as well as between preceptors and what they had been taught at the university. This, coupled with preceptors being too busy to explain or demonstrate skills to them, were found to undermine student confidence in performing skills correctly. These contradictions and the stresses that students felt are reflected in the literature (Congdon et al., 2013; Courtney-Pratt et al., 2012; Houghton et al., 2013). The inconsistencies between preceptors or different clinical placements

and what students learned at the university, created a ‘gap’ in student learning and meant that students took longer to develop confidence (Houghton et al., 2013).

Students stated how the NCE gave them a confidence boost. They deemed the position had facilitated their growth in confidence and competence, had increased their belief in themselves and their ability to work competently within their scope of practice and that they felt so much better equipped to tackle their next rotation, which would be in a very demanding clinical area. This reflects Courtney-Pratt et al. (2012) study following the implementation of their intervention, where students also reported enhanced learning and confidence, as well as feeling better about undertaking tasks.

6.2.2.5 Impact of attitude

Generally, staff found that students demonstrated an eagerness to learn and be independent, were willing to help, willing to learn, had a general interest, were efficient in general and that there were some students with really great potential. Some staff felt that some students’ attitude and behaviour required improvement, that students should spend less time on their practicum paperwork whilst on the ward, that some students needed to work on their communication skills and courtesy, whereas others were very timid.

Preceptors’ attitudes appear to have a strong influence on the experience of students on practicum. Students demonstrated a mixed response regarding their preceptors’ attitude and skills, with many students admiring their preceptors’ expertise, teamwork, ability to put theory to practice, good rapport with patients and that preceptors prioritised patient care. Some students found positive attributes of preceptors being friendly, welcoming, inclusive, willing to help, encouraging, and having patience with them. Contrarily, several students had negative experiences, suggesting that students’ experiences depended on the preceptor, with some of the staff having ‘bad attitudes’ towards students, were not helpful, not enthusiastic and could be very unwelcoming towards students. Some preceptors were seen to not want to work with students, which students felt was quite detrimental to their learning. This was also found in Courtney-Pratt et al. (2012) study, where students also indicated that the relationships that they had with their preceptors was important for influencing their

practicum experience. Some students found that preceptors left them unsupervised quite a lot, which was also seen in Reid-Searl et al. (2008) study.

Other studies reinforced these findings of the preceptor attitudes being an important influence on the practicum experience (Congdon et al., 2013; Courtney-Pratt et al., 2012). Students also requested for more rigorous selection of preceptors, to have preceptors that are willing to take the time to spend with them, for preceptors to have mandatory preceptor training, so that preceptors know what is expected.

Students also felt that some preceptors did not trust them as a student, or they felt as though they were a nuisance when they were with their preceptor, particularly when time management grids were not used for team nursing or there was a lack of delegation in the team nursing model, which made it difficult for students to see how they were to be involved in or plan their patient care. This was also noted by Ostini and Bonner (2012) at the implementation of team nursing during their study. Students also experienced negative relationships between staff, particularly with "bitchiness" amongst staff or when staff spoke negatively about each other in front of students, which made the students feel very uncomfortable. These experiences are not unique to this cohort of students and has been demonstrated in previous nursing literature discussing 'bitchiness' (Castledine, 2008; Kelly & Ahern, 2009) and 'nurses eating their young' (Brunworth, 2015; Kelly & Ahern, 2009).

In contrast, the NCE's attitude was described by staff as very approachable, keen, as well as unobtrusive; whilst students found the role to be very approachable, encouraging, helpful, very patient and was always willing to help. This positive attitude served as a role-model for both staff and students and encouraged a positive learning environment.

6.2.2.6 Preceptor workload

Staff deemed that patient care was their priority, and they were not given less of a patient load when they were precepting students. Although most preceptors enjoyed teaching, they stated that in traditional placement models, it could be hard work and slowed them down (Nishioka et al., 2014a). Many staff discussed the busyness of the wards and heavy patient loads, stating that their workload is compounded when expected to supervise students as well. Workloads for staff were

allocated irrespective of being allocated the extra workload of students for precepting and supervision. Staff stated that they often had a patient load and sometimes management role, as well as supervising students. When patient numbers or acuity was higher, preceptors were often too busy for student learning and support. When the ward was busy, this detracted from preceptors' ability to work with students as there was limited teaching time, it could be difficult to focus on teaching and explaining things to students, and often opportunities for learning were lost to students (Courtney-Pratt et al., 2012; Henderson & Tyler, 2011; Houghton et al., 2013).

There is a need for protected time for teaching (Dobalian et al., 2014). In this study, staff discussed that at times they needed respite from students, to enable them to get on top of their workload. In Russell et al. (2011) study, a reduced supervision workload was implemented with staff not being allocated as preceptor for every shift, which led to decreasing preceptor perceptions that having students meant an increased workload. Another study did allocate protected time, however the preceptors felt that they rarely obtained their prescribed time, although more senior roles felt that they were able to utilise their allocated time for supervision of students (Hall-Lord et al., 2013).

Staff discussed the benefits of the NCE, especially when the ward was busy, or when things go 'pear-shaped'. This was also seen in Courtney-Pratt et al. (2012) study, where their intervention role was welcomed by preceptors, particularly during heavy workloads and time constraints. The NCE was able to provide support for students doing clinical skills when the patient acuity was high, so that adequate time was spent with the student. Staff stated the NCE reduced the work load for everyone involved with students, which helped staff who were already very busy and allowed staff to continue with other patient care, as "*our ward nurses, particularly on our surgical ward, are extremely busy and their patient care and safety is their number one priority*".

This suggests that staff workload and student learning and development are often in direct conflict. The staff stated the NCE reduced the workload for everyone involved with students, particularly when staff were already very busy, which then allowed the hospital teams to continue with other patient care. The NCE also ensured that students had a meaningful learning experience, as the NCE could be with the

students whilst they were undertaking clinical care. Preceptors' perceived reduction in workload whilst precepting, can be relieved with the NCE role continuing at the hospital.

6.2.2.7 Collaboration between university and hospital

In the pre-survey, staff appealed for more collaboration between the university's clinical staff and the preceptors, in the interest of forming relationships between student nurses and hospital staff. Staff discussed the benefits of the NCE's collaboration between the university and hospital and felt the NCE was a bridge between the university and hospital. The NCE was seen as a university delegate who had current evidence-based knowledge to optimise student learning, understood the university processes and current clinical skill principles that students were taught; but was also familiar with the hospital's routine, policies and procedures. This dual role was also seen in other studies where the intervention role was a clinical staff member from the hospital, who had been recognised for their expertise with students and had been seconded to the position for the study (Congdon et al., 2013; Courtney-Pratt et al., 2012; Russell et al., 2011). Maintaining communication between the university and the hospital staff is important to ensure that clinical skill principals learned by students at the university are maintained when they are undertaking their clinical practicum (Houghton et al., 2013). Staff stated that the NCE prompted students with all aspects of nursing care to help them apply the theory to practice. Staff stated that "*nurses do not have the time to lay ground work or assist with smooth transition from Uni to clinical practice in hospital setting*."

Staff felt that the NCE was an excellent resource and that a ward nurse could not fulfil this liaison role. Staff felt that the NCE was very knowledgeable and a point of reference for some of the expectations of the student which may not be clear, in particular to clarify what students can do at what stage. Other studies found that preceptors appreciated being providing advice and guidance regarding students' scope of practice, and being assisted to encourage students to be accountable for their own learning (Hall-Lord et al., 2013; Henderson & Tyler, 2011).

Staff stated that NCE enabled ease of discussion about any issues that arose, which allowed staff to refer student issues or concerns related to student performance

to the NCE, thereby assisting in their resolution in a timely manner. Preceptors can find it difficult to fail students who are not competent, as doing so incurs an increased workload for the preceptor, there can be a lack of support during this process, and preceptors perceived that it would be preferred to 'brush the problem under the carpet', rather than appropriately managing the student's lack of competence (McCarthy & Murphy, 2010). The NCE assisted with managing students on the ward area and had worked with students who were struggling, to help and guide them. Other studies also found their intervention role was a conduit for feedback and utilisation of evaluative data between students and preceptors (Congdon et al., 2013) and became the focal point for student-related issues and ensuring that students were precepted to appropriate standards (Congdon et al., 2013; Hall-Lord et al., 2013).

The NCE was seen to work collaboratively communicating with staff, assisting with fostering student and staff needs, reminders, rosters and undertaking orientation and rostering of students with two main preceptors. Staff advocated for students to be allocated to a designated preceptor and not just to a clinical area, as well as requesting for university staff to have meetings with the preceptors and not just the students. Other studies also found staff requesting to precept one or two primary students during their placement, for them to have a more positive experience with each student, but also for continuity and enhancement of clinical learning for the student (Courtney-Pratt et al., 2012; McCarthy & Murphy, 2010; Newton et al., 2011).

There is a need for training for staff who have limited teaching experience (Dobalian et al., 2014). Staff requested more collaboration and staff development around students' scope of practice and expectations, including what was expected of preceptors. This aligned with students' statements that preceptors required further development about the requirements of being a preceptor. Staff in McCarthy and Murphy (2010) study also requested further development on their knowledge and understanding of the preceptor role. The NCE provided collaboration between the university and the hospital, which assisted the staff with the students. The staff found the NCE was someone from the university that could assist them with managing and teaching students, providing rosters and orientation, and assistance with difficult students. Sustainability of embedded support has shown to be problematic, therefore support interventions need to continue to be ongoing (Henderson et al., 2010). The

ongoing collaboration can be assisted with the NCE as a liaison in a clinical partnership model between the university and the hospital.

6.2.2.8 Support from hospital staff

Most students found the support from the hospital staff was improved as a result of the intervention. A few students described the support provided by the preceptors as being helpful, supportive, or that the preceptor assisted or supervised them. Conversely, it was also stated that some of the preceptors knew that the NCE was available to supervise students and preferred to handover their students to the NCE for supervision, rather than undertaking it themselves. This behaviour was also indicated in Russell et al. (2011) model, whereby the intervention initially was expected to take on all of the supervision.

The students' perceived increased support from hospital staff was likely to be due the NCE enabling and supporting preceptors to provide further support and time with students. Having a clinical educator to assist with student support was also found by Courtney-Pratt et al. (2012) to demonstrate that students felt positive about working with their preceptors. Henderson et al. (2010) also found that students' perception of support from staff increased after the intervention, with a significant increase in student rating of the psychosocial factors of their clinical environment, including individualisation, innovation, involvement, personalisation, and task orientation (Henderson et al., 2010). The students noted improvements in the areas of staff engaging with them as individuals, encouraging their involvement and recognising their individual needs (Henderson et al., 2010).

6.2.2.9 Support from university staff

Perceptions of support that was provided from university staff also increased with the NCE intervention role. This increased support may be due to the NCE liaising between the university and the hospital, including with CF to ensure they were available during busy periods. In traditional models, preceptors often find that they spend most of their hours working with the student, whereas a traditional university staff member checked on the student for about 15 minutes and then evaluated students, without speaking to the preceptor to elicit feedback about the student (Raines, 2012). Preceptors in the study by Raines (2012) wanted to be engaged in the educational

process of students by understanding their requirements for the clinical practicum, which would assist preceptors to tailor learning for students; they wanted to share their evaluations with the university staff, including being asked for feedback about the students they worked with; and they wanted to be acknowledged for their efforts, by university staff being available, providing assistance with learning experiences that were available.

Preceptors reported an overwhelming increase in their feeling of support from university staff after the NCE intervention. The feeling of increased support provided by university staff is to be expected, as the NCE was employed by the university and liaised with the CF to ensure they were available during busy periods. As the NCE was spending time with most students to undertake clinical skills, this had reduced the overall hours that staff spent supervising students, as well as reducing staff' pressure which enabled staff to support students better.

6.2.2.10 Support from the NCE

The NCE enhanced the support from both the hospital and university staff; reduced the burden on staff involved in their practicum; whilst the role supported students by being available to them, being a resource person, and reduced the stress and pressure for students and staff. The support provided by the NCE had a demonstrated impact on students, as they stated that the NCE was always there to support them on the ward and it was good to know the NCE was there to supervise them when needed. Other studies also indicated that the students found the models provided a higher level of support than preceptors alone, providing support, guidance and direction for students (Courtney-Pratt et al., 2012), including being positive mentors important for student success, as well as providing consistent and readily available support (Nishioka et al., 2014b). This would be expected, as the core role for the intervention was to support students, whereas the preceptor's fundamental role was in the provision of patient care, and to support students as part of their clinical activities (Courtney-Pratt et al., 2012; Gaberson & Oermann, 2010).

Staff support from the NCE included the NCE providing support for staff and students, being available, collaboration provided between the university and the hospital, the NCE as a valuable role, the reduction in stress and pressure, the staff

experiences with students on practicum, as well as the NCE's attitude and behaviour. Many preceptors feel that they were not provided sufficient support with students (Hall-Lord et al., 2013). Support for preceptors is often limited, leaving them feeling that they are 'on their own' and that hospital managers do not fully comprehend the amount of time and work involved in precepting students (McCarthy & Murphy, 2010). In this research, staff reported they previously often felt "*burnt out*", particularly when continually having students each shift they worked, whilst shift coordinators also reported precepting students whilst having to manage the clinical area and support all staff in that area as well.

In this study, staff felt that students were well supported now with the NCE, with staff overwhelmingly reporting that support from the NCE with students for supervision of clinical skills and medication administration was beneficial. In Courtney-Pratt et al. (2012) study, preceptors welcomed the daily support provided by the intervention role and considering it as instrumental support for their role. In this study, preceptors stated that the NCE had assisted the team immensely when they had students, and that the NCE supervising students meant that students could work with the NCE and have "*on the floor support*" available.

This demonstrates the benefit of the NCE in providing support to staff as well as students, which had also assisted the staff with the students. This supports Henderson et al. (2010) study which demonstrated the positive impact of their intervention on staff, whereby the intervention had enabled staff to involve the student and their participation in nursing care. The staff had previously felt burnt out and in need of respite from students, however the NCE had provided them with support on the ward, and staff requested for the NCE to continue. Their perceived lack of support can be assisted with the NCE as an extra support person.

6.2.2.11 Summary of the NCE's impact on the students' and staff' experiences

The NCE's impact on the students' and hospital staff' clinical practicum experience is demonstrated with the staff perception of spending less time with students, despite rating increased time with students for some activities. The NCE support had reduced the level of stress and pressure for students, by providing a calm and reassuring environment, which eased students' nervousness and developed their

confidence. Student and preceptor attitudes are an important influence on the practicum experience, and the NCE's positive attitude served as a role-model for both staff and students and was seen to encourage a positive learning environment.

Staff stated the NCE reduced the workload for everyone involved with students, which helped staff who were already very busy and allowed staff to continue with other patient care. The NCE was seen to work collaboratively between the university and the hospital, communicating with staff and students, providing orientation of students and advice and guidance to staff regarding students' scope of practice, and assisting staff in managing students. The NCE enhanced the support from both the hospital and university staff; reduced the burden on staff involved in their practicum; whilst the role supported students by being available to them, being a resource person, and reduced the stress and pressure for students and staff.

6.3 NCE enabled increased student nurse placements

Serendipitously, whilst this was not the primary aim of this study, the NCE intervention led to the provision of increased student placements at the hospital, as a direct result of the partnership agreement with perspectives of expected enhanced support provided by the role. When examining the student placement numbers and reports to the university and Health Workforce Australia, the NCE intervention role allowed for more student nurse placements at the hospital than previously provided (due to the partnership agreement), with an increase from 920 placement days prior to the intervention increasing to 1150 placement days during the year of its implementation (S. Tencer, personal communication, February 4, 2013). These 230 placement days is an increase of over 25% in student placement days, equating to up to 23 extra students' fortnightly placements from this university at this hospital.

Undergraduate nursing students undertake clinical placement to develop their clinical skills and hands-on patient care in the clinical environment, to develop their competence as beginner-level nurses by the time that they graduate (Hall-Lord et al., 2013). The increased student placements at the hospital, in turn allowed extra students from this university to attend practicum at this local regional hospital, rather than being sent to the metro area (S. Tencer, personal communication, February 4, 2013). Other

partnership clinical practicum models have also led to an increase in student placement numbers (Courtney-Pratt et al., 2012; Dobalian et al., 2014).

The increased placements provided would in turn allow the university to include a higher intake of nursing student enrolments to the course, as student enrolment numbers is heavily reliant on the availability of clinical placements (Courtney-Pratt et al., 2012). The increased student enrolment would equate to extra student fees paid to the school of nursing, which could offset employing a NCE in a continuing role.

6.4 Discussion summary

The NCE support intervention improved students' knowledge development and learning outcomes, whilst enhancing the experiences of students and staff during the clinical practicum. This process is illustrated in Figure 6.1.

As a supernumerary position, the NCE role reduced the stress for students and staff. There was an increase in time available for skill and knowledge development for students. There was a concurrent increase in available time for preceptors on the wards to undertake patient care. This in turn led to more time for preceptors to assist students, less time taken by students to undertake skills, increased student confidence and reduced stress for everybody.

The NCE role's impact on the students' learning outcomes whilst on clinical practicum included enhancing students' clinical skill and knowledge development, allowing time for student learning, improving confidence and decreasing the time taken for students to complete their clinical skills. The students found the NCE provided education which reinforced their learning, ensured that skills were performed and assessed correctly, as well as ensured that they were exposed to varied clinical skills. Students also had the opportunity to practice as many skills as possible, enabling them to become more proficient, take less time in performing clinical skills, become confident and better prepared for their graduate programs. The NCE role was also felt to benefit preceptors in developing students' clinical skills and knowledge, by providing additional time and support for supervision of students. New findings in this study included that the NCE role reduced the time that students perceived they took to complete clinical skills, assisted them to develop confidence and competence.

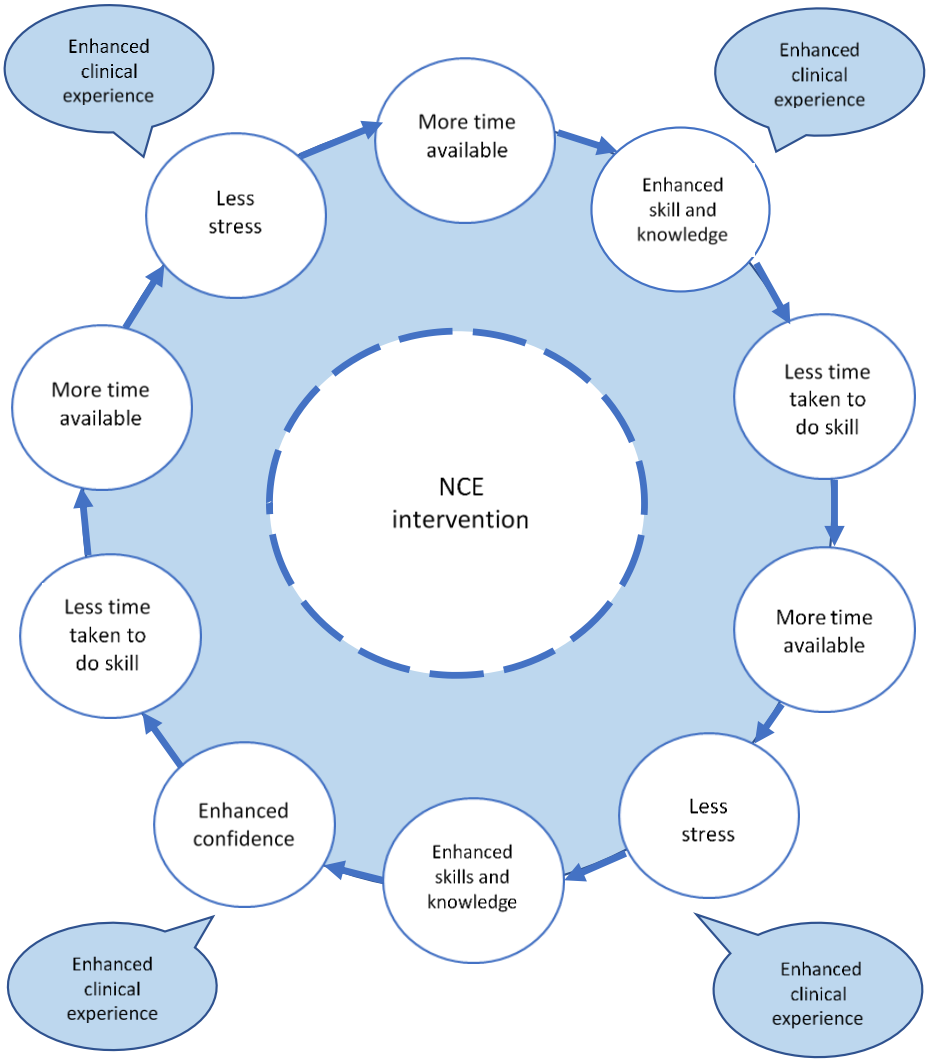

Figure 6-1: NCE impact cycle

The benefit of the NCE intervention on students' clinical placement experiences whilst they were on clinical practicum was the additional support students experienced from the NCE and that the NCE enabled increased support from both the university staff and hospital staff. The NCE was a supernumerary role, readily available to assist or supervise students, was a resource person, and had reduced the stress and pressure for students. The NCE was also seen to have a positive attitude and updated skills, which culminated to a positive impact on student experiences on practicum, compared to traditional practicum experiences. Student requested for the

NCE role to continue to be available for the benefit of the students and staff, requesting more NCEs to be available, due to one NCE to support large student numbers within different clinical areas around the hospital. New findings in this study included quantified findings of reduced: time taken for students to complete clinical skills; stress for students when completing clinical skills; student perception of being rushed when completing clinical skills; and staff perceptions of spending less time with students. New findings also included reduced pressure and stress for staff and students, as well as staff perceiving a reduced burden with students.

The NCE role had a positive impact on staff experiences whilst students were on clinical practicum. Staff felt there was less time spent with students overall, precepting students, supervising students, planning student rosters and with students for their first day orientation. There was also better support from the university staff, as well as excellent support from the NCE, with the benefit of the NCE being available and providing support for staff and students being two of the major findings. The benefit of the NCE's collaboration between the university and the hospital was also a major finding. The NCE reduced stress and pressure for both staff and students, as well as transformed the staff experiences with students on practicum, from a mostly negative experience to a positive experience. Staff perceptions of the students' clinical skill and knowledge development included the benefits of the NCE in helping to complete tasks with students the "*university way*", it was rewarding to see the knowledge gained and that the students seem to be very confident and efficient now. The NCE also allowed time for students' learning, which preceptors did not have due to their workload, and the NCE had also reduced the preceptor workload and burden to staff by assisting with students. Staff felt it would be a great loss if the NCE did not continue, appealing for the need to continue the NCE role and to also consider having more than one NCE, particularly when there were larger numbers of students on practicum.

The positive impact of a supportive culture and positive staff morale is also well documented. It was possible that the NCE aided a supportive staff culture and positive morale, by enabling and supporting staff to support students better.

6.5 Implications for practice and research

Partnership models enable shared understanding; enhanced communication between university, hospital, managerial roles, preceptors and students; enhanced preceptor support, as well as facilitation of student participation in nursing activities. Mutual understanding, collaboration and formal partnerships are required between schools of nursing (SoN) and those hospitals that nursing students attend for practicum, to identify and capitalise on the positive mutual benefits (Delunas & Rooda, 2009; Dobalian et al., 2014; Newton et al., 2011; Nishioka et al., 2014a; Sanderson & Lea, 2012). This study has implications for hospitals who provide placement for students and for the universities that send students on practicum in an acute clinical area, as well as for further research on the impact on staff and students when students attend practicum.

6.5.1 Implications for hospitals

Nurses who are positive role-models and are welcoming, act as potential recruiters to their clinical areas (Ruth-Sahd, Beck, & McCall, 2010). Provision of time for precepting and supervision of students needs to be allocated in preceptors' workloads (Dobalian et al., 2014; Hall-Lord et al., 2013). Development of university clinical appointments for experienced and qualified hospital nursing staff who have shown to be dedicated preceptors in the clinical environment, will assist to provide incentive or reward to those staff, as well as provide expert clinicians as NCEs (Delunas & Rooda, 2009).

It could be argued that with one NCE having such a positive impact to so many students and staff, that it would be worthwhile for the hospital to employ at least one NCE to assist in reducing the burden to staff whilst students are in practicum in the clinical area. Employing at least one ongoing coordinator NCE (coordinator role) at the hospital, will allow the hospital to provide an increased number of placements for students, will allow students to safely gain these expected clinical skills and will ensure that RNs are enabled and supported to support students, without breaching regulatory requirements.

6.5.2 Implications for schools of nursing

Students' clinical practicums are mandatory, full-time, clinically-based training, which can incur additional financial costs and stress to the student, due to them being on practicum fulltime for a series of weeks. In addition to incurring the expense of university fees for the practicum unit and course, students have impaired ability to work in their other employment to earn money to pay for mortgages, food and bills; whilst some students incur further costs of accommodation due to placement further away from their home (Ralph et al., 2009).

With this financial burden for nursing students undertaking clinical practicum, SoN have a responsibility to ensure that students' clinical practicums provide nursing students with meaningful learning opportunities. In this study, the NCE enabled such opportunities and was a liaison between the SoN and clinical area. The supernumerary NCE was more available to the students, relieved or reduced some of the clinical staff load and enabled increased placement positions to be provided at the hospital. It follows then that it would be worthwhile for universities to adopt similar NCE positions at least in the larger hospitals that their students attend for practicum. This will assist students to be adequately skilled.

6.5.3 Summary of implications for practice

This study has shown that implementation of a NCE role in a partnership model is highly beneficial for all involved in the student practicum and should be considered as a priority for enhancing, not only the experiences of preceptors and students, but also for the university and the hospital. Employing an ongoing supernumerary coordinator NCE (coordinator role) to work at the hospital, with educators in the clinical area (CF role), can assist staff and the hospital to provide an increased number of placements for students; ensure that staff are enabled and supported, for them to in turn precept and support students; and will also allow students to gain their expected clinical skills safely; whilst all involved continue to practice within their regulatory standards. SoN also need to ensure that students are able to meet their responsibilities to abide by nursing standards for practice and are supervised adequately, to ensure students have adequate opportunities for learning and meeting competency requirements.

6.5.4 Implications for research

This research adds to previous research involving acute clinical practicum models, however, it opens the door for further research of partnership clinical practicum models, to demonstrate the outcomes from both partners' perspectives; for both students, staff and management. Further study from a regional or rural perspective may add to this research and discover whether there are differences in findings between metropolitan and rural or regional perspectives. Whilst there were many strengths within this research, there were also some limitations to acknowledge.

6.6 Strengths of this research

Utilising a mixed methods approach, with the perspectives of students and staff being investigated at the same time, gained a more holistic viewpoint of the experiences and impacts for both cohorts, providing rich, deep data to strengthen the research and allow triangulation of findings. This research demonstrates the role is already clinically relevant and will continue to have an impact on clinical practice. The support provided to staff and students by the NCE enabled increased student placement numbers to be provided at the hospital. The NCE enabled positive results for students' learning outcomes and experiences, as well as staff' experiences. Overall the research may inform practice for hospitals and SoN, as well as further research.

6.7 Limitations of this research

This research was limited to one hospital and one university campus in regional Australia, thereby possibly limiting external replication of the results, therefore replication in a clinical area with similar intervention qualities may produce similar, but slightly different results. This research is consistent with research in the 'real world' context where situations can differ between practices. Further research for a ward-based, supernumerary intervention similar to this NCE, should be conducted on a larger scale, amongst different hospitals in Australia. Further research should include both students and staff participants, to seek the impact from both perspectives and add to the existing research. Other international research could also add to further research, adapted to the different practicum models used internationally.

This research was a one-year snapshot of the experiences of staff and students. A longitudinal study may add to the findings and would allow a greater variety of students to participate as they attend practicum at the hospital. Convenience sampling of participants was used in this research, as the NCE was implemented by one university within one hospital. This research reviewed participant's experiences on this placement, against previous traditional placements. Research that utilises a study of participants utilising a NCE role for some students, whilst also collecting data concurrently from students at the same hospitals who do not have the NCE intervention, should be considered. In this research this was not possible, due to agreement for the NCE intervention from the university with only one hospital at the time of the study.

Although data collection instruments were reviewed by experts in the field, the surveys for this research were not reviewed by clinicians and potential users, therefore further research should include an accepted validated tool to be used to collect data and be reviewed by clinicians and potential users.

6.8 Recommendations

These recommendations have been developed from the findings of this research, to add to and develop a richer source of understanding of the ward-based NCE intervention in this study. Recommendations include:

1: Employment of a NCE role (coordinator role) as a joint-funded role in a partnership model between the university and the hospitals, as both parties benefit from the role. The NCE should provide the collaboration between the university and hospital, provide student rosters and orientation, as well as conduct preceptor enabling workshops. This role would need to be an ongoing role, to ensure sustainability of practice and partnerships and could also coordinate the NCE's and CFs placed in clinical areas. With the partnership model utilised in this study, a higher number of placements was provided to the university, which in turn allows a higher enrolment numbers into the course. This increase in student numbers leads to increased fees paid, which could be used for the SoN to employ a NCE.

2: Further research of a ward-based, supernumerary practicum interventions similar to this NCE, conducted on a larger scale with a more diverse group, amongst different hospitals in Australia, to add to this research and support students and staff when students are on practicum. Further research to include both students and preceptors as participants, as well as the use of an accepted validation tool to collect data. Further research could include a different study design where a dedicated person, not necessarily a NCE, is available (eg DEU versus NCE versus no intervention), or comparison between units with and without this dedicated role, to see if the variable of greater exposure to practice, rather than the NCE, is what is impacting on the students experience.

3: Implementation of a supernumerary, ward-based NCE intervention (CF role) in all hospitals, or at least the major hospitals that students attend for practicum, to enable time for student learning and support hospital staff with students. This role ideally should be undertaken by a nurse who has worked at both the university in the practicum units, as well as the hospital, therefore will be familiar with the correct technique that students are taught and which skills they are taught at each stage at the university, so that this can be expedited to preceptors; as well as being familiar with the staff, documentation and policies at the hospital, to enable easier transition of students.

4: Ongoing preceptor enabling workshops should be provided for hospital preceptors. The workshops should include current evidence-based clinical skills, relevant skills at each stage of the students' course; as well as teaching strategies to support less confident or less competent students, working with difficult or concerning students, and the importance of referring less competent students to their CF in a timely manner if they are not progressing in their development during their practicum. Workshops need to be regular and ongoing, to ensure sustainability of preceptor knowledge in an ever-changing workforce.

5: The ratio of NCE (CF role) to students in further interventions should be lower than it was in this study. In the literature 1:8-10 is often used or recommended (Delunas & Rooda, 2009; Sanderson & Lea, 2012). Although the NCE in this study did demonstrate positive outcomes for both staff and students, opportunities for further learning were sometimes lost for students, due to the NCE being with

another student at the time and preceptors also not having the time to spend with students for undertaking clinical skills.

6: Allocation of quarantined time, as well as less numbers of patients being allocated to preceptors with students. Consideration should be given for the increase in preceptor workload when preceptors are supervising students. With quarantined time and less patient allocation, each preceptor can spend the required time with students, whilst the student undertakes an increasing amount of the clinical skills and patient care, for the patients who are allocated to the preceptor and student.

6.9 Conclusion

This chapter has presented a discussion of the impact of the NCE role on the students' development of skills and knowledge and their experience of the clinical practicum. This was integrated with discussion of the preceptors' experiences of developing the students' skills and knowledge. This study has found that the main impact of the NCE role has been upon stress and time. Stress has been reduced for both students and staff. There has been an increase in time for skill development for the students and an increase in available time for staff on the wards. This in turn has led to more time for staff to assist students, less time taken by students to undertake skills, increased student confidence, and reduce stress for everybody. The implications for practice, future planning, education and research were discussed and recommendations made in light of the findings from this study. Finally, the strengths and limitations of this work were acknowledged.

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APPENDICES

Appendix A HREC approval letter - ECU

HUMAN RESEARCH ETHICS COMMITTEE
For all queries, please contact:
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21 May 2013

Mrs Karen McCarthy
Faculty of Regional and Professional Studies
BUNBURY CAMPUS

Dear Karen

ETHICS APPROVAL

Project Code:	**9586**	
Project Title:	**Evaluation of ward-based Nurse Clinical Educator role on undergraduate nursing student and clinical nursing preceptor outcomes**	
Chief Investigator:	Mrs Karen McCarthy	
Approval Dates:	*From:* 21 May 2013	*To:* 31 December 2014

Funding Source: Supporting Growth in Clinical Placements - Funded by: Department of Health & Ageing with The Office of the Pro Vice Chancellor Health Advancement ECU

Thank you for your recent application for ethics approval. This application has been reviewed by members of the Human Research Ethics Committee (HREC).

I am pleased to advise that the proposal complies with the provisions contained in the University's policy for the conduct of ethical human research and ethics approval has been granted. In granting approval, the HREC has determined that the research project meets the requirements of the National Statement on Ethical Conduct in Human Research.

All research projects are approved subject to general conditions of approval. Please see the attached document for details of these conditions, which include monitoring requirements, changes to the project and extension of ethics approval.

We wish you success with your research project.

Yours sincerely

Kim Gifkins
RESEARCH ETHICS OFFICER

Appendix B HREC approval letter - SJOGHC

ST JOHN OF GOD
Subiaco Hospital

29 May 2013

Mrs Karen McCarthy
ECU Faculty of Regional Professional Studies
Robertson Drive
BUNBURY WA 6230

Dear Mrs McCarthy,

Re: Evaluation of ward-based Nurse Clinical Educator Role on Undergraduate Nursing Student & Clinical Nursing Preceptor Outcomes
(Our ref No: 622)

I refer to the letter of 29 May 2013, advising of ethical approval of the above study, as granted by the St John of God Health Care Ethics Committee.

I now confirm final approval for your study to be conducted at St John of God Bunbury Hospital ("the participating site").

I wish you well with your research.

Yours sincerely

Dr Mark Lubliner
Group Director of Medical Services
St John of God Health Care

cc. Ms Karen Gullick, DON, SJG Bunbury Hospital

12 Salvado Road, Subiaco, WA 6008
PO Box 14, Subiaco, WA 6904
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Appendix C MeSH terms and index terms used in the search of the literature

CINAHL Plus with Full Text and MEDLINE	ProQuest (Nursing and Allied Health)	Informit
Nurse Nursing	Nurses Nursing Nursing staff	Nurse Nursing
Education Nursing education Educators	Education Nursing education Nursing education research Educators Undergraduate nursing education Baccalaurette nursing education	Education Educator
Undergraduate nursing students Nursing students Student nurse	Undergraduate nursing students Undergraduate nurses Nursing students	Undergraduate nurse Student nurse
Preceptor Preceptorship	Preceptors Preceptorship	Preceptor Preceptorship
Clinical placement Student placement Practicum Clinical practice	Clinical placements Practicums	Clinical placement Practicum
Skills Skill acquisition Skill development Competence	Skills Skill acquisition Skill development Clinical skills Nursing skills Clinical competence Competence	Skill Competence
Models of nursing	Nursing models	

Appendix D The hospital's clinical areas and semester each stage undertakes practicum in each area

Clinical area	Stage 3 (Second year, semester 1)	Stage 4 (Second year, semester 2)	Stage 5 (Third year, semester 1)	Stage 6 (Third year, semester 2)
Surgical ward	✓	✓	✓	✓
Medical ward	✓	✓	✓	✓
Maternity ward		✓		
Palliative care ward			✓	
Day Procedure Unit	✓			
Theatre/ Recovery unit			✓	
Oncology unit			✓	
Renal unit			✓	
Community palliative care				✓

Appendix E Student survey – Pre-intervention

UNIVERSITY NURSING PROGRAM

NURSING CLINICAL EDUCATOR EVALUATION FORM FOR NURSING PROGRAM STUDENTS COMMENCEMNT OF PRACTICUM PLACEMENT

*Please take a few moments to complete this survey **prior to the commencement** of practicum placements at the hospital. Responses are anonymous and will be used to further develop future clinical support for students on practicum, as well as between hospital preceptors and university educator staff. Further surveys will be conducted to evaluate the effectiveness of the Nursing Clinical Educator position which has been implemented for this year.*

*Please return c**ompleted surveys** to the anonymous collection box. You will be requested to complete an evaluation survey **at the beginning of each practicum, and another at the end of each practicum** in order to evaluate the effectiveness of the Nursing Clinical Educator role.*

☺ ***Thanking you for taking the time to complete this survey*!**

Q1 What ward at the hospital are you currently undertaking your practicum?

- ❍ Surgical
- ❍ Medical
- ❍ Maternity
- ❍ Palliative care
- ❍ Community Palliative Care
- ❍ Oncology
- ❍ Renal
- ❍ Day Stay
- ❍ Theatre

Q2 What stage of your undergraduate nursing studies are you current enrolled in?

- ❍ Stage 3
- ❍ Stage 4
- ❍ Stage 5
- ❍ Stage 6

Q3 For this stage of your undergraduate nursing studies, which practicum number is this placement?

- ❍ 1st placement
- ❍ 2nd placement
- ❍ 3rd placement

Q4 Besides aged care, have you been on practicum placement prior to this year?

- ❍ Yes
- ❍ No

PTO

Q5 When on practicum placement prior to this year, did you feel supported by university staff when undertaking clinical skills and patient care?

- Not supported
- Poorly supported
- Adequately
- Reasonably
- Well supported

Q6 When on practicum placement prior to this year, did you feel supported by hospital staff when undertaking clinical skills and patient care?

- Not supported
- Poorly supported
- Adequately
- Reasonably
- Well supported

Q7 When on practicum placement prior to this year, when undertaking clinical skills and patient care, how would you rate your time taken to complete tasks?

- More than twice the time taken by clinical staff
- About one and half times the time taken by clinical staff
- Similar time to clinical staff

Q8 When on practicum placement prior to this year, when undertaking clinical skills and you feel you are taking an inordinate amount of time, how much stress does this place on you?

- No stress
- Some stress
- Moderate stress
- Reasonably stressed
- Very stressed

Q9 When on practicum placement prior to this year, due to the time it takes you to complete clinical skills, how rushed does this make you feel?

- Not rushed at all
- Marginally rushed
- Moderately rushed
- Very rushed
- Extremely rushed

Q10 When on practicum placement at the hospital, in which areas of clinical practice would you wish to be supported by the university's Nurse Clinical Educator (choose as many options as you like)?

- Orientation
- Medications
- Dressings
- Patient observations
- Patient hygiene
- Other

Q11 If you answered "other" to Question 10, please elaborate.

PTO

Q12 In relation to being on practicum placement at the hospital, please comment on anything else relevant to the time that you spend with your preceptors in undertaking clinical skills and patient care. Please respond under the following headings:
Strengths:
Weaknesses:
Suggestions:

Q13 How do you see the role of the university's Nurse Clinical Educator could assist you with your practicum at the hospital, to ensure you have opportunities to obtain meaningful experience and fulfil the practicum requirement of the course? Please respond under the following headings:
Strengths:
Weaknesses:
Suggestions:

Appendix F Student survey – Post-intervention

UNIVERSITY NURSING PROGRAM

NURSING CLINICAL EDUCATOR EVALUATION FORM FOR NURSING PROGRAM STUDENTS COMPLETION OF PRACTICUM PLACEMENT

*Please take a few moments to complete this survey **at the conclusion** of practicum placements at the hospital. Responses are anonymous and will be used to further develop future clinical support for students on practicum, as well as between hospital preceptors and university educator staff. Further surveys will be conducted to evaluate the effectiveness of the Nursing Clinical Educator position which has been implemented for this year.*

*Please return c**ompleted surveys** to the anonymous collection box. You will be requested to complete an evaluation survey **at the beginning of each practicum, and another at the end of each practicum** in order to evaluate the effectiveness of the Nursing Clinical Educator role.*

☺ ***Thanking you for taking the time to complete this survey*!**

Q1 What ward at the hospital have you just completed this practicum?

- ❍ Surgical
- ❍ Medical
- ❍ Maternity
- ❍ Palliative care
- ❍ Community Palliative Care
- ❍ Oncology
- ❍ Renal
- ❍ Day Stay
- ❍ Theatre

Q2 What stage of your undergraduate nursing studies are you current enrolled in?

- ❍ Stage 3
- ❍ Stage 4
- ❍ Stage 5
- ❍ Stage 6

Q3 For this stage of your undergraduate nursing studies, which practicum number placement have you just completed?

- ❍ 1st placement
- ❍ 2nd placement
- ❍ 3rd placement

Q4 Besides aged care, have you been on practicum placement prior to this current practicum placement?

- ❍ Yes
- ❍ No

PTO

Q5 For this practicum, did you feel supported by university staff when undertaking clinical skills and patient care?

- ❍ Not supported
- ❍ Poorly supported
- ❍ Adequately
- ❍ Reasonably
- ❍ Well supported

Q5a For Q5 above, please rate the support given to you for this practicum in relation to support you received prior to this year

- ❍ Much Worse
- ❍ Worse
- ❍ About the Same
- ❍ Better
- ❍ Much Better

Q6 For this practicum, did you feel supported by hospital staff when undertaking clinical skills and patient care?

- ❍ Not supported
- ❍ Poorly supported
- ❍ Adequately
- ❍ Reasonably
- ❍ Well supported

Q6a For Q6 above, please rate the support given to you for this practicum in relation to support you received prior to this year

- ❍ Much Worse
- ❍ Worse
- ❍ About the Same
- ❍ Better
- ❍ Much Better

Q7 For this practicum, when undertaking clinical skills and patient care, how would you rate your time taken to complete tasks?

- ❍ More than twice the time taken by clinical staff
- ❍ About one and half times the time taken by clinical staff
- ❍ Similar time to clinical staff

Q7a For Q7 above, please rate your time taken to complete tasks, in relation to time taken prior to this year

- ❍ Much Worse
- ❍ Worse
- ❍ About the Same
- ❍ Better
- ❍ Much Better

Q8 For this practicum, when undertaking clinical skills and you feel you are taking an inordinate amount of time, how much stress does this place on you?

- ❍ No stress
- ❍ Some stress
- ❍ Moderate stress
- ❍ Reasonably stressed
- ❍ Very stressed

PTO

Q8a For Q8 above, please rate the stress placed on you due to the time taken to undertake clinical skills, in relation to stress levels prior to this year

- ❍ Much Worse
- ❍ Worse
- ❍ About the Same
- ❍ Better
- ❍ Much Better

Q9 For this practicum, due to the time it takes you to complete clinical skills, how rushed does this make you feel?

- ❍ Not rushed at all
- ❍ Marginally rushed
- ❍ Moderately rushed
- ❍ Very rushed
- ❍ Extremely rushed

Q9a For Q9 above, please rate how rushed you feel you due to the time taken to undertake clinical skills, in relation to how rushed you felt prior to this year

- ❍ Much Worse
- ❍ Worse
- ❍ About the Same
- ❍ Better
- ❍ Much Better

Q10 When on practicum placement at the hospital, in which areas of clinical practice would you wish to be supported by the university's Nursing Clinical Educator (choose as many options as you like)

- ❍ Orientation
- ❍ Medications
- ❍ Dressings
- ❍ Patient observations
- ❍ Patient hygiene
- ❍ Other

Q11 If you answered "other" to Question 10, please elaborate.

Q12 In relation to being on practicum placement at the hospital, please comment on anything else relevant to the time that you spend with your preceptors in undertaking clinical skills and patient care. Please respond under the following headings:

Strengths:
Weaknesses:
Suggestions:

Q13 How do you see the role of the university's Nursing Clinical Educator could assist you with your practicum at SJOGHC Bunbury, to ensure you have opportunities to obtain meaningful experience and fulfil the practicum requirement of the course? Please respond under the following headings:

Strengths:
Weaknesses:
Suggestions:

Appendix G Staff survey – Pre-intervention

UNIVERSITY NURSING PROGRAM

NURSING CLINICAL EDUCATOR EVALUATION FORM FOR HOSPITAL NURSING STAFF PRE-INTERVENTION – BEFORE STUDENT PRACTICUMS

Please take a few moments to complete this survey prior to the commencement of nursing student practicum placements at the hospital. Responses are anonymous and will be used to further develop future clinical support for hospital preceptor and university educator staff, as well as students on practicum. Further surveys will be conducted to evaluate the effectiveness of the Nursing Clinical Educator position which has been implemented for this year.

*Please return c**ompleted surveys** to the box provided in clinical handover areas on each ward.*
☺ ***Thanking you for taking the time to complete this survey*!**

Please give all answers based on an average when students are on placement
Choose closest answer, and circle answers or provide explanation in provided areas.

Q1 What ward / areas at the hospital do you work?

- ❍ Surgical
- ❍ Medical
- ❍ Maternity
- ❍ Palliative care
- ❍ Community Palliative Care
- ❍ Oncology
- ❍ Renal
- ❍ Day Stay
- ❍ Theatre

Q2 What is your position at the hospital?

- ❍ Enrolled Nurse
- ❍ Registered Nurse
- ❍ Registered Midwife
- ❍ Clinical Nurse
- ❍ Clinical Coordinator
- ❍ Nurse Unit Manager
- ❍ Clinical Nurse Educator
- ❍ Learning & Organisational Development

PTO

Q3 How many hours per fortnight do you spend in any way with university undergraduate nursing students when they are on practicum on your ward?

- Never
- ≤ 8hrs
- 9-16hrs
- 17-24hrs
- 25-32hrs
- 33-40hrs
- 41-48hrs
- 49-56hrs
- 57-64hrs
- 65-72hrs
- 73-80hrs

Q4 How many hours per fortnight do you spend preceptoring university undergraduate nursing students when they are on practicum on your ward?

- Never
- ≤ 8hrs
- 9-16hrs
- 17-24hrs
- 25-32hrs
- 33-40hrs
- 41-48hrs
- 49-56hrs
- 57-64hrs
- 65-72hrs
- 73-80hrs

Q5 How many hours per shift do you spend on direct supervision of clinical skills and patient care for university undergraduate nursing students when they are on practicum on your ward? (not including notes, paperwork)

- Never
- ≤ 1hr
- 1hr
- 2hrs
- 3hrS
- 4hrs
- 5hrs
- 6hrs
- 7hrs
- 8hrs

Q6 How many hours per student rotation are you involved in planning rosters for university undergraduate nursing student placements at the hospital?

- Never
- ≤ 1hr
- 1hr
- 2hrs
- 3hrs
- 4hrs
- 5hrs
- 6hrs
- 7hrs
- 8hrs

PTO

Q7 How many hours per student rotation are you involved in first-day orientation of university undergraduate nursing students at the hospital?

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

Q8 Please rate your current feeling of support by university staff with undergraduate nursing students at the hospital, in undertaking clinical skills and patient care.

- ❍ Not supported
- ❍ Poorly supported
- ❍ Adequately supported
- ❍ Reasonably supported
- ❍ Well supported

Q9 In which areas would you wish to be supported by the university's Nursing Clinical Educator? (can choose more than one)

- ❍ Orientation
- ❍ Rosters
- ❍ Medications
- ❍ Dressings
- ❍ Patient observations
- ❍ Patient hygiene
- ❍ Other

Q10 If you answered 'other' to Q9 above, please elaborate.

Q11 Please comment on anything else relevant to the time that you spend with university undergraduate nursing students at the hospital in undertaking clinical skills and patient care.

Strengths:

Weaknesses:

Suggestions:

Q12 Please comment on how you see the role of the university's Nursing Clinical Educator could assist you with undergraduate nursing students at the hospital, to ensure undergraduate nursing students have opportunities to obtain meaningful experience and fulfil the practical requirements of their courses, without negatively impacting on the delivery of care, or increasing the responsibilities of current ward nursing staff.

Strengths:

Weaknesses:

Suggestions:

Appendix H Staff survey – First post-intervention

UNIVERSITY NURSING PROGRAM

NURSING CLINICAL EDUCATOR EVALUATION FORM FOR HOSPITAL NURSING STAFF FIRST INTERVAL – MID YEAR

*Please take a few moments to complete this **mid-year survey** regarding nursing student practicum placements at the hospital. Responses are anonymous and will be used to further develop future clinical support for hospital preceptor and university educator staff, as well as students on practicum. Further surveys will be conducted to evaluate the effectiveness of the Nursing Clinical Educator position which has been implemented for this year.*

*Please return c**ompleted surveys** to the box provided in clinical handover areas on each ward.*
☺ ***Thanking you for taking the time to complete this survey*!**

Please give all answers based on an average when students are on placement
Choose closest answer, and circle answers or provide explanation in provided areas

Q1 What ward / areas at the hospital do you work?
- ❑ Surgical
- ❑ Medical
- ❑ Maternity
- ❑ Palliative care
- ❑ Community Palliative Care
- ❑ Oncology
- ❑ Renal
- ❑ Day Stay
- ❑ Theatre

Q2 What is your position at the hospital?
- ❍ Enrolled Nurse
- ❍ Registered Nurse
- ❍ Registered Midwife
- ❍ Clinical Nurse
- ❍ Clinical Coordinator
- ❍ Nurse Unit Manager
- ❍ Clinical Nurse Educator
- ❍ Learning & Organisational Development

PTO

Q3 How many hours per fortnight do you spend <u>involved in any way</u> with the university's undergraduate nursing students when they are on practicum on your ward?

- ❍ Never
- ❍ ≤ 8hrs
- ❍ 9-16hrs
- ❍ 17-24hrs
- ❍ 25-32hrs
- ❍ 33-40hrs
- ❍ 41-48hrs
- ❍ 49-56hrs
- ❍ 57-64hrs
- ❍ 65-72hrs
- ❍ 73-80hrs

Q3a For Q3 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much More time

Q4 How many hours per fortnight do you spend <u>preceptoring</u> university undergraduate nursing students when they are on practicum on your ward?

- ❍ Never
- ❍ ≤ 8hrs
- ❍ 9-16hrs
- ❍ 17-24hrs
- ❍ 25-32hrs
- ❍ 33-40hrs
- ❍ 41-48hrs
- ❍ 49-56hrs
- ❍ 57-64hrs
- ❍ 65-72hrs
- ❍ 73-80hrs

Q4a For Q4 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

PTO

Q5 How many hours per shift do you spend on <u>direct supervision of clinical skills and patient care</u> for university undergraduate nursing students when they are on practicum on your ward? (not including notes, paperwork)

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

Q5a For Q5 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

Q6 How many hours per student rotation are you involved in <u>planning rosters</u> for university undergraduate nursing student placements at the hospital?

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

Q6a For Q6 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

Q7 How many hours per student rotation are you involved in <u>first-day orientation</u> of university undergraduate nursing students at the hospital?

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

PTO

Q7a For Q7 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

Q8 Please rate your current feeling of <u>support by university staff</u> with undergraduate nursing students at the hospital in undertaking clinical skills and patient care.

- ❍ Not supported
- ❍ Poorly supported
- ❍ Adequately supported
- ❍ Reasonably supported
- ❍ Well supported

Q8a For Q8 above, please describe how this has changed since last year.

- ❍ Much Better
- ❍ Better
- ❍ About the Same
- ❍ Worse
- ❍ Much Worse

Q9 In which areas would you wish to be <u>supported by the university's Nursing Clinical Educator</u>? (can choose more than one)

- ❑ Orientation
- ❑ Rosters
- ❑ Medications
- ❑ Dressings
- ❑ Patient observations
- ❑ Patient hygiene
- ❑ Other

Q10 If you answered 'other' to Q9 above, please elaborate.

Q11 Please comment on anything else <u>relevant to the time that you spend</u> with university undergraduate nursing students at the hospital in undertaking clinical skills and patient care. Please respond under the following headings:

Strengths:

Weaknesses:

Suggestions:

Q12 Please comment on how you see <u>the role of the university's Nursing Clinical Educator</u> could assist you with undergraduate nursing students at the hospital, to ensure undergraduate nursing students have opportunities to obtain meaningful experience and fulfil the practical requirements of their courses, without negatively impacting on the delivery of care, or increasing the responsibilities of current ward nursing staff. Please respond under the following headings:

Strengths:

Weaknesses:

Suggestions:

Appendix I Staff survey – Second post-intervention

UNIVERSITY NURSING PROGRAM

NURSING CLINICAL EDUCATOR EVALUATION FORM
FOR HOSPITAL NURSING STAFF
SECOND INTERVAL – END OF YEAR

*Please take a few moments to complete this **end of year survey** regarding nursing student practicum placements at the hospital. Responses are anonymous and will be used to further develop future clinical support for hospital preceptor and university educator staff, as well as students on practicum. Further surveys will be conducted to evaluate the effectiveness of the Nursing Clinical Educator position which has been implemented for this year.*

*Please return c**ompleted surveys** to the box provided in clinical handover areas on each ward.*
☺ Thanking you for taking the time to complete this survey!

Please give all answers based on an average when students are on placement
Choose closest answer, and circle answers or provide explanation in provided areas

---

Q1 What ward / areas at the hospital do you work?

- ❑ Surgical
- ❑ Medical
- ❑ Maternity
- ❑ Palliative care
- ❑ Community Palliative Care
- ❑ Oncology
- ❑ Renal
- ❑ Day Stay
- ❑ Theatre

Q2 What is your position at the hospital?

- ❍ Enrolled Nurse
- ❍ Registered Nurse
- ❍ Registered Midwife
- ❍ Clinical Nurse
- ❍ Clinical Coordinator
- ❍ Nurse Unit Manager
- ❍ Clinical Nurse Educator
- ❍ Learning & Organisational Development

PTO

Q3 How many hours per fortnight do you spend <u>involved in any way</u> with university undergraduate nursing students when they are on practicum on your ward?

- ❍ Never
- ❍ ≤ 8hrs
- ❍ 9-16hrs
- ❍ 17-24hrs
- ❍ 25-32hrs
- ❍ 33-40hrs
- ❍ 41-48hrs
- ❍ 49-56hrs
- ❍ 57-64hrs
- ❍ 65-72hrs
- ❍ 73-80hrs

Q3a For Q3 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much More time

Q4 How many hours per fortnight do you spend <u>preceptoring</u> university undergraduate nursing students when they are on practicum on your ward?

- ❍ Never
- ❍ ≤ 8hrs
- ❍ 9-16hrs
- ❍ 17-24hrs
- ❍ 25-32hrs
- ❍ 33-40hrs
- ❍ 41-48hrs
- ❍ 49-56hrs
- ❍ 57-64hrs
- ❍ 65-72hrs
- ❍ 73-80hrs

Q4a For Q4 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

PTO

Q5 How many hours per shift do you spend on <u>direct supervision of clinical skills and patient care</u> for university undergraduate nursing students when they are on practicum on your ward? (not including notes, paperwork)

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

Q5a For Q5 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

Q6 How many hours per student rotation are you involved in <u>planning rosters</u> for university undergraduate nursing student placements at the hospital?

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

Q6a For Q6 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

Q7 How many hours per student rotation are you <u>involved in first-day orientation</u> of university undergraduate nursing students at the hospital?

- ❍ Never
- ❍ ≤ 1hr
- ❍ 1hr
- ❍ 2hrs
- ❍ 3hrs
- ❍ 4hrs
- ❍ 5hrs
- ❍ 6hrs
- ❍ 7hrs
- ❍ 8hrs

PTO

Q7a For Q7 above, please describe how this has changed since last year.

- ❍ Much less time
- ❍ Less time
- ❍ About the same time
- ❍ More time
- ❍ Much more time

Q8 Please rate your current feeling of <u>support by university staff</u> with undergraduate nursing students at the hospital, in undertaking clinical skills and patient care.

- ❍ Not supported
- ❍ Poorly supported
- ❍ Adequately supported
- ❍ Reasonably supported
- ❍ Well supported

Q8a For Q8 above, please describe how this has changed since last year.

- ❍ Much Better
- ❍ Better
- ❍ About the Same
- ❍ Worse
- ❍ Much Worse

Q9 In which areas would you wish to <u>be supported by the university's Nursing Clinical Educator</u>? (can choose more than one)

- ❑ Orientation
- ❑ Rosters
- ❑ Medications
- ❑ Dressings
- ❑ Patient observations
- ❑ Patient hygiene
- ❑ Other

Q10 If you answered 'other' to Q9 above, please elaborate.

Q11 Please comment on anything else relevant to the time that you spend with university undergraduate nursing students at the hospital, in undertaking clinical skills and patient care. Please respond under the following headings:

Strengths:

Weaknesses:

Suggestions:

Q12 Please comment on how you see the role of the university's Nursing Clinical Educator could assist you with undergraduate nursing students at the hospital, to ensure undergraduate nursing students have opportunities to obtain meaningful experience and fulfil the practical requirements of their courses, without negatively impacting on the delivery of care, or increasing the responsibilities of current ward nursing staff. Please respond under the following headings:

Strengths:

Weaknesses:

Suggestions:

Appendix J Research information and disclosure form

UNIVERSITY NURSING PROGRAM
Form of Disclosure - Surveys

Study title: Evaluation of ward-based Nurse Clinical Educator role on undergraduate nursing student and clinical nursing preceptor outcomes

In Collaboration: Edith Cowan University, Faculty of Regional Professional Studies (ECU SW), Nursing program and St John of God Health Care (SJOGHC), Bunbury

My name is Karen McCarthy and I am employed by ECU-SW in a Nursing Clinical Educator role, which has been implemented for 2013 to provide clinical support to ECU SW undergraduate nursing students whilst they are on practicum at SJOGHC Bunbury. In order to demonstrate the effectiveness of the ECU SW Clinical Educator role, I am conducting research for ECU SW, and this data will also be used for my studies in Master in Nursing by Research. My aim is to conduct anonymous evaluation surveys of ECU SW undergraduate nursing students and SJOGHC Bunbury clinical nursing staff, in order to evaluate the value of the Nurse Clinical Educator role, and what impact it has on both students on clinical practicum at SJOG Bunbury and the clinical staff who preceptor these students.

You are invited to participate in this research if you are either an ECU SW undergraduate nursing student or a SJOGHC Bunbury clinical nursing staff member. The main information for the study will include the anonymous evaluation surveys from ECU SW undergraduate nursing students and SJOGHC Bunbury nursing staff. You will not be identified individually in any of the results reported, and only the research team will have access to the data collected. There are no risks associated with your involvement in this research, your participation is completely voluntary, and all information gathered will be confidential.

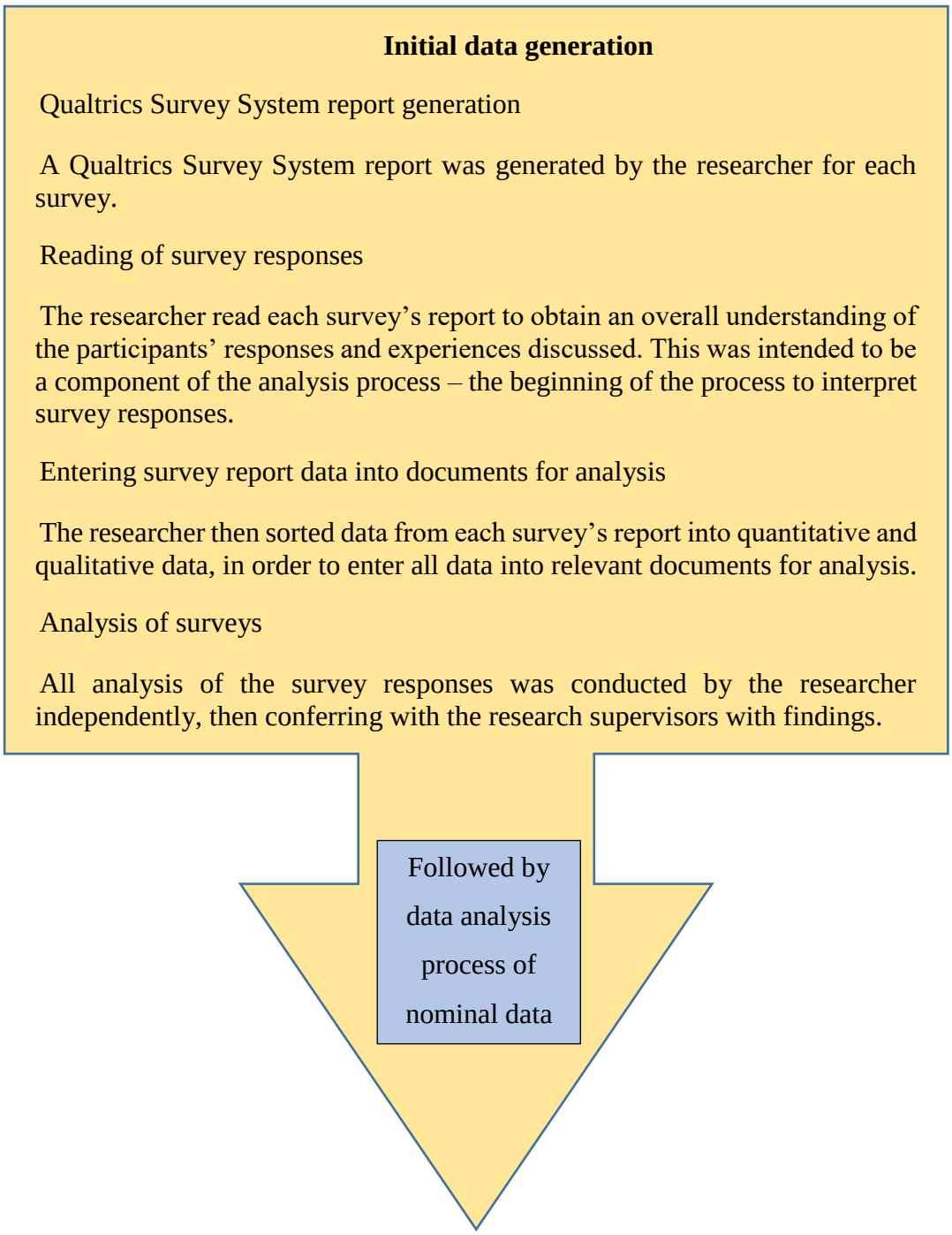
Your participation in this voluntary survey is taken as inferred consent to participate in the research. You have the right to discontinue at any time, however as data is anonymous there will be a point at which your data cannot be withdrawn, and in this instance, data will remain de-identified data as part of the research.

If you wish to ask any questions or discuss parts of the research, I can be contacted at Edith Cowan University on , or email me at karen.mccarthy@ecu.edu.au with the subject heading “ECU Survey”. If you wish to speak to my supervisor, Dr Jennifer Sharp, she can be contacted on or by email on j.sharp@ecu.edu.au . The Human Research Ethics Committee, Research Ethics Officer (Kim Gifkins) at Edith Cowan University can be contacted on 6304 2170 or email research.ethics@ecu.edu.au should you wish to make a complaint on ethical grounds.

I would like to thank you for taking part in this study. The results of this research will be published, and it is hoped that it will provide the foundation for a similar role in future nursing programs, allowing for one-on-one tuition to enhance the achievement of the students' clinical competencies, and to relieve the additional workload carried by clinicians when they precept undergraduate nursing students. Your participation is greatly appreciated.

Yours Sincerely
Karen McCarthy

Appendix K Research audit trail



Data analysis process of nominal data

Qualtrics Survey System reports

Descriptive statistics was to be used to analyse the quantitative data from each survey within Qualtrics Survey System. Qualtrics Survey System generated an initial report of the distribution of the nominal data in each survey question, providing a mean for each question, and listing the categories with count and percentage.

Transfer of nominal data to Excel file

The researcher transferred the nominal data to an Excel file, checking data transfer accuracy by re-checking values had transferred correctly, and then using the sum function in Excel to check count and percentage values had added up correctly.

Check values and correct percentages

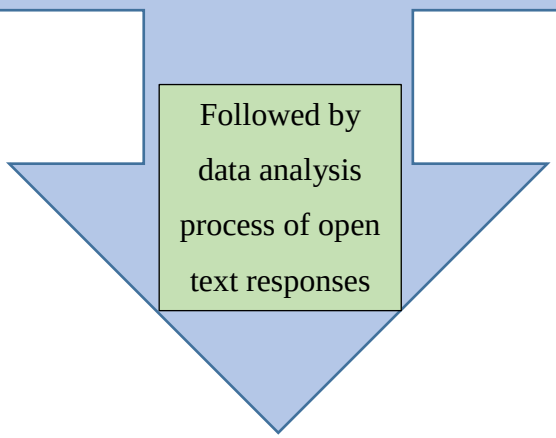
As Qualtrics had used rounding for some percentage values, some corrections of percentage values were done by the researcher to ensure these values correctly added up to 100% for that question. However, count values remain unchanged. Correction of percentage was done by dividing the count for each category by the total count for the survey question and multiplying the answer by 100, then rounding to two decimal places.

Creation of bar graphs

Once all values were ascertained to be correct, a bar graph was created in Excel for each question, from the categories and count figures.

Descriptive statistics

These bar graph could then be utilised to demonstrate the count, categories, centre, spread and distribution of the nominal data. Descriptive statistics were used to describe and summarise the collected quantitative data by describing percentages, count and mean of the responses.



Data analysis process of open text responses

Qualitative data

Content analysis was to be performed on the qualitative data, using open coding to find emerging categories from respondent's answers, with these categories then being grouped into emerging themes. The text responses could then be quantified in discussions.

Transfer of open-text responses to Word document

From the Qualtrics initial report which was produced after all data for each survey was entered into Qualtrics Survey System, the researcher copied the qualitative free text responses and pasted into a Word document.

Sorting of each participants' responses

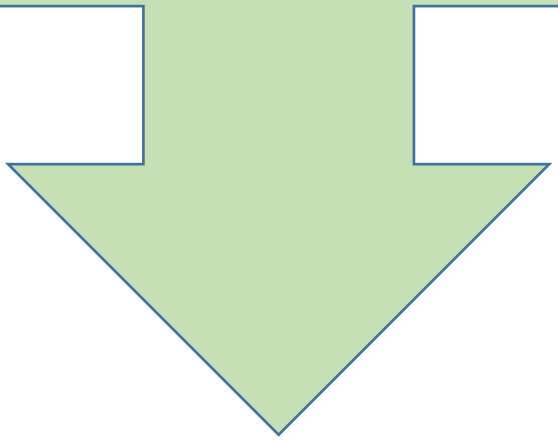
In the next section of the same Word document, this data was then sorted into the 'strengths' and 'weaknesses' responses which were requested in the survey questions, in order to keep responses in perspective of the questions asked.

Identification of categories

From the open-text, the responses were analysed using open coding to find emerging categories. Words with similar meaning were identified and coded, then coloured a separate colour for each category. Codes were then listed under each category that had emerged. This was then checked to ensure all codes were appropriate for the category that they had been delegated to and that all text had been allocated to a category.

Checking and rechecking of categories

Categories were then checked for outlying codes which may have a suitable category to be assigned to. The researcher revisited all of the categories identified and double-checked for dependability and confirmability. These were then checked and confirmed by the research supervisors.



Identification of themes

Then categories with similar meaning were grouped together and topics of the responses were identified to create themes. Each category was then assigned to emerging themes that were derived from the categories. The categories were then listed under each theme that had emerged and checked to ensure all categories were appropriate for the theme that they had been delegated to and that all categories had been allocated to a theme.

Checking and rechecking of themes

Themes were then checked for outlying themes which may have a suitable theme to be assigned to. The researcher revisited all of the themes identified and double-checked for dependability and confirmability. These were then checked and confirmed by the research supervisors.

Content analysis

Content analysis then began by ranking each category's percentage by dividing the number of codes counted for a common category by the total number of codes found for the survey question and multiplying the answer by 100. Ranking of categories enabled identification and quantifying of the more prominent to less prominent categories for discussion of the trends and patterns in the open-text responses.

Followed by interpretation of findings

Interpretation of findings

The researcher then discussed the findings as a representation of the participants' responses and the impact on their learning outcomes and experiences.

Appendix L The university's student numbers per clinical area and practicum rotation

	Fortnight commencing														
Clinical area	11/03	08/04	29/04	20/05	17/06	01/07	15/07	02/09	16/09	07/10	21/10 S6 5wk	04/11 S6 5wk	18/11 S6 5wk	02/12 S6 5wk	**Total students**
Surgical	S5 x5	S3 x4	S5 x4	S3 x4	S3 x4	S3 x3 S5 x1	S3 x2	S4 x4	-	S4 x4	S6 x1 CP	S6 x3 CP	S6 CP	S6 CP	**39**
Medical	S5 x4	S3 x4	S5 x4	S3 x4	S3 x4	S5 x4	-	S4 x3	-	S4 x4	-	S6 x4 CP	S6 CP	S6 CP	**35**
Maternity	-	-	-	-	-	-	-	S4 x2	-	S4 x2	-	-	S4 x2	S4 x2	**8**
Palliative care	S5 x2	-	S5 x2	-	-	S5 x1	-	-	-	S4 x1	-	-	-	-	**6**
Day Procedure	-	S3 x1	-	S3 x1	S3 x1	S3 x1	-	-	-	-	-	-	-	-	**4**
Theatre/ Recovery	-	-	S5 x2	-	S5 x2	S5 x2	-	-	-	-	-	-	-	-	**6**
Oncology	-	-	S5 x1	-	S5 x1	-	-	-	-	-	-	-	-	-	**2**
Renal	-	-	S5 x1	-	S5 x1	-	-	-	-	-	-	-	-	-	**2**
Community palliative care	-	-	-	-	-	-	-	-	S6 x1	S6 x1	-	-	-	-	**2**
Total for prac rotation	**11**	**9**	**14**	**9**	**13**	**12**	**2**	**9**	**1**	**12**	**1**	**7**	**2**	**2**	**104**

As per student rosters

NB: Several students attended practicum at the hospital more than once during the research period. These students could have completed both surveys again in subsequent practicums.
***** 21/10-08/12 = Stage 6 students' continuous practicum (CP) – completed orientation and survey x1 for period of practicum

Appendix M The hospital's permanent clinical nursing staff rostered hours per clinical area

Contracted hours per roster	***8***	***16***	***24***	***32***	***40***	***48***	***56***	***64***	***72***	***80***	
Clinical area											***Total***
Surgical ward	0	3	0	8	8	6	5	9	6	1	46
Medical ward	0	0	0	1	4	5	4	13	2	4	33
Maternity ward	1	0	2	3	3	6	5	5	2	2	29
Palliative care ward	0	1	2	1	1	1	1	2	5	0	14
Community palliative care *	0	0	1	0	0	0	0	2	1	0	4
Oncology unit	0	1	0	4	3	0	0	5	0	0	13
Renal unit	0	2	1	2	0	1	3	1	3	0	13
Day procedure unit *	0	0	0	0	8	0	0	1	1	0	10
Theatre/ Recovery unit *	0	0	0	0	20	20	20	1	1	2	64
General	0	0	0	0	0	0	0	1	0	0	1
Total	**1**	**7**	**6**	**19**	**47**	**39**	**38**	**40**	**21**	**9**	**227**
Percentage (%)	**0.4**	**3.1**	**2.6**	**8.4**	**20.7**	**17.2**	**16.8**	**17.6**	**9.3**	**3.9**	**100%**

As per staff rosters

* No rosters available – estimated numbers known to NCE role or verbally advised to NCE