NURSING AND MIDWIFERY WORKFORCE CHALLENGES
FOR THE NORTHERN TERRITORY

A qualitative study investigating opportunities for the introduction of
clinician-led workforce research

by

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The Northern Institute
Charles Darwin University
NT, Australia
Statutory Declaration

I hereby declare that the work herein, now submitted as a thesis for the degree of Master’s by research at Charles Darwin University, is the result of my own investigations, and all references to ideas and work of other researchers have been specifically acknowledged. I hereby certify that the work embodied in this thesis has not already been accepted in substance for any degree, and is not being currently submitted in candidature for any other degree.

Signed:……………………………. Date:………………………………...
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My deepest gratitude goes to my parents, who have unconditionally supported me throughout this journey. To my dad, who I miss deeply and whose strength, encouragement and belief in my abilities will never be forgotten, this thesis is dedicated to you.
List of Publications Associated with this Research

Refereed publications directly associated with this research:


Refereed publications used as background information for this thesis where relevant:


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<tr>
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<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>ARIA</td>
<td>Accessibility/Remoteness Index of Australia</td>
</tr>
<tr>
<td>ASGC</td>
<td>Australian Standard Geographical Classification</td>
</tr>
<tr>
<td>ASH</td>
<td>Alice Springs Hospital</td>
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<tr>
<td>CDU</td>
<td>Charles Darwin University</td>
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<tr>
<td>DoH</td>
<td>Department of Health</td>
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<tr>
<td>ED</td>
<td>Emergency Department</td>
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<tr>
<td>FTE</td>
<td>Full-time Equivalent</td>
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<tr>
<td>GDH</td>
<td>Gove District Hospital</td>
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<tr>
<td>ICU</td>
<td>Intensive Care Unit</td>
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<tr>
<td>KH</td>
<td>Katherine Hospital</td>
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<tr>
<td>NAHRLS</td>
<td>Nursing and Allied Health Rural Locum Scheme</td>
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<td>NHS</td>
<td>National Health Service</td>
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<td>NT</td>
<td>Northern Territory</td>
</tr>
<tr>
<td>PNMA</td>
<td>Office of the Principal Nursing and Midwifery Advisor</td>
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<tr>
<td>RA</td>
<td>Remoteness Area</td>
</tr>
<tr>
<td>RDH</td>
<td>Royal Darwin Hospital</td>
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<tr>
<td>RESP</td>
<td>Research Support and Education Program</td>
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Abstract

This study aimed at investigating levels of interest in, and capacity for, clinician-led workforce research within the Northern Territory nursing and midwifery sectors. The overarching research question was what mechanisms, structures, or facilitators would be required to stimulate a workforce research culture. The research is motivated by the assumption that policy efforts might benefit from engaging clinicians in both ‘formulating the issues’ and suggesting responses. While this approach has been shown effective in the context of clinical research, where clinician-led research leads to enhanced clinical practice by nurses and midwives, the engagement of clinicians in workforce-related research has received relatively little consideration within the literature.

The theories of knowledge creation and organisational learning were used as a theoretical foundation to explain how institutional support might assist in introducing capacity-building strategies for workforce research. The limited research among the nursing and midwifery professions has traditionally been seen as a failure on the part of the individual, with little consideration of organisational responsibility.

This research is based on a qualitative study exploring the most pressing workforce issues as perceived by a sample of nurses, midwives, and nursing and midwifery managers. It investigated interest into researching these issues and examined the organisational support structures required to facilitate the engagement of clinicians in workforce research.

The findings suggest limited research exposure and experience among the sample studied. Levels of confidence were generally low, although high levels of enthusiasm were reported. While the current system might allow for self-supported research activity, this study identified a lack of strategic commitment to developing internal knowledge creation capacity. System-wide approaches tend to be overwhelmingly focussed on short-term business strategies, with little consideration devoted to engaging clinicians in direction setting for the organisation.
The limited availability of internally created knowledge and the impracticality of many external knowledge sources has led to a situation in which most of the knowledge currently applied by nursing and midwifery clinicians and managers in the Northern Territory is experiential. This research suggests re-thinking the role of the organisation in building research capacity and implementing capacity-building models to facilitate clinician-led workforce research.
Chapter 1. Introduction

1.1 Introduction

The purpose of this research is to assess levels of interest in, and capacity for, clinician-led workforce research within the Northern Territory (NT) nursing and midwifery sectors. The overarching research question was what mechanisms, structures, or facilitators would be required to stimulate a workforce research culture.

In 2008, the Office of the Principal Nursing and Midwifery Advisor (PNMA) of the NT Department of Health and Community Services proposed a strategic position statement outlining a vision for the future of the NT nursing and midwifery workforce for the year 2018. The paper addressed education, training and support needs with a view to growing a sustainable and skilled workforce. It specifically commented on future models of practice, education and training needs, recruitment and retention projections, and outlined the development of a governance system (Department of Health and Community Services 2008a).

The paper also strongly supported the need for an investment in research to underpin both practice and policy development. A number of questions relating to research capacity building were raised (Department of Health and Community Services 2008a, p. 5):

- Do we need a research agenda?
- What should be the key focus of a research agenda?
- Should there be a specific research focus on Indigenous workforce issues?
- What specific local action can be done now?
- How will we know it has worked in 6 months’ time?

In 2010, the present research was initiated with the intention to respond to some of these questions. The lack of empirical data to understand current research capacity and activity within the NT nursing and midwifery sectors and the call for an investment in research (Department of Health and Community Services 2008a) suggested the need to assess levels of interest in, and capacity for, clinician-led research within the specific NT context.
The research was jointly developed by the candidate and the Office of the PNMA; it is part of an ongoing partnership agreement between Charles Darwin University (CDU) and the NT Department of Health (DoH). This partnership originated in 2009 with the undertaking of a research study into the retirement intentions of older nurses in the NT (Voit & Carson 2012), and eventually led to the proposal of the following research and the completion of this thesis.

This research was initiated following discussions between the candidate and the Office of the PNMA, which identified a lack of evidence about the current workforce and clinical research orientation and activity within the nursing and midwifery workforce. The intent is to understand the current research situation within the NT nursing and midwifery sectors better, and to assess levels of interest in, and capacity for, the establishment of a clinician-led workforce research culture.

This research is motivated by the assumption that policy efforts might benefit from engaging clinicians in both ‘formulating the issues’ and suggesting responses. This is based on the presumption that the engagement of clinicians in workforce-related research might lead to more applicable workforce approaches than those developed in the past. While this approach has been shown effective in the context of clinical research, where ‘action-oriented research’ leads to enhanced clinical practice by nurses and midwives, the engagement of clinicians in workforce-related research has received relatively little consideration within the literature.

The existing literature suggests that the critical thinking abilities of the workforce are limited, the research knowledge of nursing and midwifery clinicians is generally poor and organisational support structures for the conduct of research are scarce (Cooke 2005; Cull-Wilby & Pepin 1987; Farmer & Weston 2002). Brown and Sorrell (2009) prompt health services to not only research clinical questions, but also their own business and workforce processes. Despite the increasing public and professional awareness of the value of research and evidence-based policy in health care, workforce research has, to date, mainly been undertaken by academic health researchers or nurse and midwifery leaders. The engagement of clinicians themselves in creating knowledge in this area has had little consideration from either academia or health practice organisations.
To investigate levels of interest in, and capacity for, the establishment of clinician-led workforce research within the NT nursing and midwifery sectors more specifically, this thesis was structured into the following parts:

a) A review of organisational knowledge creation and organisational learning literature to better understand the role of the organisation in fostering a systematic approach to critical inquiry and innovation, and thus the building of research capacity.

b) An overview of research capacity-building models to assist with practical approaches for workforce research development.

c) An empirical study to assess the levels of interest in, and current capacity for, clinician-led workforce research among a sample of 45 NT nurses, midwives and managers.

More specifically, the theoretical background for this thesis discusses the concepts of organisational knowledge creation and organisational learning as presented by Argyris (1992) and Nonaka (1994). It introduces a range of capacity-building models that have emerged in clinical research over the years (such as clinical chairs, clinical nurse researcher positions or research mentor roles). These models have not only facilitated the engagement of clinicians in research, but have resulted in enhanced clinical practice outcomes. It is argued that similar benefits may be obtained by engaging clinicians in conducting workforce research.

The empirical part of this study investigates how the engagement of nurses and midwives in research addressing workforce issues may be encouraged within the specific NT context. The benefits such an engagement might bring to workforce policy and practice are also outlined. More specifically, the research investigates current workforce issues as perceived by a sample of NT nurses, midwives and their managers; assesses levels of confidence and enthusiasm in researching these issues; and explores necessary organisational support structures that might be required to establish clinician-led workforce research within the specific NT context.

The remainder of this chapter will discuss the problem statement, background and objectives of this research. It briefly outlines the theories and models that serve as the theoretical foundation for this thesis.
1.2 Problem Statement

A vast amount of research has been conducted on nursing and midwifery workforce challenges over the past decades, with considerable focus devoted to recruitment and retention issues (Mills, Birks & Hegney 2009). Countries around the world are affected by staffing shortfalls, and increasing numbers of health service providers are struggling to recruit and retain health professionals in a sustainable manner. Research further suggests an ageing of the nursing and midwifery workforce, major shifts in consumer expectations and changing morbidity patterns of the patient population (Garnett et al. 2008; World Health Organisation 2009).

The evidence implies that professionals, whose skills are in high demand, are more likely to be mobile in seeking attractive work opportunities, competitive wages and proximity to social amenities (Garnett et al. 2008; Hugo 1994). The literature acknowledges disruption to services and negative impacts on patient outcomes resulting from high rates of workforce turnover (Blakemore & Hoffman 1989; Lenthall et al. 2011).

The specific NT context is no exception. Extended workforce shortages date back to the mid-1990s and nursing and midwifery continuously struggle to deal with recruitment and retention issues, high rates of workforce turnover and an excess burden of disease, particularly among the Indigenous population (Department of Health 2009a).

This situation has been attributed, in part, to the remote nature of the NT. The issues of isolation and distance that are so typical of the NT context pose major challenges to recruitment and retention efforts. Remote settings not only experience enhanced difficulties in recruiting and retaining skilled staff when compared to their urban or rural counterparts, but they are also less likely to have local access to educational opportunities and continuing professional development (Department of Health 2009a; Garnett et al. 2008). Ongoing workforce shortages have resulted in a struggle to meet the challenging health demands of the NT population and, more specifically, to combat the excess burden of disease among Indigenous Australians (Department of Health and Community Services 2008b; Department of Health 2009a; Garnett et al. 2008). Strategies have been employed in an attempt to tackle workforce shortages,
such as the use of agency (contract) nurses and midwives, or overtime hours by existing staff. These strategies have proven costly (Department of Health 2009b) and put major pressure on the existing workforce (Wakerman & Davey 2008).

Dealing with workforce issues is a complex task in the NT (Carson 1994). Both the literature and government reports acknowledge that distance and isolation, the variety of stakeholders and the rising rate of chronic disease negatively affect workforce sustainability, especially in terms of the attraction and retention of professionals in the NT (Garnett et al. 2008). A useful source of input in addressing these issues would be the views of nursing and midwifery staff. However, at the time of writing this thesis, little such input exists. The idea of engaging nursing and midwifery clinicians in action-oriented workforce research is to increase the amount of internally generated knowledge used in introducing new and innovative solutions to old workforce issues.

1.3 Background to the Study

Workforce challenges in the NT are not just around recruitment and retention of sufficient numbers of nurses and midwives, but also concern improving effectiveness and efficiencies within the system (Department of Health 2009b). The requirement for existing staff to work overtime hours has resulted in a history of workforce attrition, and seasonal peaks and troughs in workforce numbers have considerably affected workforce sustainability. In 2009, workforce turnover rates for the NT were double that of interstate health services (Department of Health and Families 2009a). The literature has suggested that a more efficient workforce system may, for example, allow the engagement of nurses and midwives at different career stages, rather than continuing to focus on recruiting young, early career nurses. It may foster the ongoing engagement of retired nurses with flexible work arrangements and better facilitate the migration of nurses and midwives within the NT (Voit 2010b; Voit 2010c). An efficient system may better deal with a diverse workforce containing a mix of early and late career staff, nurses and midwives from both remote and urban backgrounds, as well as Australian and internationally qualified nurses and midwives from English and non-English speaking countries (Voit 2010a).
The evidence shows that clinical research efforts by nurses and midwives have resulted in enhanced clinical practice (Tierney & Taylor 1991; Wimbush 1999). This thesis argues that a similar action-oriented approach to workforce research may drive the identification of new insights into old workforce challenges and lead to improved effectiveness and efficiencies within the system. This assumption is supported by White (2002), who urges health care organisations to view research as a comprehensive concept including clinical, workforce and health system research.

The work conducted by Nonaka (1994) suggests involving the individual in the knowledge creation process, and stresses the importance of the organisation in creating an environment for critical investigation. Nonaka’s dynamic theory of organisational knowledge creation proposes flexible organisational structures that allow for the engagement of individuals in critical inquiry processes. Nonaka argues that new knowledge is created through a continuous exchange between tacit and explicit knowledge. This approach might particularly benefit the nursing and midwifery professions, in which much of the knowledge circulated is tacit and based on experience. It might especially be suited for health care settings that require tailored approaches to workforce planning and management. This assumption is supported by Carson (1994) and Garnett et al. (2008), who argue that workforce strategies employed elsewhere might not be relevant in the NT due to high rates of Indigenous population, high non-Indigenous population turnover and an unusual demographic situation within the nursing and midwifery workforce.

Facilitating the dynamic creation of knowledge by individuals addressing these issues requires a shift in strategic direction and a re-thinking of existing knowledge processes. It has been argued that much of the implementation of innovation depends, among individual and environmental factors, on the organisation. The lack of capacity for innovation is often due to organisational structures and how well these structures support individuals in creating, sharing and transferring new knowledge (Nonaka 1994).

Moreover, Clarke and Wilcockson (2001) suggest that not only individuals, but also organisations as a collective, are able to learn and develop. While knowledge creation is concerned with generating new knowledge, the theory of organisational learning provides a framework for knowledge sharing and transferring. This thesis
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links the theories of organisational knowledge creation and organisational learning with the idea of action-oriented, nurse and midwifery-led research in generating new and innovative insights to address existing workforce issues. It argues that, for individuals to be able to create innovative knowledge, it is the responsibility of the organisation to provide an environment of support for critical inquiry. Once knowledge is created by individuals, the organisation needs to transfer that knowledge to the wider organisational context (such as through workforce policies informed by clinician-generated knowledge), further enabling organisational learning.

1.4 Research Objectives

This research discusses the concepts of organisational knowledge creation and organisational learning, and assesses levels of interest in, and capacity for, action-oriented workforce research among a sample of 45 NT nurses, midwives and their managers.

This study specifically aimed to identify:

1. How the concepts of organisational knowledge creation and organisational learning might assist the NT nursing and midwifery workforce in fostering the engagement of clinicians in conducting workforce research?
2. What have been the experiences of similar jurisdictions in implementing research capacity-building models for nursing and midwifery workforce research?
3. What are NT nurses and midwives’ attitudes (such as levels of confidence and enthusiasm) towards the conduct of workforce-related research?
4. How well can NT nurses and midwives articulate research questions that might inform an action-oriented workforce research agenda?
5. How might the establishment of a workforce research culture within the NT nursing and midwifery workforce be undertaken? Which professional development strategies are needed? What challenges may arise?
6. What concrete strategies for creating a research culture arise from this research as potentially useful for NT nursing and midwifery?
Introduction

1.5 Study Design

This study used a descriptive qualitative design. To acquire a range of personal opinions and attitudes towards nurse and midwifery-led research, and to gauge participants’ levels of confidence and enthusiasm in engaging in workforce-related research, semi-structured in-depth interviews were chosen as a data collection tool. Interviews allow for the investigation of personal research questions articulated by clinicians and their managers. This methodology has previously been applied by Grundy and Johnston (2003) in a study describing the development of a Primary Health Care Research, Evaluation and Development Strategy for the Northern Territory. Supported by the Commonwealth Department of Health and Aged Care, the study stressed the need to link research more closely to practice and community levels, and informed on the main barriers to research implementation.

The current study has both theoretical and practical implications. It seeks to give an enhanced understanding of current local-based workforce challenges as faced by a sample of NT nurses and midwives, and aims to provide insight into the role of the organisation in promoting and fostering critical thinking processes to address these issues. Not only does it provide insights into the role of clinician-led research in addressing workforce challenges, but it also defines the concepts of organisational knowledge creation and organisational learning in supporting clinician inquiry.

To contribute to practice, this study seeks to understand attitudes towards workforce research and provide some ideas on the implementation of a nurse and midwifery-led research culture to address existing workforce challenges. A range of research questions posed by nurses, midwives and their managers were identified from the collected data. These identified interests might inform a future research agenda.

1.6 Thesis Outline

The remainder of this thesis is structured into six chapters. A one-line summary of each of these chapters is given below, followed by a more detailed chapter overview:

- Chapter Two: The theoretical background underpinning this research
• Chapter Three: Generating innovative knowledge through clinician-led research
• Chapter Four: An overview of the specific research setting
• Chapter Five: The methodology used to conduct the empirical part of this study
• Chapter Six: The findings derived from this research
• Chapter Seven: Discussion of the research findings, conclusions and future research activities.

Chapter Two presents the theoretical framework underpinning this research. It introduces the theories of knowledge creation and organisational learning, and addresses their potential for promoting system approaches for critical thinking within the nursing and midwifery sectors. More specifically, it addresses the theory of knowledge creation as described by Nonaka (1994), outlines models for knowledge creation, discusses modes of knowledge conversion, and investigates intrinsic motivational and contextual influence factors for the individual knowledge creation process. It presents the concept of organisational learning as introduced by Argyris and Schôn (1992), defines the concepts of single- and double-loop learning, and investigates the specific barriers for applying these concepts within public government sectors.

Chapter Three discusses the idea of generating innovative knowledge through clinician-led research, outlines research capacity-building models and discusses their potential relevance for the NT nursing and midwifery sectors.

Chapter Four sets the scene for the empirical part of this research. It provides an overview of the current NT nursing and midwifery workforce by outlining the geographical and demographic characteristics that influence both workforce numbers and management. It provides a brief overview of the current workforce status and future planning activities. It outlines key workforce trends, discusses population characteristics and determinants of health, and debates their implications for service provision. The chapter sets the scene for the empirical part of this research by summarising current research and evidence-based policy approaches within the NT nursing and midwifery sectors.
Chapter Five describes the methodology used to conduct this study. It attempts to justify the qualitative paradigm and defend the applied data collection tool. More specifically, it addresses sampling and data collection processes, discusses relevant ethical issues and outlines the analysis approach used to examine the gathered data. Attempts are made to give an understanding of relevant study limitations.

Chapter Six presents the results drawn from the empirical part of this study. It addresses the attitudes of a sample of 45 NT nurses, midwives and managers towards action-oriented workforce research. It discusses existing research skills and experience, and comments on levels of research confidence and enthusiasm. It presents the most pressing workforce issues and explores interest in researching these issues. More specifically, it discusses the abilities of interviewed nurses, midwives and managers to articulate workforce research questions, and outlines personal research questions. The chapter concludes by presenting the opportunities for, and barriers to, the establishment of action-oriented workforce research within the NT nursing and midwifery sectors. It discusses the barriers to research engagement, outlines the support structures required to foster the conduct of research and presents a future research agenda derived from personal research questions as articulated by managers and clinicians.

Chapter Seven discusses the results drawn from this research. It provides a brief summary of the study findings, discusses possible implications of these findings, and addresses the opportunities and challenges for research development within the NT nursing and midwifery sectors. This chapter aims to link the theories of organisational knowledge creation and organisational learning to the findings drawn from this research. By comparing the theoretical ideas underpinning this thesis with the findings from the research, this chapter discusses how the presented findings reinforce, or add to, existing literature. A range of recommendations will be provided to the NT DoH.
Chapter 2. Theoretical Background

2.1 A Review of Organisational Knowledge Creation Literature

2.1.1 Introduction

This chapter provides a review of relevant literature introducing the theories of organisational knowledge creation and organisational learning; these concepts serve as the theoretical foundation underpinning the research. In particular, this chapter introduces the theory of organisational knowledge creation as described by Nonaka (1994) and reviews relevant literature on organisational learning (Argyris & Schön 1996; Hislop 2005; Sanchez 2001).

More specifically, this chapter attempts to argue the importance of critical thinking and innovation approaches (generated through clinician-led research) in solving workforce issues. It argues that the concepts of knowledge creation and organisational learning might assist health care organisations in developing a systemic understanding of the need for research and innovation capacity building.

This chapter also comments on the process of knowledge creation, and outlines the intrinsic and contextual influence factors for enabling and managing knowledge creation. It then proceeds with a review of organisational learning strategies potentially useful for disseminating created knowledge. It discusses in particular the concepts of single- and double-loop learning.

To put the concepts of knowledge creation and organisational learning in a practical context, Chapter Three concludes with a review of research capacity-building models applicable to nursing and midwifery. It presents the experiences of similar jurisdictions in introducing these models and discusses their potential for application in the specific NT context (a brief overview of the setting for this research will be given in Chapter Four).
2.1.2 Defining Terms and Concepts

There seems to be consensus in the literature about the growing importance of knowledge in modern-day management. Terms such as knowledge creation or organisational learning (collectively referred to as ‘knowledge management’) have widely been discussed in contemporary management literature. The management of knowledge seems to have gained specific relevance to knowledge-intensive professions such as nursing and midwifery, in which human and intellectual capital are considered the most prominent factors of production (Harryson 2002; Hislop 2005; Nonaka, Toyama & Byosiere 2001).

The following section defines relevant knowledge terms used throughout this study. The most widely accepted definitions found in the literature distinguish between data, information and knowledge (Harryson 2002; Hislop 2005; Sanchez 2001). Further definitions will be given for innovation, knowledge creation and organisational learning.

Hislop (2005) defines data as raw material such as numbers, words or images originating from observance or measurement. Data are referred to as an unprocessed form of description, and turns into information once meaning is added. This commonly occurs through the comparison or analysis of existing data sets. Knowledge is described as the use, interpretation, application or analysis of information. It is created through the interpretation and combination of information with experience (Harryson 2002).

Knowledge creation is not only defined as the combination of information with experience, but also as the interchange between tacit (or intangible) and explicit (or tangible) knowledge. In his framework of the dynamic creation of knowledge, Nonaka (1994) advocates that organisations need to both process external knowledge and engage in its active creation to sustain a competitive environment.

Innovation is defined as the development of new knowledge based on existing knowledge. Much of the literature seems to agree that innovation results from invention, a term interchangeably referred to as ‘research’ (Drucker 2002; Harryson 2002).
While knowledge creation is undertaken by individuals and describes the process of generating new and innovative insights through the exchange of tacit and explicit knowledge, organisational learning is concerned primarily with the dissemination and diffusion of new knowledge for the benefit of the wider organisational context (Argyris 1992; Nonaka 1994).

The following section comments on knowledge creation within the nursing and midwifery professions more specifically. It briefly outlines the historical development of the creation of a knowledge base and introduces knowledge creation as proposed by Nonaka (1994). This discussion will help to shape the theoretical foundation for this research.

2.1.3 Knowledge Creation in Nursing and Midwifery

Much debate has occurred among scholars about the standing of nursing and midwifery as research professions. While some authors argue that vast amounts of relatively recent research activity have led to the introduction of rationales for nursing and midwifery practice (Bradley 1996; Dickoff, James & Wiedenbach 1968), others criticise the limited amount of research undertaken, particularly in nursing (Cooke 2005; Farmer & Weston 2002).

The early stages of creating a knowledge base for the nursing and midwifery professions were greatly influenced by the work of Florence Nightingale, the medical profession and the philosophy of logical positivism. The medical profession and logical positivism in particular have shaped nursing and midwifery’s efforts to test scientific hypotheses and generate theory. Such research has attempted to describe and understand symptoms or disease, and to quantify these phenomena. In contrast, it was not until the middle of the last century that the nursing profession began to create its own body of knowledge systematically. Conceptual models for nursing and midwifery practice evolved, and theory was slowly incorporated into the profession (Bradley 1996; Cull-Wilby & Pepin 1987).

Despite the availability of concepts that might assist health care facilities in commissioning research, the attempt to build capacity for nurses and midwives to engage in critical investigation and knowledge creation has seen limited strategic
investment. This becomes obvious given the lack of policies put in place to create and support conditions under which critical inquiry is facilitated (Rafferty & Traynor 1999). While a number of models for the creation of knowledge have been proposed, it appears that critical investigation and knowledge creation by nurses and midwives remains sporadic (Bradley 1996; Cooke 2005; Dickoff, James & Wiedenbach 1968; Farmer & Weston 2002).

One prominent knowledge creation model was introduced by Nonaka (1994), who describes the process of knowledge creation as a continuous dialogue between tacit and explicit knowledge. This process is undertaken by individuals with the intention of creating dynamic and innovative knowledge. While organisational theory characterises the organisation as a static system that processes information, Nonaka’s paradigm suggests a more dynamic view. It proposes a model in which organisations not only process, but also actively create knowledge. Any attempts to understand current issues and create new solutions towards solving these issues qualify as innovation. Innovation is perceived not as the mere processing of information, but as the adaptation of new knowledge specific to the organisational context.

### 2.1.4 Models for Knowledge Creation

This section explores the concept of organisational knowledge creation as described by Nonaka (1994), who has significantly shaped the establishment of knowledge management in past decades. In his ‘epistemological definition’ of organisational knowledge creation, Nonaka argues that a continuing exchange between tacit and explicit knowledge leads to the creation of new and innovative ideas. The interaction and discussion between individuals beyond departmental or even organisational borders can enhance this dialogue. Ultimately, however, it is the individual that creates new knowledge.

Nonaka (1994) describes this as the ‘ontological dimension’ to knowledge creation. Consideration must be paid to individual commitment to the knowledge creation process. Three relevant factors influence the commitment of individuals: intention, autonomy and the organisational environment. Intention is concerned primarily with how individuals see their world and try to make sense of this world. Autonomy
enhances, or triggers, individual willingness to create new knowledge. The environment describes how individuals engage with, or are encouraged by, their surroundings. Much of the nursing and midwifery literature on research and innovation capacity building has criticised these aspects as an impediment to the development and diffusion of new knowledge.

It appears that the historical dependency on the medical profession and the strong hierarchical structures within the profession have led to limited levels of autonomy within nursing specifically. The limited intentions of individuals to engage in critical inquiry processes might be the result of skill deficits, lack of authority and the strong dominance of the medical profession in the research arena (Bradley 1996; Cooke 2005; Dickoff, James & Wiedenbach 1968; Mills, Birks & Hegney 2009). In a case study exploring organisational nursing and midwifery culture, Scott and Pollock (2008, p. 301) explain:

> The hierarchical structure of authority was an important aspect of the culture of this unit. Staff nurses were not the decision-makers. ‘Being told what to do’ was a common thread throughout the data. The hierarchical structure of authority limited nurses’ ability to base their practice decisions on research; they had few practice decisions to make.

At the same time, the authors criticise nurses’ attitudes towards research as the job of educators or nurses in advanced nursing roles (Scott & Pollock 2008). Thus, this study addresses not only organisational responsibility, but also individual motivation to commit to the knowledge creation process. With much of the knowledge in nursing and midwifery being of a tacit nature, it could be argued that individual commitment is a key aspect to the process of knowledge creation. While explicit knowledge can be articulated, tacit knowledge is deeply embedded in experience and not easily transferable. Individual commitment, however, does not stand alone, but is greatly influenced by managers and their demonstrated commitment to the knowledge creation process. Various authors have argued that, despite knowledge creation being carried out by the individual, it is a managerial and organisational responsibility to introduce business practices that allow for, and support, the creation of new ideas (Hsia et al. 2006; Polanyi 1966).
In his ‘spiral model’ of knowledge creation, Nonaka (1994) links the aforementioned epistemological and ontological dimensions of knowledge. His model describes the process of creating new ideas through the continuing exchange of tacit and explicit knowledge undertaken by the individual. While the interaction between individuals can expose much of their tacit knowledge, this process occurs informally and the knowledge is seldom made available to the wider organisational context (Nonaka 1994). Therefore, Nonaka (2007) emphasises the importance of not only involving individuals in the knowledge creation process, but also integrating formal knowledge creation approaches into the strategic direction of the organisation. Formal provisions for the creation of knowledge might include, for example, strategic research alliances with external sources to guide and mentor the knowledge creation process. Equally important is the provision of a learning environment for the diffusion of created knowledge.

2.1.5 Modes of Knowledge Creation and Conversion

Knowledge can be created in a number of formal and informal ways. The four modes of knowledge creation as described by Nonaka (1994) include the conversion (a) from tacit to tacit, (b) from explicit to explicit, (c) from tacit to explicit and (d) from explicit to tacit knowledge.

2.1.5.1 From Tacit to Tacit Knowledge

The first example for the creation of new knowledge is the combination of the tacit knowledge within one person and that within another. In the context of nursing and midwifery, this process might involve a novice nurse who creates and widens their own knowledge base by observing or imitating a more experienced nurse. Knowledge is admittedly created through a socialisation process, although systematic insight into the observed knowledge remains limited. Equally, the transfer of new knowledge to the wider organisational context is restricted, as knowledge is shared tacitly between individuals (Nonaka 1994).
**2.1.5.2 From Explicit to Explicit Knowledge**

The second mode of knowledge creation is described as the process of combining explicit with explicit individual knowledge. This process might involve meetings or telephone conversations. New explicit knowledge is created through the exchange of individuals who re-organise or categorise existing explicit knowledge (Nonaka 1994). However, Nonaka (2007) argues that this mode of knowledge creation, much like the conversion from tacit to tacit knowledge, does not significantly enhance the organisational knowledge base, as it mostly consolidates and re-organises existing explicit knowledge.

**2.1.5.3 From Tacit to Explicit Knowledge**

The process from tacit to explicit knowledge is concerned with the externalisation of tacit knowledge. Nonaka (1994) describes this mode as the most vital to knowledge creation, yet it is also the least developed. Very few organisations pay attention to externalising tacit knowledge. Various authors have argued the importance of a systematic approach to transferring tacit into explicit knowledge. Systematic approaches to the conversion and combination of tacit with explicit knowledge might allow for tacit knowledge to be made available to a wider audience (Nonaka 1994; Pagano & Paucar-Caceres 2008).

**2.1.5.4 From Explicit to Tacit Knowledge**

The fourth mode of knowledge creation describes the conversion from explicit to tacit knowledge. This process is also referred to as internalisation, or learning. Once created knowledge has been externalised, it is commonly shared throughout the organisation, and again internalised by individuals (Nonaka 2007).

The following figure provides an overview of Nonaka’s four modes of knowledge creation:
Figure 1: Four Modes of Knowledge Creation

It is suggested that the knowledge-creating organisation applies all four modes of knowledge creation. These modes co-exist in a dynamic environment. The spiral model of knowledge creation begins with the individual who creates tacit knowledge through observation or imitation (socialisation). Tacit knowledge might then be combined with (external) information through the conduct of research, for example, and subsequently transferred to the wider organisational context through the establishment of manuals, guidelines or policies (externalisation). This knowledge is shared between team members or colleagues (combination), before again being internalised by individuals through a learning process (internalisation) (Nonaka 1994).

Therefore, the individual commitment to the generation of new ideas is regarded as essential to the applicability of knowledge creation outcomes. Equally critical to the outcome is the subjective nature of tacit knowledge, which is not merely based on technical know-how, but also on hands-on personal experience. Organisations need to challenge their employees to critically investigate and reflect on current practices. It is through this process that new ideas can thrive (Nonaka 1994; Nonaka 2007). In a clinician-led research model, clinicians critically reflect on workplace practices, attempt to reveal tacit knowledge and combine this knowledge with current available
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evidence (explicit knowledge). Methods by which organisations can enable and manage this process are discussed in the following sections.

2.1.6 Enabling and Managing Knowledge Creation

While knowledge is created by the individual, much of the extant literature argues that the professional management of organisational knowledge creation essentially facilitates individual commitment (Nonaka 1994). Individuals are enabled by the organisation, and the literature has placed much emphasis on the role of middle and high-level management in promoting knowledge creation approaches. Traditional management systems tend to be characterised by top-down structures. This means that business concepts, policies and guidelines are broken down hierarchically from top to middle and lower management. The traditional management model implies that knowledge is created by top management, with little or no input from lower organisational levels. It has been argued that knowledge creation requires approaches that are more flexible. In a bottom-up model, individual input is sought and strengthened. Individuals are enabled and promoted, and all organisational levels are encouraged to participate in the innovation process (Argyris 1992; Lam 1998; Nonaka 1994; Pagano & Paucar-Caceres 2008). Scott and Pollock (2008, p. 298) argue:

recent research findings suggest that placing the responsibility for failure to use research on the individual is misguided and that energy should be focused instead on understanding the influence of the work environment.

It could be argued that not only the use of research findings, but also the active conduct of research is dependent on the work environment. The model proposed by Nonaka (1994) combines both bottom-up and top-down approaches in a ‘middle-up-down’ model. This model has all levels of an organisation working together vertically and horizontally. The knowledge creation process occurs as the result of individual, middle and top management engagement (Nonaka 1994).

Equally important to the knowledge creation process is the commitment of management and the development of a corporate vision, knowledge strategy and flexible systems approach, to allow for the input of front-line staff. A knowledge strategy addresses the vision in more detail, identifies existing knowledge and
conceptualises the development process of new knowledge. The system is urged to collaborate with external partners, establish corporate innovation structures and introduce (research) partnerships with external facilities (Spencer 1997). Thus, the responsibility to enable, and engage in, the knowledge creation process lies with both the front-line individual, and with senior and middle management (Nonaka 1994).

Other facilitators for the dynamic creation of knowledge, promoted in the literature reviewed for this thesis, include the introduction of an organisational culture that stimulates creativity and innovation (Martins & Terblanche 2003; Pagano & Paucar-Caceres 2008). Martins and Terblanche (2003), for example, debate the relationship between creativity, innovation and organisational culture. Strategy development not only facilitates creativity, but also assists knowledge-based organisations in changing and adapting to their environment. The authors reinforce Nonaka (1994) in his appeal for the introduction of corporate frameworks and flexible organisational structures to influence the commitment to creativity systematically.

In the context of nursing and midwifery more specifically, much of the literature argues that only a minority of health care organisations have introduced corporate strategies for the development of research and innovation. While a growing number of organisations are committing themselves to innovation, only very few actively carry out research (Fitzsimons, McCance & Armstrong 2006; Rafferty & Traynor 1999). Much of the knowledge literature has attributed this to the lack of bottom-up approaches to knowledge management. Knowledge is either created by top management or adopted from outside the organisation. The individual, in this model, acts as a separate entity with little direct input (Lam 1998; Nonaka 1994; Pagano & Paucar-Caceres 2008).

Bradley (1996) supports the call for knowledge created by nurses and midwives, arguing that the external influence of the medical profession can only be diminished through an increasing professionalism of both the nursing and midwifery sectors. While much of the literature seems to agree that internal knowledge creation can be an effective tool for business innovation and development (Berta et al. 2005; Bradley 1996; Nonaka 1994), nursing and midwifery-led research has received relatively little consideration from either academia or health care organisations (Berta et al. 2005).
The following strategic framework for research and development activities in the nursing and midwifery professions was introduced by Fitzsimons, McCance and Armstrong (2006) and serves as a foundation for this research.

**Figure 2: Research and Development Framework**

- **Strategy development**: focusses on working in partnership when defining strategic priorities for R&D and how these fit with other policy and organisational strategies.
- **Building capacity**: focusses on issues relating to education and training, planning of educational programmes, supporting research-active staff and career development/pathways.
- **Infrastructure**: focusses on the resources required to create a supportive environment to facilitate and encourage R&D activity.
- **Partnership working**: focusses on promoting partnerships within nursing and midwifery, with other professional groups and external agencies.
- **Research in practice**: focusses on issues pertinent to the dissemination, utilisation and implementation of R&D findings in practice, generation of research questions and impact of this activity on professional development.
- **Outcome assessment**: focusses on the measurable outcomes of R&D activity.

Source: Fitzsimons, McCance & Armstrong 2006, p. 164

Much of the reviewed literature seems to agree that organisations that systematically encourage the development of new ideas, exercise an open communication policy, enforce collaboration and value cooperation are more likely to succeed in the sustainable development of innovation approaches. Research has shown that ideas generated by individuals, valued by managers and considered for implementation through the change of guidelines or policy can assist the organisation in changing and adapting to both the internal and external environment (Ahmed 1998; Nonaka 1994; Martins & Terblanche 2003).

The motivation of individuals to commit to this process has been extensively researched. While some individuals find it easier to commit to research, innovation and development activities, others struggle to engage in critical inquiry or problem-
solving activities. Most notably, intrinsic motivation plays a major factor in the ability to critically investigate (Ahmed 1998; Remedios & Boreham 2004; Scott-Lad & Chan 2004). The following section addresses the intrinsic motivators (and their contextual influence factors) that affect individuals in their decision to engage in the knowledge creation process.

2.1.6.1 Intrinsic Motivation

Ryan and Deci (2000) define intrinsic motivation as the affinity to seek challenge and innovation. Motivation is intrinsic when individuals are encouraged to exercise their given ability to explore, examine and investigate their surroundings. Yet, intrinsic motivation does not stand alone, and the capability to exercise these abilities is dependent on a supportive environment. Intrinsically motivated behaviour results from a supportive environment. Research evidence has established a clear link between the social organisational context and the tendency to perform innovatively.

Over the past two decades, researchers have also extensively investigated the influence of competence on motivation, arguing that competence is highly influential on intrinsic motivation. Thus, intrinsic motivation is highest when individuals feel that they are competent in their abilities and skills to complete a certain task. Further, evidence suggests that autonomy and positive reinforcement equally enhance intrinsic motivation (Deci 1972; Remedios & Boreham 2004; Scott-Lad & Chan 2004; White 1959). In support of this, it could be argued that the more competent educated nurses and midwives feel in conducting research, the greater their motivation to actively engage.

While there seems to be consensus that intrinsic motivation influences the commitment to creativity and innovation (Ahmed 1998; Nonaka 1994; Remedios & Boreham 2004), intrinsic motivation is not merely self-endorsed, but might be generated, or enhanced, through contextual influence factors (Remedios & Boreham 2004; Ryan & Deci 2000; Scott-Lad & Chan 2004). A vast amount of literature is available on contextual social and cultural influence factors on people’s tendency to create or share knowledge. An overview of these factors will be given in the
following section. This discussion will assist in understanding how the organisation and individual could work together in facilitating knowledge creation.

2.1.6.2 Contextual Influence Factors

The literature discussing contextual influence factors on motivation seems to agree on the importance of the organisation for innovation and research development (Ahmed 1998; Lin 2007; Martins & Terblanche 2003; Ryan & Deci 2000). Ahlgren and Tett (2010), for example, argue the need to enhance professional growth systematically through strategic investment in human resource development. An organisation that encourages critical investigation and responds to change is arguably more successful in creating dynamic responses to its internal and external environment. Lin (2007) and Ryan and Deci (2000) support this argument, noting that the environment either inhibits or facilitates intrinsic motivation. The motivation and tendency of individuals to engage in critical inquiry processes is positively influenced by a corporate philosophy that values knowledge creation activities (Berta et al. 2005; Lin 2007; Ryan & Deci 2000).

In the context of nursing and midwifery more specifically, it could be argued that efforts to enhance both management and clinical practice are difficult for individuals to exercise, even if intrinsic motivation is high. This might be due to financial constraints, skill deficits or a lack of dedicated time. Lin (2007) uses the example of knowledge sharing specifically to argue the importance of a corporate knowledge strategy. The author indicates that intrinsic motivation alone is insufficient in sharing the knowledge gained. Knowledge sharing must be encouraged and facilitated by the organisation through the integration of knowledge strategies. These strategies must align with the organisation’s overall business strategy (Berta et al. 2005; Lin 2007; Ryan & Deci 2000).

Much of the literature devoted to the effects of the external environment on intrinsic motivation focusses on the level of autonomy the employee is allowed to exercise. Again, the more autonomous individuals are in carrying out their tasks, the greater their levels of intrinsic motivation (Ryan & Deci 2000). While strong links have been established between autonomy and intrinsic motivation, researchers have also argued
that individuals will only be intrinsically motivated if a task is of at least some intrinsic interest. Tasks that do not present any intrinsic interest to the employee are unlikely to result in change or innovation. Moreover, a lack of direction given to the employee can result in frustration and lower levels of intrinsic motivation. While conditions that support autonomy and sovereignty have been argued to facilitate the willingness to investigate, conditions that overly control performance can impede innovation activities. A balanced relationship between autonomy and support has thus been deemed essential for knowledge creation (Mills, Birks & Hegney 2009; Nonaka 1994; Ryan & Deci 2000).

Other influence factors that affect the willingness to create knowledge relate to the level of commitment to the organisation. Job satisfaction, as well as cultural and management practices influence intrinsic motivation. Not only can these factors affect an employee’s attitude towards knowledge activities, but they also facilitate or impede commitment to these activities. Equally, trust has been identified as a key factor for knowledge management activities. A lack of trust can result in uncertainty and impede the process. Developing social relationships and mutual understanding can help individuals to build trust, and so enable the knowledge creation and sharing process (Hislop 2005).

For organisations to diffuse created knowledge to the wider organisational context, comprehensive knowledge of organisational learning theories and concepts is crucial. The following section defines organisational learning theories and discusses the concept of organisational learning in the light of the public sector. This discussion will help explain the need for a systems approach to create and disseminate new knowledge.

2.2 A Review of Organisational Learning Theories

Organisational learning theories are well represented in the literature, and a vast number of studies have been devoted to the organisation as a corporate learning entity. While there are a range of studies focussing on knowledge management and organisational learning, the synthesis of organisational learning and knowledge creation in particular has not been very widely researched.
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Yet, the importance of organisational learning to the theory of knowledge creation is uncontested. As individuals create new knowledge, a corporate system to share and disseminate created knowledge becomes necessary. Organisations learn when knowledge created by individuals is systemised for the benefit of a wider audience (Loermans 2002). In an attempt to address the importance of organisational learning to the theory of knowledge creation, the following section outlines organisational learning theories, and comments on their significance for the diffusion of knowledge.

2.2.1 Defining Concepts and Theories

Argyris and Schön (1996) define organisations as consisting of both a group of individual members, and individuals who agree upon common rules for the decision making of the collective. Organisations establish clear borders between the collective and its environment, and award individuals with the power to act in the name of the collective. Based on this definition, it has been suggested that the organisation as an entity is able to learn (Argyris & Schön 1996). Dale (1994) takes this approach further, arguing that each organisation creates its own identity, manifested in its culture. Thus, the collective, just like the individual, is able to develop. The learning organisation is characterised by a climate that encourages its individual members to critically investigate. It extends this learning process through the inclusion of significant stakeholders, and makes human resource development a business priority. Learning organisations are guided by the principles of a corporate learning strategy, participative decision making and communication exchange.

Much of the contemporary literature on organisational learning agrees that the learning process begins with the individual creating new knowledge. The organisation as an entity learns when individually acquired knowledge is shared and diffused. The dissemination of knowledge generated through clinician-led research, in the best case, leads to a change in policy or procedure affecting the wider organisational context. Ultimately, learning can result either in a change of behaviour or in the elimination of current practice (Argyris 1992; Sanchez 2001).

Any such change requires corporate knowledge management initiatives tailored to the specific organisational culture (Hislop 2005). Organisations must commit their
human resource strategies and their core business activities to improvement and innovation (Argyris & Schön 1996). However, much of the discussion concerning innovation approaches emphasises that commitment to innovation alone is insufficient. Management support behind innovation approaches becomes necessary, as institutional support is closely related to the success of organisational growth and development strategies (Hislop 2005; Salaman & Butler 1994; Senge 1994). As a result, the leadership of learning organisations must set examples and reflect corporate visions and systematic approaches to knowledge dissemination. This process begins with what Senge (1994) describes as ‘creative tension’. Tension is created through a shared, common vision. It is argued that the tendency to change results from a vision; that is, a positive image of the future. With creative tension, it is suggested that individual motivation is intrinsic (Deci 1972; Remedios & Boreham 2004; Senge 1994; White 1959).

Building a shared vision requires systems thinking and the establishment of learning structures (Dale 1994). The organisation must set goals, build interest, up-skill, value new ideas and reward inquiry (Salaman & Butler 1994). Ideas can only be institutionalised when individuals exercise inquiry processes on behalf of their organisation. Inquiry is connected to the organisation, and turns into learning once results are manifested in new approaches or actions. Ultimately, organisational learning becomes visible through a change in behaviour or processes (Argyris & Schön 1996).

Researchers consider the search for new and innovative ideas as a key element for knowledge-intensive professions (Argyris & Schön 1996). Yet, there is a paucity of empirical research on learning at the organisational level (Marsik & Watkins 1990). The institutionalisation of knowledge activities must be concerned with distributing and connecting knowledge, as much as it is concerned with creating new knowledge (Sanchez 2001). This diffusion of knowledge is described by Argyris and Schön (1996) as single or double-loop learning.
2.2.1.1 Single-Loop Learning

The concept of single-loop learning is concerned with the detection, and correction, of mismatches between the intended and actual outcomes of an action. In the case of single-loop learning, errors are detected and corrected, leading to a change in action; but the value and systems underlying this action remain unquestioned. Individuals, as the agents of the organisation, produce single-loop learning. This learning process attaches detected errors or inaccuracies to organisational actions. Actions are then modified to prevent further mismatches between the planned and actual outcomes of the action. In a single feedback loop, the reasoning that underlies organisational action remains unchanged (Argyris & Schön 1996).

The theory of organisational learning suggests that single-loop learning is sufficient when organisations are primarily concerned with the effectiveness of their actions. This is how best to achieve the intended outcomes of an action within the framework of existing values. While this approach might refer to the dissemination of quality improvement activities more so than research, there are instances in which mismatches between intended and actual outcomes require the modification of organisational values and norms. This process is referred to as double-loop learning (Argyris 1992; Argyris & Schön 1996).

2.2.1.2 Double-Loop Learning

Double-loop learning occurs when the underlying values of an action are changed. As a double feedback loop, this mode of learning connects the effects of an action with the action itself, as well as the values, strategies and assumptions underlying the action (Argyris & Schön 1996). Any strategies deemed inappropriate could be informed, for example, through the dissemination of research findings. It might become necessary then to create conditions that facilitate the creation of new knowledge. Organisations that successfully exercise double-loop learning are those that adequately skill their employees to carry out knowledge creation activities (Argyris & Schön 1996). The organisational learning literature suggests that successful double-loop learning requires the input of the individual before proceeding to the highest organisational level. Managers must be aware of the given
conflict or problem and come to realise that this problem might not be solved under existing values and norms. This process must ultimately lead to inquiry undertaken by individuals and the restructuring of existing norms through higher management levels (Argyris 1992; Argyris & Schön 1996). This view is shared by Sanchez (2001) who suggests that organisational learning occurs when knowledge created by the individual is disseminated within the wider organisation. In this process, the manager acts as the primary, but not exclusive, decision maker regarding which knowledge to adapt to the organisation. As such, the manager is a key force in the organisational learning process. Managers evaluate created knowledge and influence the organisational strategy by adapting or disseminating knowledge through guidelines and policy.

It has been suggested that organisational learning approaches will be successful so long as management support is given (Argyris 1992; Argyris & Schön 1996; Hislop 2005). In a dynamic model, new knowledge is informed by individuals, disseminated from higher to lower management levels and, finally, applied by the members of the organisation. The individual tests new knowledge and investigates its suitability. Any knowledge deemed inappropriate might lead to the creation of alternative knowledge or the proposition of new frameworks whereby the circle of organisational double-loop learning is completed (Nonaka 1994; Sanchez 2001).

Managers might foster this process by supporting individuals in absorbing knowledge located in the external environment of the organisation. Alternatively, they might facilitate the internal transfer of knowledge from one group to another, or they might enable the integration of internally created knowledge to form new organisational processes (Sanchez 2001).

Perhaps the most influential role managers hold in the double-loop learning process is the ability to control systems. This ability allows managers to monitor and assess organisational activities. Thus, control systems influence the data, information and knowledge created and circulated in an organisation. Managers determine the usefulness of generated knowledge, selecting whether to change organisational systems in response. While control systems ensure coherence and consistency in organisational policy, they can have a restraining effect on organisational learning.
Managers must therefore propose models that enable control, while simultaneously allowing for critical inquiry processes (Sanchez 2001).

It is not surprising that only a few organisations have explicitly addressed the potential of organisational learning approaches. The ability of organisations to develop and operate as learning entities has reportedly been inhibited by a number of factors. These include lack of leadership, resources, and safety and trust issues among employees. Inhibitors to the learning process might be of particular relevance to public sectors such as health care, and the nursing and midwifery professions more specifically, in which an inherited culture of dependency, a lack of systematic approaches to knowledge creation and learning, and highly bureaucratised structures continue to inhibit the ability to change and innovate. Such organisations lack the capacity to change, and remain unable to move beyond their current systems (Edmondson 2004).

The following section addresses organisational learning with a focus on the public sector. This discussion assists in better understanding the specific nursing and midwifery context studied for this research.

2.2.2 Organisational Learning and the Public Sector

There is a paucity of literature concerned with knowledge management in the public sector, particularly on the topics of knowledge creation and organisational learning (Syed-Ikhsan & Rowland 2004). Similar conclusions were drawn by Bate and Robert (2002), who argue that innovation initiatives in the public health service sector have, to date, been scarce. Many of the activities that do appear in the literature can be classified as quality improvement more so than innovative research (Tanner & Hale 2002). While any attempts to improve current policy and practice are concerned primarily with quality improvement, there are a growing number of formal research, innovation and development activities in the health arena (Common 2004).

In recent decades, the public sector has gradually come to recognise the importance of knowledge creation and organisational learning theories. Some government agencies have attempted to adapt and apply strategies derived from private sector organisations to reduce bureaucracy, and have critically reflected on existing
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processes and procedures (Common 2004; Syed-Ikhsan & Rowland 2004). This development has led to an increase in the privatisation of health care institutions, or parts thereof (Ackroyd 1995). This phenomenon is observed in a number of health care organisations, including in the NT DoH, which is currently in the process of introducing an activity-based funding and management approach to interact effectively with national funding arrangements for hospitals.

The implementation of change initiatives has also been extensively investigated within the National Health Services (NHS) in England and Wales. Knowledge strategies derived from the private sector were applied, and a number of strategies for organisational learning were proposed (Bate & Robert 2002). Following the introduction of a Modernisation Agency, accountable for introducing innovation and change in leadership and development, the NHS committed to service re-design, the innovation of business processes and the introduction of knowledge management approaches. The system is primarily concerned with the implementation of collaborative approaches to enable local clinicians and managers to address existing inefficiencies in service delivery. The proposed innovation plan is concerned with carrying forward innovation and learning. A collaborative approach is introduced to enable the health service to work together innovatively across all hierarchical divisions and structures. The collaboration is intended to result in cooperative learning processes and the adoption of innovative processes by individual workplaces. The empowerment of front-line clinicians to develop ownership for solving local issues and promoting change holds a central role in this process (Bate & Robert 2002).

Syed-Ikhsan and Rowland (2004) investigate the introduction of knowledge strategies in government departments more broadly, and identify various challenges attached to implementing learning in the public sector. These include, for example, the hierarchical and political nature of government agencies. While knowledge creation and organisational learning require dynamic and flexible organisational structures (so-called matrix structures) for knowledge to be created and shared both horizontally and vertically across divisions (Nonaka 1994), most public sector departments tend to adhere to traditional top-down structures. Again, the
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implementation of a knowledge strategy requires a re-thinking of both organisational structure and culture.

Bate and Robert (2002) reinforce this argument, stating that innovation best develops across vertical and horizontal networks. It is not surprising then that learning capacity in public sector organisations has often been constrained by bureaucracy, traditional management models and values. Top-down structures must, however, not inherently have impeding effects. To a certain degree, top-down structures may provide security, give direction and increase trust. At the same time, they might lead to the unresponsiveness to change that is so often seen in public sector organisations (Betts & Holden 2003).

As a result, there is relatively little evidence of the successful implementation of knowledge creation and organisational learning strategies in government agencies. Researchers have stressed a number of central elements to knowledge management and organisational learning approaches in the public sector. Government departments must: be concerned with the implementation of human resource strategies, emphasise the importance of a participative work environment, introduce open communication patterns and encourage inquiry in a non-judgmental environment (Betts & Holden 2003; Syed-Ikhsan & Rowland 2004).

While the need for human resource strategies or flexible organisational structures might not distinctively differ from private organisations looking at implementing knowledge creation and learning strategies, the public sector differs considerably in its dependency on political directives. The strong presence of political directives means that any attempts to implement change need to be approved by several hierarchies and align with current political directions. This political influence is eminently affecting the ability of individuals to create innovative knowledge (Syed-Ikhsan & Rowland 2004).

In their case study of a public sector organisation, Syed-Ikhsan and Rowland (2004) identify a clear link between the political environment of public sector organisations and the creation of knowledge. Common (2004) shares this view, arguing that the political environment of government agencies compromises knowledge creation and organisational learning attempts. To overcome this problem, the authors advise the
incorporation of knowledge created both within and outside the organisation into policy frameworks, which would in turn facilitate innovative policy development.

The purpose of knowledge creation and organisational learning, in this context, is to critically reflect on, and improve, organisational performance. For organisational learning to take place, innovation must be disseminated throughout the organisation, to be incorporated into, or for the purpose of changing, existing policies. While knowledge creation and organisational learning in the private sector is often driven by the aspiration to improve organisational performance, public organisations tend to be concerned with responding to external circumstances and devising different ways to perform the same tasks (single-loop learning). Public organisations seldom inquire as to why things are done in the manner in which they are (double-loop learning) (Argyris & Schön 1996; Betts & Holden 2003; Common 2004).

Nursing and midwifery in the NT is no exception and has long been concerned with responding to external pressures such as the remoteness and isolation of health care practice settings. These pressures have resulted in labour force instability, high rates of workforce turnover and high numbers of internationally trained clinicians recruited from outside the jurisdiction. However, public health care organisations are also required to learn from their internal environment and must be prepared to improve or adapt existing policy frameworks. The ongoing focus on the external environment and application of externally generated knowledge to combat these issues might be necessary, but it is insufficient (Common 2004).

Whether the theories of knowledge creation and organisational learning can assist health care organisations in successfully achieving critical reflection on their workforce processes remains to be investigated as there is relatively little evidence of their successful implementation in the literature (Betts & Holden 2003; Fenwick & McMillan 2005) Rashman, Withers & Hartley (2009) support this argument stating that the concepts of organisational learning and knowledge are under-researched particularly in relation to the public sector. However, the critical reflection on existing processes and procedures (Common 2004; Syed-Ikhsan & Rowland 2004) and the engagement of front-line clinicians in developing ownership for solving local issues and promoting change is becoming increasingly prominent (Bate & Robert
Public organisations are slowly directing attention to their capacity to learn (Fenwick & McMillan 2005).

The idea of clinicians generating internal knowledge is discussed in the following chapter. This discussion is concerned with proposing practical models for the establishment of knowledge creation to address existing workforce issues.
Chapter 3. Generating Innovative Knowledge Through Clinician-led Research

3.1 Introduction

The NT nursing and midwifery workforce has long been struggling to deal with high rates of workforce turnover, an ageing of the workforce, and growing numbers of internationally qualified nurses and midwives (Department of Health and Families 2009a; Garnett et al. 2008). Many of the issues currently experienced have been attributed to external pressures such as the NT’s tropical and desert climate, its distance and isolation from major urban and educational centres, and the excess burden of disease among the Indigenous population of the NT (Garnett et al. 2008; Weymouth et al. 2007). Despite a substantial decrease in workforce turnover rates in recent years, high levels of staffing shortages have remained for at least three decades and continue to pose substantial challenges to workforce planning and management (Department of Health and Families 2009a). While Carson (2011) notes that workforce principles applicable to other jurisdictions might not be relevant in the NT, little has been done to engage clinicians in research addressing these challenges. Instead, strategies to tackle workforce issues generally stem from outside the workforce and represent imposed, rather than generated, knowledge.

The idea of engaging nursing and midwifery clinicians in action-oriented workforce research is to increase the amount of internally generated knowledge used in introducing new and innovative solutions to old workforce issues. ‘Action-oriented’ research, for the context of this study, is defined as an approach to research whereby nursing and midwifery clinicians conduct research around issues of concern within their current workplace; that is, clinicians act as the principal investigators of the research. This definition is based in part on Gaventa’s (1988, cited in Small 1995) definition of action-oriented research as a form of research that attempts to remove the division between the researcher and the researched, and that aims to educate, create new knowledge and mobilise for action. This concept might be particularly appropriate when problem solving is a priority (Hart & Bond 1995). Stringer (1999) emphasises that formal research tends to operate from a distance, while the
engagement of front-line staff in research holds the potential to deal with the experienced reality of a day-to-day working environment (Hart & Bond 1995).

While the knowledge creation and organisational learning literature presented in Chapter Two has helped to illustrate the importance of organisational approaches to support research and innovation development among individuals, the literature is limited in its practical applicability (Marsik & Watkins 1990). The following section discusses research capacity-building models that might assist health care organisations in introducing clinician-led research.

### 3.2 Promoting Critical Thinking and Innovation

Much of the existing literature on research capacity building indicates an increased awareness of the value of clinician-led research. A substantial body of literature has emerged on research capacity building in Faculties of Nursing in particular. Existing initiatives have resulted in a range of collaborative capacity-building models comprising such elements as clinical nurse researcher positions, research mentor roles, research skill trainings, research performance indicators and clinical chairs (Chan et al. 2010; Fitzsimons, McCance & Armstrong 2006; Gething & Leelarthaepin 2000; King, Neill & Taylor 2007; Priest et al. 2007; Richardson 2005).

Despite the increasing prominence of research capacity-building approaches (Birks et al. 2009; Brown et al. 2009), much of the existing literature agrees that the research profiles of the nursing and midwifery professions are poorly developed, and that the visibility of much of the existing research is limited (Fitzsimons, McCance & Armstrong 2006; Priest et al. 2007). The work by Davidson et al. (1997) reinforces this argument, investigating in particular the establishment of collaborative partnership approaches between academic researchers and mental health nurses. The integration of research activities in mental health nursing practice and collaboration approaches between nursing faculty and practice settings were found to be sporadic. More recent literature on research capacity building in the nursing and midwifery sectors identifies similar deficits (Chan et al. 2010; Fitzsimons, McCance & Armstrong 2006; Priest et al. 2007).
Tanner and Hayle (2002), for example, attempted to quantify existing research capacity within the NHS in England. The authors found that 34 out of 1,574 nurses (2.1 per cent) were research-active, and just 14 of those 34 had published research in peer-reviewed journals. There are likely to be similarly low levels of research activity among Australian nurses. In a study of 400 registered nurses working in a rural Australian hospital, Retsas (2000) found that only 2 per cent of all respondents had undertaken and published research. Interestingly, Hutchinson and Johnston (2004) present significantly higher results, identifying that 207 out of 317 nurses employed at a major teaching hospital in Melbourne indicated research experience (65.3 per cent). However, it remains unclear from the study whether the term ‘research experience’ referred to research exposure more broadly (including research encounters in undergraduate studies), or whether it was limited to the active undertaking and publication of research studies by the nurses themselves. What has become clear from the literature review is the limited amount of research education undertaken by nurses. These findings can be partly explained by the relatively short period for which the nursing and midwifery professions have been part of the higher education sector. This observation is exemplified by Hutchinson and Johnston (2004), who investigated education levels among a sample of 317 Australian nurses:
Table 1: Nurse Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24 (7.6)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>291 (91.8)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>2 (0.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td>33.8 (9.73)</td>
<td></td>
</tr>
<tr>
<td><strong>Experience Registered Nurse (years)</strong></td>
<td>12.6 (9.95)</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical experience (years)</strong></td>
<td>11.35 (8.8)</td>
<td></td>
</tr>
<tr>
<td><strong>Years since most recent qualification</strong></td>
<td>4.28 (6.52)</td>
<td></td>
</tr>
<tr>
<td><strong>Highest qualification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division 2 certificate for registration</td>
<td>14 (4.4)</td>
<td></td>
</tr>
<tr>
<td>Division 1 hospital certificate for registration</td>
<td>23 (7.3)</td>
<td></td>
</tr>
<tr>
<td>Tertiary diploma/degree for registration</td>
<td>104 (32.8)</td>
<td></td>
</tr>
<tr>
<td>Specialist nursing certificate</td>
<td>26 (8.2)</td>
<td></td>
</tr>
<tr>
<td>Graduate diploma</td>
<td>34 (10.7)</td>
<td></td>
</tr>
<tr>
<td>Master’s by coursework</td>
<td>9 (2.8)</td>
<td></td>
</tr>
<tr>
<td>Master’s by research</td>
<td>1 (0.3)</td>
<td></td>
</tr>
<tr>
<td>Others (including education and management qualifications)</td>
<td>87 (27.4)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>19 (6.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Principle job function</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td>252 (79.5)</td>
<td></td>
</tr>
<tr>
<td>Administrative</td>
<td>28 (8.8)</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>6 (1.9)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>10 (3.2)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>15 (4.7)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>6 (1.9)</td>
<td></td>
</tr>
<tr>
<td><strong>Research experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>207 (65.3)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>105 (33.1)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>5 (1.6)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Hutchinson and Johnston 2004, p. 309

The data show that only one nurse held a Master’s by Research degree. Six out of 317 nurses indicated that research was their principle job function. It was identified from the study that education level, in combination with a lack of critical inquiry abilities and organisational support were major impediments to research activity. These findings are supported by Chan et al. (2010) who identify lack of support from...
nursing organisations and leadership to be major impediments to research undertaken by nurses. Retsas (2000, p. 604) explains:

The importance of providing ‘support’ from organizational and other sources, in order for nurses to use research evidence in their practice, was confirmed in the qualitative statements made by participants. Support, particularly recognition, was also considered important in encouraging nurses to undertake research.

King, Neill and Taylor (2007) studied the research competence and confidence of Australian nursing undergraduate students using a mentoring approach. The authors argue that critical inquiry and problem-solving abilities could be significantly increased by exposing students to scholarly research activities and guiding them with the help of a mentor.
In addition, Retsas (2000) identifies a range of concrete support structures required for nurses wanting to undertake research in general practice settings. They include:

**Table 2: Required Support to Undertake Research**

<table>
<thead>
<tr>
<th>What is required (n=400)</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>63</td>
<td>15.8</td>
</tr>
<tr>
<td>Time as paid release from work</td>
<td>30</td>
<td>7.5</td>
</tr>
<tr>
<td>Time as study leave</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional advice; assistance; guidance</td>
<td>39</td>
<td>9.8</td>
</tr>
<tr>
<td>Information: knowledge; ‘know-how’</td>
<td>23</td>
<td>5.8</td>
</tr>
<tr>
<td>Peer support</td>
<td>12</td>
<td>3.0</td>
</tr>
<tr>
<td>Support via group research project</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>Equipment</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>Money as funding</td>
<td>33</td>
<td>8.3</td>
</tr>
<tr>
<td>Money as remuneration</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest in topic being researched</td>
<td>21</td>
<td>5.3</td>
</tr>
<tr>
<td>Motivation</td>
<td>12</td>
<td>3.0</td>
</tr>
<tr>
<td>Incentive to achieve something positive</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Outcomes/rewards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition and prestige</td>
<td>7</td>
<td>0.25</td>
</tr>
<tr>
<td>Results acted on and make a difference</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>Realistic outcomes</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>Opportunity to enhance career</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>Net benefit/relevance to clinical field</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>Reward at end</td>
<td>1</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>279</td>
<td>69.8</td>
</tr>
</tbody>
</table>

Source: Retsas 2000, p. 602

Very few health care organisations have introduced the aforementioned support structures. Brown et al. (2009) argue a similar need for research support structures, mentorship, resource allocation and dedicated research time. Likewise, Birks et al. (2009) introduced research support strategies among nurses in Malaysia. They argued that both support structures and positive encouragement resulted in successful professional development strategies, leading to an enhanced understanding of research and evidence-based practice.
Newell (2002) criticises the lack of emphasis on research and development support structures, particularly in government policy. Despite the increasingly prominent notion that policy approaches, as well as health care practice, should be research-based, few nursing and midwifery policy documents explicitly address the need for a research and development strategy to inform health care policy approaches. Howlett (2009) and Howlett and Wellstead (2011) identify low levels of analytical policy capacity in both government and non-government organisations. Wellstead, Stedman and Howlett (2011) specifically argue that recent trends, such as greater privatisation and the public call for an increased involvement in the policy-making process, have led to changing policy roles and greater levels of public participation. This has resulted in the need for future research to examine policy work in a range of sectors.

There is also a clear lack of evidence on research capacity-building and policymaking approaches in the nursing and midwifery literature (Wimbush 1999). A review of the research capacity-building literature in health care settings indicates a strong need to establish strategic frameworks and research skill trainings, and to foster collaboration between clinicians, academic researchers and policy makers. In reality, research is seldom an integral part of clinical practice, and nursing and midwifery workforce policy in particular is rarely informed by research. As summarised by Newell (2002), creating a nursing and midwifery knowledge base to inform workforce policy and practice will require:

1. Mapping current activity
2. Addressing the lack of research literacy
3. Introducing funding for research education and the training of clinical staff
4. Developing innovative career pathways
5. Establishing research training fellowships and posts.

Fitzsimons, McCance and Armstrong (2006) propose similar strategies. These authors identify a lack of clearly defined pathways for nurses and midwives wanting to undertake research; few organisations were found to have in-house strategies in place to build research capacity and inform their clinical and workforce policies using clinician-generated evidence. Those nurses and midwives who had previously been involved in research had taken on the role of data collectors more so than of active researchers. This is because nurses and midwives wanting to actively
contribute to research were hindered by a lack of strategic capacity planning, dedicated resources and leadership.

Much of the capacity-building literature argues that isolated and infrequent instances of progress and an absence of commitment across policy levels have contributed to the limited research standing of the nursing and midwifery professions (Edwards et al. 2009; Fitzsimons, McCance & Armstrong 2006; Newell 2002). Recent research reinforces this argument, stating that the implementation of capacity-building strategies in nursing and midwifery remains sporadic (Chan et al. 2010). It appears that knowledge is mostly sourced from outside these sectors, rather than being created from within. Newell (2002, p. 283) states that ‘knowledge is itself dependent on the availability of people who create it, in other words, active researchers’.

The idea of engaging clinicians in the knowledge creation process is not new. Literature has repeatedly commented on the potential of engaging clinicians in organisational inquiry. In one of their early publications, Argyris and Schön (1996) identify various parallels between the inquiries of individuals in an organisational context and those of researchers in academic settings. While traditional models describe the researcher as an expert solving issues experienced at the practice level, Argyris and Schön (1996) propose a model looking at the clinician as expert and critical inquirer. Clinicians might not only be the recipients, but also the creators of expertise. They might be capable of reflecting on their own practice, which has often been seen as the prerogative of organisational leaders or academic researchers. Clinicians might have an interest in organisational processes, and how these processes could be changed for the better. They might be curious to reflect on their daily business practices and to scrutinise the reasoning behind those processes. Clinicians might be interested in acquiring the skills to investigate, and so enhance the learning capacity of their organisation. Argyris and Schön’s model promotes the creation of practical knowledge and vigorous research by clinicians and academics alike. They argue that this kind of collaboration can enhance the academic understanding of practice situations. Similarly, clinicians might benefit from the collaboration with academic researchers in discovering hidden rationalities occurring in everyday practice, thereby gaining the ability to better describe these rationalities (Argyris & Schön 1996).
While strategies for building clinical research capacity have received at least some attention in nurse faculties and clinical settings (Pearson 2004), it appears that little is known about the establishment of clinician-led research into workforce-related issues. Crookes and Davies (1998) argue that nurses and midwives have responded to workforce changes more so than being successful in shaping or influencing them. Further, the nursing profession as a whole has seen little success in establishing or articulating major workforce research priorities. While Brown and Sorrell (2009) urge health services to not only research clinical questions, but also their own business and workforce processes, there are no examples in the literature of models relating to the engagement of nursing and midwifery staff in workforce research.

Much has been written about the imperative of research capacity building, and a range of models have been introduced for fostering research capacity in clinical settings in particular. This thesis argues that those clinical research models might be applicable to building research capacity into workforce-related matters within the NT nursing and midwifery sectors. The following section addresses factors important to building capacity, presents capacity-building models, outlines the experiences of similar jurisdictions in introducing these models and debates their potential for application within the NT context.

### 3.3 Building Research Capacity

Much of the existing research capacity-building literature tends to promote similar strategies for fostering the engagement of clinicians in research (White 2002). These strategies include, for example, strategic research development (such as altering organisational structure and culture), dedicated resources (such as financial assistance) and research skill trainings (Wimbush 1999; White 2002).

The capacity-building literature unanimously argues in favour of making knowledge creation a business priority (White 2002). Strategies include, for example, research skill trainings, financial assistance and rewards. While a vast amount of literature is available on capacity-building approaches on the organisational level (Edwards et al. 2009; Fitzsimons, McCance & Armstrong 2006; McNicholl, Coates & Dunne 2008; Wimbush 1999), few organisations have actively introduced comprehensive strategic
Generating Innovative Knowledge Through Clinician-led Research

frameworks to foster the engagement of front-line staff in research. It is not surprising then that a limited amount of research exists on the experiences of health care organisations in introducing research capacity-building frameworks.

Cooke (2005), for example, proposes a framework for implementing research and development, building sustainability and measuring progress. The framework promotes research by practice, a model in which clinicians actively conduct research and act as the principal investigator for their project. Cooke promotes a range of interventions to support this initiative, including the establishment of research and development support units as introduced, for example, within the UK National Health Service. Cooke’s framework includes four structural levels of capacity-building support. These include the individual, the team, the organisation and the broader organisational environment. Capacity is built through the implementation of six principles. These are primarily dedicated to building skills and knowledge, developing linkages and collaboration, ensuring research is aligned closely to practice, implementing channels for dissemination, investing in infrastructure and building sustainability. Cooke’s framework, at the individual level, promotes mentorship, collaboration and networks to foster research engagement. Other strategies include capacity development at the team level. It has repeatedly been argued that individuals are more likely to engage in research in an environment in which other clinicians are research-active. On an organisational and supra-organisational level, Cooke promotes collaboration between health care organisations and research units or centres.

Despite the increasingly prominent notion that both policy and practice should be research-based, and the introduction of research units in undergraduate nursing and midwifery courses, Wimbush (1999) criticises the unwillingness, or inability, of health care organisations to invest in strategic research development. Despite the strong pressure in favour of building sustainable research capacity in nursing and midwifery globally, it appears that the majority of existing capacity-building literature is situated in a US or UK context. It could be argued that other jurisdictions, including Australia, have put considerably less focus on research capacity-building approaches in the nursing and midwifery professions.
Creating knowledge from inside the organisation remains a substantial challenge to many health care facilities (Brown et al. 2009), and the engagement of clinicians themselves in this process is particularly unexploited (Voit 2011). This lack of research awareness, utilisation and support has led to limited numbers of clinicians actively engaged in knowledge creation. White and Taylor (2002) emphasise the need to build research skills and support from within the ranks of both the nursing and midwifery professions, thereby limiting the existing boundaries to knowledge creation and application.

McNicholl, Coates and Dunne (2008) reinforce this observation, arguing that current systems largely disregard the support needs of those nurses, midwives and managers that want to be research-active. While the apparent potential of engaging clinicians in clinical research has been widely discussed in the literature, considerably less focus has been devoted to workforce-related research matters. The literature recognises the need for establishing biomedical and clinical research, but also calls for more community, health service and systems research (White 2002). White (2002, p. 165) argues that ‘in this holistic sense, research is as basic to effective and efficient health care as financing’.

White (2002) comments in particular on the importance of top management levels (in particular the Chief Executive Officer) in facilitating research development. The role of the Chief Executive holds major influence over the establishment of a research and development strategy, and whether such efforts are regarded as important to the growth and improvement of the health service (Spencer 1997).

Recent research has investigated not only the role of management, but also the challenges of using and incorporating research in policy decisions (McNicholl, Coates & Dunne 2008; Syed-Ikhsan & Rowland 2004). Much of the literature agrees that the extent to which policy is informed by research depends on how well research is supported by, and communicated back to, the policy making level. Conversely, researchers have argued that the existing gap between the creation and application of research is often the result of poor communication and exchange between clinicians, middle and top managers (O’Brien-Pallas & Hayes 2008). To overcome this gap and promote the sustainable establishment of research, a range of strategic, collaborative
capacity-building models have been introduced. These models are presented in the following section.

3.4 Capacity-Building Models

There is a range of research capacity-building models presented in the literature. The models reviewed for this research focus exclusively on capacity development in the nursing and midwifery professions. They include (a) nurse researcher positions, (b) clinical networks, (c) consultant nurses, (d) nursing research fellowships and (e) servant leadership. These models are presented below.

3.4.1 Nurse Researcher Positions

While a substantial body of literature is concerned with the role of the clinical nurse researcher as a model for research capacity building, a limited amount of research has been undertaken into the design, implementation and assessment of this role. Chan et al. (2010) for example, investigate the introduction of the nurse researcher role to assist with the establishment of a nursing research culture in a tertiary hospital in Australia. The major barriers presented in the literature to both the conduct and utilisation of research again include poor research skills and limited organisational support systems (Brown et al. 2009). According to Brown et al. (2009), organisational barriers, particularly time constraints and lack of authority among clinicians, pose major obstacles to research capacity building within the profession. The role of the nurse researcher in this context might assist in facilitating the conduct of nurse-led research. The nurse researcher not only actively conducts research, but also builds capacity among fellow clinicians for generating meaningful knowledge. This approach has, to date, focussed primarily on clinical research. Little research has been conducted on how the introduction of a nurse researcher role might be facilitated on a broader organisational level. Chan et al. (2010, p. 64) reinforce this observation arguing that ‘there is a paucity of information with regard to the design, implementation and evaluation of the nurse researcher model at a service or departmental level’.
In their study on the introduction and evaluation of the nurse researcher role in cancer care, the authors propose a comprehensive support system for embedding nurse researcher positions within the broader organisational context. The following figure illustrates the support structures required for implementing nurse researcher positions (Chan et al. 2010).

**Figure 3: Support System for the Nurse Researcher**

The model includes a dedicated nurse researcher position and support system consisting of the Nursing Directors (Research and Clinical), Professor of Nursing, and external partners such as Universities, internal facilities such as libraries, and other relevant research organisations. While not all organisations might have dedicated Nursing Director of Research positions, in this model, the importance of the general Director of Nursing in relation to professional leadership and support is crucial. The role of the nurse researcher is primarily accountable for the development, co-ordination and implementation of nursing research projects. This role is aligned closely to the role of a research mentor. The framework as proposed by Chan et al. (2010) led to the introduction of a more systematic approach to research development within a cancer care department in an Australian hospital. The authors argue that the framework provides an extensive support system for research interested nurses through the implementation of a department-funded nurse researcher/mentor position. It could be argued that this model might be applicable...
not only to cancer services within Australian hospitals, but also to a range of different service areas, including health care facilities in the NT.

Richardson (2005) advocates similar benefits from the incorporation of a nurse researcher position in an Emergency Department (ED) of a New Zealand-based hospital. The department was characterised by overcrowding, staffing shortages and high rates of workforce turnover; conditions typical of the NT nursing and midwifery sectors. The hospital used for Richardson’s (2005) study was the sole provider of ED services within the region. Despite high levels of turnover, the hospital appointed a nurse researcher position. The role developed because of the vision of the Nurse Manager, and was introduced to support those nurses wanting to undertake research within the workplace. While the initial role was a trial for the period of one year, findings from the study indicate that the position became an integral part of the department. The role was designed to be 0.5 FTE, with the additional option of taking on a part-time clinical role. Funding for the position was granted from the newly established Emergency Medicine Research Foundation. Here too, the nurse researcher acted as a mentor, facilitating and coordinating research efforts within the department and conducting active research. Specific activities related to developing resources, mentoring other nurse researchers, distributing updates and information regarding research activities, publishing articles and organising seminars. A range of specific research projects was undertaken, including, for example, the critical review of the Triage system within the ED department and an analysis of existing documentation practice.

While research has long been an integral part of undergraduate and postgraduate studies, little research focus exists among clinicians working for the health service. The introduction of the nurse researcher position reportedly resulted in a higher profile for research, and enhanced the incorporation of research as a skill with practical relevance. The study findings suggest that the movement towards Nurse Practitioners and the general increase in numbers of nurses interested in postgraduate education led to a broader range of opportunities for knowledge development (Richardson 2005).

Again, while academic debate has sought to promote the importance of research skills, anecdotal evidence suggests limited research exposure and abilities among
both nursing and midwifery clinicians (Chan et al. 2010; Fitzsimons, McCance & Armstrong 2006; Priest et al. 2007). The nurse researcher, in this context, might be a valuable facilitator for the establishment of research skills and pathways. Chan et al. (2010) summarise the role of the nurse researcher as follows:
## Table 3: The Role of the Nurse Researcher

<table>
<thead>
<tr>
<th>Anticipated outcome of the nurse researcher position</th>
<th>Strategies used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participating in evidence generation</td>
<td>1. Writing research protocols</td>
</tr>
<tr>
<td>• Leading research projects</td>
<td>2. Writing Grant proposals</td>
</tr>
<tr>
<td>• Conducting primary research and systematic review</td>
<td>3. Applying for research grants</td>
</tr>
<tr>
<td>• Encouraging other nurses to conduct research as investigators and to disseminate findings</td>
<td>4. Applying for ethics approvals from the local Human Research Ethics Committee</td>
</tr>
<tr>
<td>2. Supporting research utilisation</td>
<td>5. Establishing links with research academics</td>
</tr>
<tr>
<td>• Encouraging clinicians to question their practice</td>
<td>6. Conducting evidence-based practice programmes</td>
</tr>
<tr>
<td>• Participating in teams in policy making and implementation of research</td>
<td>7. Supporting nurses to submit abstracts to conferences</td>
</tr>
<tr>
<td>• Conducting translational research</td>
<td></td>
</tr>
<tr>
<td>Collaborations</td>
<td>Nurses in the specified clinical area, nurse academics, Cochrane collaboration, Joanna Briggs Institute, granting bodies, librarians, nursing directors, nursing specialist, multidisciplinary team, policy makers</td>
</tr>
</tbody>
</table>

Source: Chan et al. 2010, p. 66
3.4.2 Clinical Networks

Clinical networks for nursing research were introduced to foster collaboration between university and clinical practice settings. Such collaborations should assist with incorporating research into practice. This might be achieved by developing and establishing strong research links, addressing knowledge gaps of clinicians, and introducing a culture of communication between nurse practice and faculty to answer pertinent practice problems. Collaborations might include the joint development of programmatic research agendas, supervision by academic researchers, the development of a joint research database, chat rooms or joint research discussion boards (Gillibrand, Burton & Watkins 2002).

3.4.3 Consultant Nurses

Chumun and Tiran (2007) reinforce the opinions of various capacity-building researchers, arguing that clinical environments are often characterised by their inherent lack of research leadership (Edwards et al. 2009; White & Taylor 2002; Wimbush 1999). The role of the consultant nurse or midwife in this context is to enhance research activity and participation, and to provide research direction and leadership. The consultant nurse establishes a research-friendly environment, develops research agendas and facilitates the engagement of staff in the research process. The role further entails the promotion and marketing of research activities and the provision of professional advice. The consultant nurse actively undertakes research projects, and delivers research trainings. The overall professional responsibility of the consultant nurse is to incorporate a research focus within the clinical practice setting. The consultant nurse further acts as the link between front-line clinical areas and higher management levels. More specifically, the consultant nurse or midwife develops research education programmes (for example short courses and workshops) and fosters collaboration with university settings. They introduce a culture of change within the organisation and try to eliminate barriers to research activity and utilisation. Again, the consultant nurse, much like the nurse researcher, acts as a mentor to clinical staff on the wards. Being supported and guided by an experienced researcher with clinical knowledge might enhance research literacy among staff. Ultimately, the consultant nursing role might assist in bridging
the gap between clinical front-line staff and management levels in developing new and innovative policies (Chumun & Tiran 2007). Researchers repeatedly argue that these policies are introduced distantly from the clinician (Berta et al. 2005; Newell 2002). The consultant nurse might establish local focus groups or nursing research forums and committees as a means of facilitating the promotion of a research culture to develop local research-based policies. Consultant nurses not only encourage research engagement, but also value and reward critical inquiry; for example, through the creation of research symposia or awards (Chumun & Tiran 2007).

### 3.4.4 Nursing Research Fellowships

Nursing research fellowships enable nurses to receive dedicated release time for the conduct of research. In this model, funds are allocated for nurses to attend educational courses and undertake a research project. These courses might include a broad overview of research in nursing; assistance with generating research questions and writing research proposals; conducting literature reviews and/or fieldwork; and disseminating and publishing findings. By directly engaging interested clinicians in this process, the dissemination of research in practice settings should be facilitated. In this model, the clinician acts as the principal investigator of the research project (Hinds, Gattuso & Morrell 2000; Turkel et al. 2008).

Turkel et al. (2008) have investigated the introduction of a nursing research fellowship programme in a community hospital in the US. In the course of the programme, clinicians were allocated 16 hours release time per month over the period of one year. They received mentoring from an experienced research consultant, and were supported by the Chief Nurse Executive and Nursing Research Council. The specific scope of the programme included the development of a research proposal, undertaking the research and disseminating the findings. Educational support and mentoring were vital parts of the programme. A call for applicants went out and 10 clinicians applied to participate. The programme commenced with the provision of educational trainings. Training was open not only to programme participants, but also to other interested nurses or midwives within the service. The programme eventually led to an increase in research knowledge. This was achieved through the participation in a structured, mentored and supervised
fellowship programme, with special focus devoted to supporting clinicians in undertaking their own research projects.

The programme evaluation suggested that a return on investment for the organisation was achieved. This return included the personal growth and skill enhancement experienced by programme participants. On a professional level, outcomes resulted in a range of publications and conference presentations. Changes also included improved nursing practice policies. Interestingly, the health service was restructured following the implementation of the programme. This re-structure included the expansion of the introduced Nursing Research Council and the introduction of journal clubs and evidence-based practice committees. It could be argued that the project challenged the existing culture, contributing to both personal and professional growth.

3.4.5 Servant Leadership

Servant leadership is concerned with mediating and promoting a creative organisational environment to facilitate research capacity building. It is an approach that focusses on valuing and developing staff, and that stimulates change on both the personal and organisational level. Jackson (2007) argues that, in reality, nurses face considerable challenges when engaging in research. These challenges might be attributed in part to the organisational environment and in particular to limited human resources and unsupportive managerial practices. This environment makes it difficult to commit to, or sustain, research activities. This prompted Jackson (2007) to argue for strong, effective leadership, to diminish the hindering aspects of organisational cultural. Servant leadership is an approach to nurture strong leadership, to develop environments that foster research capacity. This process is undertaken by establishing strong leaders with a passion for supporting and sustaining personal and organisational growth. This might be realised through the development and support of Higher Degrees by Research students within the organisation, or by nurturing early career researchers (Jackson 2007).

It is argued that the aforementioned research capacity-building models might be applicable to the specific NT context. This assumption is based on research
undertaken by Richardson (2005, p. 35) who, in her study on the introduction of a nurse researcher position in an ED, suggests:

In common with many other EDs, there are problems such as bed-block, overcrowding, staff shortages and high staff turnover rates. With the establishment of such a position in a busy ED, it becomes apparent that research is not only compatible with clinical nursing, but essential to its development. Nurse Researchers need to articulate the role of nursing, and develop collaborative relationships with a range of health professionals.

While the specific NT context is concerned mostly with alleviating workforce shortages, and combating high rates of workforce turnover, the engagement of clinicians interested in research might lead to approaches more applicable than are some of the workforce strategies currently applied.

3.5 Measuring Outcome Success

To measure the outcome of research approaches, Cooke (2005) suggests a set of criteria for each proposed principle of capacity building. The development of research skills through mentorship, skill trainings or supervision might be measured by incorporating these strategies within professional development or career progression programmes. The appropriate dissemination of research efforts is a widely accepted measure for the sustainability of capacity-building efforts. Such strategies might be measured by number or output (such as publications and conference presentations). A set of criteria for research dissemination and impact criteria is presented in the following table (Cooke 2005).
## Table 4: Research Dissemination and Impact Criteria

<table>
<thead>
<tr>
<th>Structural level</th>
<th>Examples of suggested criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals and Teams</td>
<td>Papers in research and practice journals</td>
</tr>
<tr>
<td></td>
<td>Conference presentations</td>
</tr>
<tr>
<td></td>
<td>Applied dissemination of findings</td>
</tr>
<tr>
<td>Organisational</td>
<td>Evidence of influence on local strategy and planning</td>
</tr>
<tr>
<td></td>
<td>Ease of access to research undertaken</td>
</tr>
<tr>
<td></td>
<td>Seminar programmes relating to research undertaken</td>
</tr>
<tr>
<td></td>
<td>Examples of evidence-based practice and applying locally developed knowledge in strategy policy and practice</td>
</tr>
<tr>
<td></td>
<td>Funding to support practitioners and teams to disseminate findings</td>
</tr>
<tr>
<td></td>
<td>Successful applications for intellectual property submitted based on R&amp;D developed in organisation</td>
</tr>
<tr>
<td>Supra-organisational (networks and support units)</td>
<td>Papers focussing on health services research, written with practitioners</td>
</tr>
<tr>
<td></td>
<td>Conference presentations at practice-focussed conferences</td>
</tr>
<tr>
<td></td>
<td>Applied dissemination</td>
</tr>
<tr>
<td></td>
<td>Innovative dissemination</td>
</tr>
<tr>
<td></td>
<td>Successful applications for intellectual property submitted based on R&amp;D developed in partnership with health organisations</td>
</tr>
</tbody>
</table>

Source: Cook 2005, p. 5
On an individual level, research might be disseminated through, and measured by, the number of publications, conference presentations or changes in local strategy planning generated. At the organisational level, Cooke (2005) suggests measuring success by examining the number of research trainings and seminars undertaken, and determining change in policy guidelines. On a supra-organisational level, dissemination might occur through collaborative approaches between clinicians and researchers. Other suggestions are made for the incorporation of research within job descriptions. However, any attempt to integrate research within work hours would require the allocation of time and backfilling arrangements, as well as financial support and funding structures (Cooke 2005; Wimbush 1999).

The work of Wimbush (1999) proposes similar strategies for strengthening research capacity and promoting sustainability through measuring outcome success. These strategies include research networks, research skill trainings, research support structures and research dissemination. More specifically, the proposed strategies may include academic research courses, short courses or research secondments. Research might be undertaken by carrying out a terminated research project, joining research units or organisations as part of professional development, or undertaking research as part of a degree. Outcome success of the aforementioned strategies might be measured by evaluating the number of staff engaging in professional research development, the number of publications produced and the changes in policy documents and guidelines.
The suggested research dissemination and outcome measures developed for this research include:

**Table 5: Examples of Outcomes Associated with Clinician-led Research**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Priority Area</th>
<th>Objectives</th>
<th>Anticipated Outcomes</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assess</strong></td>
<td>Partnerships</td>
<td>Establishing Research Partnerships between DoH, CDU and other relevant research institutions</td>
<td>Research Skill Trainings established (such as short courses, workshops, enrolment in single-stand-alone research subjects, Master’s by Research, PhD)</td>
<td>First research short courses, workshops, Master’s by Research or PhD courses to commence in 2012/13</td>
</tr>
<tr>
<td><strong>Plan</strong></td>
<td>Preparation</td>
<td>Preparing staff for the identification and investigation of their local-based workforce issue</td>
<td>Research Skill Trainings conducted, Research mentor partnerships established. Nurse Researcher/Research mentor allocated to each staff undertaking research</td>
<td>Mentor to be allocated and Research Skill Trainings to be conducted prior to commencing an individual research project</td>
</tr>
<tr>
<td></td>
<td>Professional Development</td>
<td>Increasing the number of NT nurses and midwives enrolled in (postgraduate) research studies</td>
<td>At least two nurses, midwives or managers in each hospital division engaged in research</td>
<td>First Master’s by Research programmes for nursing and midwifery staff to commence in 2012/13</td>
</tr>
<tr>
<td><strong>Act</strong></td>
<td>Action-oriented Research Projects</td>
<td>Nursing and midwifery staff undertaking their local-based workforce-related or clinical research project</td>
<td>Research projects undertaken</td>
<td>Research projects undertaken within Master’s by Research studies or alternative professional development arrangements</td>
</tr>
</tbody>
</table>

56
### Individual Level

<table>
<thead>
<tr>
<th>Evaluate</th>
<th>Publication Outcome</th>
<th>Master’s by Research studies to result in a Master’s Thesis</th>
<th>Master’s Theses submitted within two years of study commencement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Other professional development arrangements (for example, short courses, workshops, enrolment in stand-alone subjects) to result in a journal article submitted for publication</td>
<td>Papers/journal articles accepted for publication</td>
<td>Journal articles submitted upon finishing individual research project</td>
</tr>
<tr>
<td></td>
<td>Other professional development arrangements to result in conference presentations/posters</td>
<td>Conference presentation held; conference poster displayed</td>
<td>Research presented in the course of undertaking the project</td>
</tr>
</tbody>
</table>

### Organisational Level

<table>
<thead>
<tr>
<th>Evaluate</th>
<th>Publication Outcome</th>
<th>Research capacity building</th>
<th>Establishment of a Nurse Researcher position</th>
<th>Nurse Researcher to guide and mentor clinicians; coordinate research processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research communication</td>
<td>Presentations to colleagues and peers Website postings/workshops Poster displays in workplaces</td>
<td>Research findings and outcomes disseminated to colleagues and peers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy guidelines</td>
<td>Guidelines and policies informed by research outcomes</td>
<td>Change in practice or workforce policy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The preceding review of knowledge creation, organisational learning and research capacity-building literature suggests that the investment in knowledge creation strategies, capacity-building approaches and research support structures could enhance research activity among clinicians (Argyris 1992; Bradley 1996; Martins & Terblanche 2003; Nonaka 1994; Wimbush 1999).

There is a call for hospitals and other health care facilities to provide infrastructure support for the conduct of research. Consequently, these strategies might lead to the development of improved policy approaches and outcomes of patient care. Much of the literature focusses on the lack of research orientation within both the nursing and midwifery professions, and urges greater investment in research capacity-building approaches.

In conclusion, it appears that while a range of capacity-building models is available, the inability, or unwillingness, of health care organisations has hindered the implementation of research-based practice and policy development (Brown & Sorrell 2009; Chan et al. 2010; Fitzsimons, McCance & Armstrong 2006). The following chapter provides an overview of the specific setting for this research. This discussion will set the scene for the results section of this thesis.
Chapter 4. The Research Setting

4.1 Introduction

This chapter introduces the NT and its nursing and midwifery workforce. Gaining insight into the geographical, workforce-related and population-based characteristics will assist in understanding the unique context the NT presents to its nursing and midwifery workforce and, ultimately, to the establishment of clinician-led workforce research in those sectors. The features discussed in this chapter have been cited to influence both nursing and midwifery workforce policy and practice in a way that has led to substantial workforce planning and management challenges (Department of Health and Families 2009a; Garnett et al. 2008; Lenthall et al. 2011).

The following chapter discusses in particular the impact of the remote nature of the NT, outlines key workforce trends resulting from workforce projection models, and addresses population characteristics and determinants of health specific to the remote NT context. It sets the scene for the methodology and findings chapters of this thesis by commenting on current knowledge creation and evidence-based policy approaches in the NT.

4.2 Geographical and Demographic Context

The NT is the third largest of all eight Australian states and territories. Despite a land mass of 1,346,200 km², it is the least populated jurisdiction in the country. According to the Australian Bureau of Statistics (ABS), the NT has a population of approximately 230 000 (ABS 2010). This population has been growing at a rate of 2.3 per cent since 2009 (ABS 2011a). While most major urban areas will continue to grow over the next decade (ABS 2011a), remote jurisdictions are expected to remain sparsely populated or slightly decline in population numbers (ABS 2001). The remote nature of these jurisdictions has long been cited as an inhibitor to population growth and development. In the context of nursing and midwifery more specifically, remoteness has been held accountable for continuing workforce supply issues, difficulties in providing professional development opportunities on-site, and the
The Research Setting

social and geographical isolation of clinicians from other practice settings (Wakerman & Davey 2008).

In 1999, the ABS introduced the Accessibility/Remoteness Index of Australia (ARIA) quantifying the remoteness of a place on an Index scale between 0 and 15. In 2001, the introduction of the Australian Standard Geographical Classification (ASGC) followed, allowing for the comparison of urban and country Australia (ABS 2003). The introduction of the ASGC Remoteness classification had resulted in the establishment of five Remoteness Areas (RA) comprising major cities, inner and outer regional, as well as remote and very remote areas (ABS 2011b).

The following table illustrates these areas as classified by the ABS (ABS 2011c).

**Figure 4: ASGC Remoteness Structure**

![ASGC Remoteness Structure](https://example.com/figure4)

Source: ABS 2011c

The entire NT, with the exception of the outer regional area of Darwin, was classified as remote, with accessibility indices of more than 5.92 (remote area) and more than 10.53 (very remote area) for most of the jurisdiction (ABS 2011b). This recently formally classified remoteness is a key factor in the problems faced by the NT nursing and midwifery workforce. Remoteness has long been cited as a major
reason for extended workforce shortages dating back to the early 1990s (Department of Health and Families 2009a; Garnett et al. 2008; Weymouth et al. 2007).

The categorisation into remote or very remote areas for most of the NT has since resulted in a range of Commonwealth funded programmes. Despite improvements in resource allocation for specific regions in recent years, research suggests that the geographical mal-distribution of health workers in Australia, particularly in remote or very remote areas such as the NT, remains significant (Australian Institute of Health and Welfare 2009; Wakerman & Davey 2008). Many health care facilities in these areas are characterised by a lack of availability of anaesthetic, obstetric and surgical services (Liaw & Kilpatrick 2008; Wakerman 2004). They are confronted with dispersed population patterns, greater cost of services and an excess burden of disease among their Indigenous population (Begg et al. 2008; Wakerman 2004).

More specifically, mortality rates of Indigenous Australians remain up to three times higher when compared with non-Indigenous Australians (Zhao & Dempsey 2006). This gap occurs evenly in males and females. Essentially, the greater part of health inequalities is seen in non-remote Indigenous populations. The major causes for poor health outcomes have remained unchanged in past decades. They include cardiovascular disease, diabetes, mental disorders, chronic respiratory disease, infectious disease, neonatal conditions and injuries. Ill health is impaired by high rates of tobacco use, excess body weight, high cholesterol levels, physical inactivity and alcohol consumption (Begg et al. 2008). In addition, the non-Indigenous NT population experiences lower life expectancy when compared to the general Australian population (Begg et al. 2008; Northern Territory Treasury 2011).

Any such disparities in health outcomes pose major implications for policy development and service provision, as Indigenous Australians make up 30 per cent of the total NT population (ABS 2010; Department of Health and Families 2010). Both the increasing burden of disease among Indigenous and non-Indigenous Australians in the NT, and a parallel ageing of the nursing and midwifery workforce are considered key vulnerabilities to service delivery (Begg et al. 2008) Department of Health and Families 2010).
Wakerman and Davey (2008) argue that poor human resource management practices in remote workplaces in the NT reinforce ongoing workforce supply issues. The lack of resources on-site and the overwhelming workloads for existing staff have led to a situation in which retention efforts prove exceptionally difficult (Australian Institute of Health and Welfare 2011). Lenthall et al. (2011, p. 32) explain:

The nursing workforce in very remote areas of Australia is in trouble. The workforce is ageing, the numbers of nurses per population has fallen and the numbers of midwives and child health nurses have dropped significantly over the last 15 years.

Existing workforce shortages are intensified by an ageing of both the patient population and the nursing and midwifery workforce (Productivity Commission 2005). While the NT is reportedly ageing at a slower rate than Australia as a whole, the number of people aged 65 years and over is predicted to double from 3 per cent in 1999 to 6–7 per cent by 2021 (ABS 2001). In parallel, the proportion of people aged 14 years and under is projected to decline from 26 per cent in 1999 to 22–23 per cent by 2021 (ABS 2001). Most alarmingly, the nursing profession itself is shrinking as substantial cohorts of nurses are preparing to leave the workforce for retirement (Garnett et al. 2008; Lenthall et al. 2011; Preston 2006; Voit & Carson 2012).

Research suggests that an ageing of the nursing and midwifery workforce and parallel demographic transitions within the patient population will result in insufficient workforce numbers to meet future demand (Garnett et al. 2008). This situation might be aggravated in remote and very remote regions of the NT, as the workforce is reportedly ageing at a faster rate when compared to their urban counterparts (National Health Workforce Taskforce 2009). It has been suggested that these trends will not only challenge workforce supply and service provision, but will also greatly affect the quality of care (Garnett et al. 2008). Lenthall et al. (2011) predict implications for ‘closing the gap’ in Indigenous health outcomes.

Researchers have long advocated the need for balanced supply and demand models to respond to population changes and patterns of ill health (Garnett et al. 2008). Both Commonwealth and NT Government nursing workforce projections (Australian Health Workforce Advisory Committee 2002; Department of Health and Families 2010) identify demand and supply parameters to predict future workforce numbers,
and develop projections based on expected in and outflows of nurses and midwives to and from the profession. These projections are as follows.

### 4.3 Workforce Status and Key Trends

The NT DoH currently employs 2,351 nurses and midwives, the majority of whom are registered nurses and midwives employed from Nurse Level Two to Nurse Level Eight. The enrolled nursing workforce currently accounts for 155 nurses employed at Nurse Level One. Approximately 31 per cent of the current workforce is aged 50 years and over (Department of Health 2012a). Other significant cohorts of nurses and midwives in the NT are employed in the defence health sector, nursing agencies and private health care organisations. Research has shown that a large cohort of nurses and midwives moved to the NT during the 1970s and 1980s. These nurses and midwives have spent most of their professional careers in remote or very remote areas and have gained significant knowledge in remote area nursing (Garnett et al. 2008).

Research by Martel (2010) suggests that a large proportion of those leaving the workforce are likely to move away from the NT to retire elsewhere. The ageing of the nursing workforce and a parallel decline of younger age groups of nurses will have a considerable impact on service provision in the NT. There is a paucity of current data concerning the midwifery workforce, but similar trends might be anticipated (Garnett et al. 2008; Lenthall et al. 2011). Data have shown that NT nurses and midwives start to exit the workforce for retirement from age 45, and most will have left the profession by age 70 (Department of Health and Families 2010).

The following graph shows the anticipated age distribution of the NT nursing and midwifery workforce for the years 2006, 2014 and 2022.
In 2006, 44 per cent of the total workforce was aged 40 years and under. By 2022, this cohort is predicted to make up 64 per cent of the total workforce. This age shift is caused by an expected inflow of new graduates and major exits of nurses and midwives leaving the workforce due to retirement (Department of Health and Families 2010). This trend is also anticipated by the Northern Territory Treasury (2011), which predicts a significant decline in the Indigenous and non-Indigenous working-age populations by the year 2040. Voit and Carson (2012) argue that this anticipated age shift will significantly affect knowledge transfer between older and younger generations of nurses and midwives in the NT (Voit & Carson 2012).

In addition to an ageing workforce, there are limited numbers of placements in programmes for new graduates and a reported increase in numbers of overseas undergraduate students. As local graduates are key inflow sources of staff into the workforce, limited places in graduate programmes are expected to lead to an undersupply of 438 nurses and midwives by 2022 (Department of Health and Families 2010).

Other key trends suggest a decrease in average hours worked (except for remote jurisdictions) and substantial cohorts of trained health workers seeking employment in professions other than health care (Productivity Commission 2005). Overseas migration and the outflow of nurses to other professions were identified as the two
primary reasons for exits from the workforce throughout Australia more broadly (National Health Workforce Taskforce 2009).

Supply issues have since resulted in high numbers of professionals recruited from outside the jurisdiction and, more recently, from overseas (Garnett et al. 2008). In some jurisdictions of the NT, overseas-trained nurses currently account for up to 50 per cent of the total nursing and midwifery workforce (Department of Health 2012a). A range of challenges relate to language, cultural and adaptation issues, particularly in remote and very remote areas, where Indigenous Australians make up the majority of the population (Garnett et al. 2008). While Indigenous Australians account for the primary client base of the NT DoH, only about 1 per cent of the current nursing and midwifery workforce identify as Aboriginal or Torres Strait Islander peoples (Department of Health 2012a). By 2022, this client base is predicted to require 51 per cent more health services as compared to 2006. The most common reasons for consultations will be diabetes, heart conditions and lung disease (Department of Health and Families 2010).

The highest regional growth levels in health demand are predicted for Darwin, Palmerston and surrounding areas. The East Arnhem region is expected to grow demand for nursing services at a rate of 53 per cent by 2021. Katherine is predicted to require nursing services at a rate 27 per cent higher when compared to 2006 (Department of Health and Families 2010). Predicted growth rates for health service demand are aggravated not only by existing workforce shortages, but also by high levels of staff turnover (Garnett et al. 2008). Data from January 2011 show that 26 per cent of the total nursing and midwifery workforce move in or out of the NT each year (Department of Health 2011). As a result, high rates of workforce turnover have affected stability within the workforce and proven exceptionally costly over the years. In 2008, research suggested an average spending of $10,734 per turnover, accumulating a yearly cost of $6,884,519. Turnover expenses were highest in remote settings (Garnett et al. 2008).

In addressing these issues, Carson (2011) notes that workforce principles applied to other jurisdictions might not be relevant in the NT. It has been suggested that high rates of Indigenous people, high non-Indigenous population turnover and an unusual
demographic situation within the nursing and midwifery workforce of the NT will require more tailored approaches to workforce management.

While the presented key workforce trends indicate an age shift in the nursing population, few strategies are in place to deal with the substantial outflow of older nurses and the decreasing inflow of younger people into the profession. The Department of Health and Families (2010) considers the ageing of these nurses and midwives a key concern for workforce planning. The work conducted by Voit and Carson, however, identifies that strategies to replace older nurses focus largely on the recruitment of young nurses with limited remote area nursing experience (Voit & Carson 2012). The potential of engaging nurses and midwives in flexible arrangements past their official retirement has received relatively little consideration from health care organisations.

At the same time, the restricted availability of clinical placements and limited financial resources on-site present major challenges to the recruitment of undergraduate nursing students to rural and remote areas (Killam & Carter 2010; Neill & Taylor 2002). While providing nursing students with a positive learning experience can be a significant strategy to support recruitment to under-serviced areas, the limited availability of financial resources, particularly for nursing students from non-rural backgrounds, can have impeding effects on future recruitment activities (Neill & Taylor 2002).

Adding to supply issues within the NT nursing and midwifery workforce is an increasing burden of chronic disease and ongoing disadvantage in Indigenous health (Department of Health and Community Services 2006; Department of Health and Families 2010). The National Health and Medical Research Council (2010) strongly urges improvements to Aboriginal and Torres Strait Islander health. Rising expectations for clinical health research and multidisciplinary partnerships have led to increased research capacity building. However, it appears that research dealing with the aforementioned workforce-related issues has received relatively little attention. Current research developments in the NT are presented in the following section.
4.4 Research and Evidence-based Policy

Grundy and Johnston (2003), in their study on the introduction of a Primary Health Care Research, Evaluation and Development Strategy for the NT, identify a range of human and organisational research resources within the Territory. However, the authors note that there is a lack of co-ordination and cooperation between those resources. In addition, it is suggested that past research efforts lacked the direct involvement of nursing and midwifery staff, were fragmentary and have had limited impact on practice. Grundy and Johnston (2003, p. 14) argue:

The complexities of local practice can only be grasped through local analysis and reflection. Failure to take this opportunity will result in these complexities and experiences being described by an expert research community that is disengaged from health practice.

While there are at least some research trainings offered by health care organisations and educational providers in the NT, communication and cooperation between institutions remains scarce. It is not surprising then that the number of nurses and midwives actively involved in research remains small. Existing support opportunities tend to be focussed on clinical research more so than on workforce-related research, and those nurses and midwives wanting to further their careers in research face limited professional opportunities (Grundy & Johnston 2003). The current structure of the NT DoH does not include nurse researcher positions, clinical networks or nursing research fellowships such as those presented in Chapter Three. Although performance and research is an integral part of Aboriginal Policy and Stakeholder Engagement (Department of Health 2012b), system-wide support structures for the conduct of research appear to be missing (see Appendix A).

While there is a an abundance of literature devoted to knowledge creation and capacity building for clinical research, there is relatively little understanding of whether the same principles would be valuable for the conduct of workforce research. This study intended to provide a better understanding of levels of confidence and enthusiasm among clinicians towards researching workforce-related issues. This was done through a three-stage process comprising identifying the most pressing workforce issues faced by clinicians and managers, identifying whether clinicians wanted to engage in knowledge creation and pursue these ideas, and identifying the organisational support structures that may be required for this to
happen. The following chapter describes the specific methods used to gather empirical data for this study.
Chapter 5. Methodology

5.1 Introduction

The purpose of this research was to assess levels of interest in, and capacity for, action-oriented workforce research within the specific NT nursing and midwifery context described in Chapter Four. The overarching research question was what mechanisms, structures, or facilitators would be required to stimulate a workforce research culture.

The methodology used to answer the research problem followed a descriptive qualitative design. Data were collected using semi-structured in-depth interviews with nursing and midwifery clinicians (n=27), as well as managers and key people in the educational sector (n=18). Clinicians were employed in a range of settings including hospitals, Community Health, Remote Health, Mental Health and Defence Nursing. Managers held both line and senior management roles. Health Centre Managers in Remote Health were employed in both clinical and managerial roles; they are referred to as clinicians for the purpose of this study.

This chapter defends the qualitative paradigm chosen for this research and provides an overview of the sample studied. It specifically comments on the methods used to collect data, outlines the sampling and data collection process, addresses pertinent ethical issues and comments on the analysis process undertaken. It concludes with an overview of relevant study limitations.

5.2 Research Design

This research follows a descriptive qualitative design. Data were collected using semi-structured in-depth interviews. A total of 45 people agreed to participate in this study. Key informants for the research were recruited via e-mail. An invitation letter and a short project description were sent out to all hospitals and health services in Top End and Central Australia. This e-mail was designed by the Chief Investigator and distributed by the PNMA as part of the regular communication with nurses and midwives across the NT.
Those nurses, midwives and managers interested in the research were invited to contact the Chief Investigator directly to inquire for more information or confirm interest in the project. A follow-up e-mail provided the potential interviewee with a digital information sheet and consent form. Interviews were arranged at a suitable time and place for the interviewee. Consent forms were discussed face-to-face and signed by the participant before commencing the interview.

Interviews were conducted in the period from December 2010 to May 2011. Interview participants held current nursing, midwifery, management or educational positions in Darwin, Katherine, Alice Springs, Gove (Nhulunbuy) and two Top End remote communities. Signed informed consent was obtained from all interviewed nurses (n=24), midwives (n=3), managers and educators (n=18). The majority of participants (n=43) were interviewed face-to-face. Interviews were audiotaped to facilitate data analysis and additional field notes were taken.

The following table provides a summary of interview participants by location of practice:

Table 6: Sample of Interview Participants by Location of Practice

<table>
<thead>
<tr>
<th>Location</th>
<th>Midwives (n=3)</th>
<th>Total</th>
<th>Nurses (n=24)</th>
<th>Total</th>
<th>Managers (n=18)</th>
<th>Total</th>
<th>Total (n=45)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice Springs</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>37.5%</td>
<td>4</td>
<td>22.2%</td>
<td>13</td>
<td>28.9%</td>
</tr>
<tr>
<td>Darwin</td>
<td>3</td>
<td>100%</td>
<td>3</td>
<td>12.5%</td>
<td>7</td>
<td>38.9%</td>
<td>13</td>
<td>28.9%</td>
</tr>
<tr>
<td>Gove</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>37.5%</td>
<td>3</td>
<td>16.7%</td>
<td>12</td>
<td>26.7%</td>
</tr>
<tr>
<td>Katherine Community</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4.2%</td>
<td>4</td>
<td>22.2%</td>
<td>5</td>
<td>11.1%</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>100%</td>
<td>24</td>
<td>100%</td>
<td>18</td>
<td>100%</td>
<td>45</td>
<td>100%</td>
</tr>
</tbody>
</table>

Thirteen interviewees from Alice Springs participated in the study. The same number was recruited from Darwin and 12 participants were employed in nursing, midwifery or management roles in Gove (Nhulunbuy). Five interviewees were from Katherine, and two were employed in nursing roles in Indigenous communities.
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Twenty-four participants were nurses, 18 were nursing or midwifery managers or educators and three were midwives. The high number of line and senior managers and low levels of midwives participating in the research reflect the overall representation of clinical and management staff within the workforce. Two of the participants were employed in their current capacity as nurses but held additional midwifery qualifications and provided insight into midwifery specific workforce issues. Four of the interview participants (8.9 per cent) were not directly employed by the NT DoH.

Upon confirming their participation in the study, key informants were asked to identify other potential interview participants. Suggested nurses and midwives or managers were then directly contacted by the Chief Investigator as a point of reference. Minichiello et al. (1999) argue that this method of sampling involves the potential risk of recruiting informants that tend to have the same or very similar characteristics. To avoid resulting bias, no more than two referrals per initial interview participant were included.

According to the ASGC Remoteness Structure introduced in 2006, all interview settings apart from the outer regional areas of Darwin were remote or very remote areas, with limited access to goods and services such as health care. Therefore, this thesis addressed challenges relating to the establishment of clinician-led research within a remote setting. Different sets of interview guides were developed for clinicians and managers. The following table provides an overview of the broad questions used in the interviews.
### Table 7: Interview Questions

<table>
<thead>
<tr>
<th>Nurses and midwives</th>
<th>Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the major workforce issues confronting (remote) NT?</td>
<td>1. Attitudes towards research:</td>
</tr>
<tr>
<td></td>
<td>a. Have you had any previous experience with research?</td>
</tr>
<tr>
<td></td>
<td>b. Have you used research to inform staff?</td>
</tr>
<tr>
<td></td>
<td>c. What do you think about engaging nurses in research?</td>
</tr>
<tr>
<td></td>
<td>d. Do you have any personal research interests?</td>
</tr>
<tr>
<td>2. Have you had any experience with research done into these sorts of issues?</td>
<td>2. How might the establishment of an action-oriented research culture within the nursing workforce assist in getting nurses to address workforce issues?</td>
</tr>
<tr>
<td>3. Do you have any previous experience with other research?</td>
<td>3. Which professional development strategies are needed?</td>
</tr>
<tr>
<td>4. What do you think about the conduct and use of (workforce) research in your workplace?</td>
<td>4. What concrete strategies for creating an action-oriented research culture need to be developed?</td>
</tr>
<tr>
<td>5. Do you have any personal research interests?</td>
<td>5. What further/ongoing research is required to address continuing gaps in workforce efficiency?</td>
</tr>
<tr>
<td>6. What support would be necessary when conducting research while working in (remote) NT?</td>
<td></td>
</tr>
<tr>
<td>7. How do you think challenges that may arise in engaging in workforce research can be overcome?</td>
<td></td>
</tr>
<tr>
<td>8. Do you have any ideas on the development of research within the NT nursing and midwifery workforce?</td>
<td></td>
</tr>
</tbody>
</table>
Nurses and midwives were interviewed to obtain: their perceptions on the most pressing, local-based workforce issues confronting the (remote or very remote) NT; their experience with research into these issues; their previous experience with other research; and their attitudes towards knowledge creation and the conduct of research (in particular, levels of interest and enthusiasm). Nurses and midwives were also encouraged to provide their opinions on necessary support when conducting research while working in the (remote or very remote) NT and the challenges that may arise in engaging in workforce-related research. Further, personal research interests and questions were investigated. Interviews concluded by asking nurses and midwives about their ideas on the development of an action-oriented research framework within the NT nursing and midwifery workforce.

Interviews with nursing and midwifery managers included questions about previous research experience and whether managers used research to inform their staff. Managers were encouraged to give their opinions on the engagement of nurses and midwives in workforce research and ascertain their personal research interest. Interviews further investigated ideas on professional development strategies needed to assist in getting nurses to address workforce issues. Interviews concluded by asking about concrete strategies for creating an action-oriented research culture and further research required to address continuing gaps in workforce efficiency.
The following figure summarises the research design developed for this study.

**Figure 6: Research Design**

<table>
<thead>
<tr>
<th>Objective 1</th>
<th>Objective 2</th>
<th>Objective 3</th>
<th>Objective 4</th>
<th>Objective 5</th>
<th>Objective 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>How might the concepts of organisational knowledge creation and organisational learning assist the NT nursing and midwifery workforce in fostering the engagement of clinicians in conducting workforce research?</td>
<td>What have been the experiences of similar jurisdictions in implementing research capacity-building models for nursing and midwifery workforce research?</td>
<td>What are NT nurses and midwives’ attitudes (levels of confidence and enthusiasm) towards the conduct of workforce-related research?</td>
<td>How well can NT nurses and midwives articulate research questions that might inform an action-oriented workforce research agenda?</td>
<td>How might the establishment of a workforce research culture within the NT nursing and midwifery workforce be undertaken?</td>
<td>What concrete strategies for creating a research culture arise from this research as potentially useful for NT nursing and midwifery?</td>
</tr>
</tbody>
</table>

**Methods**

- Review of related literature
- Semi-structured in-depth interviews with 27 nurses and midwives
- Semi-structured in-depth interviews with 18 managers/employers of nurses/midwives and key people in the educational sector

<table>
<thead>
<tr>
<th>Outcome 1</th>
<th>Outcome 2</th>
<th>Outcome 3</th>
<th>Outcome 4</th>
<th>Outcome 5</th>
<th>Outcome 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge creation and organisational learning literature reviewed</td>
<td>Models for research capacity building reviewed</td>
<td>NT nurses and midwives levels of confidence and enthusiasm towards action-oriented research investigated</td>
<td>Personal research questions and interest areas identified</td>
<td>Barriers to, and opportunities for, clinician-led research identified</td>
<td>Recommendations provided</td>
</tr>
</tbody>
</table>
5.3 Justification of the Qualitative Approach

This section attempts to justify the qualitative approach chosen for this study. Qualitative research in health care settings has been increasingly recognised in recent years as a valuable concept to gain rich data and complement the quantitative evidence base of medicine (Green & Thorogood 2009; Liamputtong & Ezzy 2005; Pope & Mays 2006). Moreover, professions such as nursing are slowly becoming aware of the link between research and their professional accountability (Birks et al. 2009; Grbich 1999; Green & Thorogood 2009; Liamputtong & Ezzy 2005; Minichiello et al. 1999).

Qualitative research has gained particular relevance in public health settings given the need to not only describe, but also to understand populations and their complex health behaviours (Baum 1995). Moreover, Green and Thorogood (2009) and Green and Britten (1998) argue that qualitative research has the potential to provide an enhanced understanding of health service planning and policymaking. Green and Thorogood (2009, p. 32) advise that:

at the policy level, qualitative studies have the potential to provide evidence for population needs, the development of appropriate policy, and evidence for how to implement policy with health care staff.

Qualitative methods can help to provide a better understanding of the connotations of interventions, policies and procedures (Green & Thorogood 2009). They are a flexible approach to explain and interpret meanings and might assist in offering insight into people and their health behaviours. Qualitative methods might also assist in providing an enhanced understanding of the applicability of policies at the practice level. Any such understandings, meanings or interpretations cannot be gathered with statistical methods alone; qualitative approaches to research are required (Liamputtong & Ezzy 2005).

Minichiello et al. (1999) suggest that theory development in qualitative health research is either a basis for the research undertaken, or a result thereof. Grbich (1999) argues that theory development in research comprises data collection, a conceptual framework derived from theory and the integration of the gathered data within the identified framework.
Various authors (Grbich 1999; Liamputtong & Ezzy 2005; Minichiello et al. 1999) take this approach further and discuss inductive and deductive approaches to theory development. While inductive approaches to theorising explore without prior theoretical presumptions (Minichiello et al. 1999), deductive approaches make use of theoretical frameworks and hypotheses that are tested in the course of the research. Minichiello et al. (1999, p. 28) suggest that:

Theory-building approaches align closely to inductive qualitative methodologies, whereas theory-testing approaches are related neatly to quantitative methodologies.

This argument is criticised by Green and Thorogood (2009), who question the assumption of qualitative research being a theory-generating more so than a theory-testing discipline. In practice, research uses elements of both approaches and much potential exists for a combination of methods. According to Minichiello et al. (1999), most empirical data are consistent with a range of theoretical frameworks and whether researchers apply theory-testing or theory-building approaches depends on the specifics of the investigated area. Essentially, a mixture of both approaches is applied.

This research primarily follows an inductive approach to theory development, using as a conceptual framework the theories of organisational knowledge creation and organisational learning. This theoretical framework is deemed appropriate as an underpinning theory to explain the connection between the individual (nurses and midwives) and the organisation in fostering a culture for clinician-led research.

5.4 Methods of Data Collection

This research involved 45 semi-structured in-depth interviews with nurses, midwives, managers/employers of nurses and midwives, and key people in the educational sector. The intent was to assess levels of interest in, and capacity for, action-oriented workforce research within the NT nursing and midwifery sectors.

This study sought to investigate the most pressing workforce issues as perceived by a sample of nurses and midwives and their managers; explore research interest into these issues; and examine the support structures required to facilitate the engagement
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of clinicians in workforce research (that is, clinicians acting as the principal investigator for their research project). This approach was selected based on the aim to gain rich insights into current workforce issues and levels of confidence and enthusiasm among nurses and midwives in researching these issues.

Green and Thorogood (2009) argue that a qualitative design is most appropriate when research seeks to understand people’s views, opinions or beliefs. To gather rich insight into workforce challenges specific to the remote NT context, in-depth interviews were considered an appropriate data collection tool, as they help to provide insight into the personal, lived world of the interview participants with regards to analysing and interpreting the described (Kvale 1996).

Kvale (1996) describes the interview as a form of conversation that seeks to portray the life world of the interview participant. The interviewer interprets the meanings of this experienced life world and explores descriptions of specific situations rather than general aspects. Interviews offer new insights, are characterised by sensitivity and may be an inspirational experience for both interviewer and interviewee. The interview is a dialogue collaboratively constructed by both parties. In the course of the interview process, the interviewee responds to the interviewer’s questions by giving insights into their understanding of the subject matter (Grbich 1999).

In-depth interviews tend to be used as an instrument to explore meanings and subjective understandings (Denscombe 2007; Silverman 2001). They are therefore most appropriate for examining opinions and gathering rich insights into the interview participant’s own world (Liamputtong & Ezzy 2005). In-depth interviews aim to gather information characterised by emotions, feeling and sensitivity. Grbich (1999) and Kvale (1996) describe the role of the interviewer as central to this process, arguing that the quality of an interview heavily depends on the relationship the interviewer is able to develop with his interview participant.

Denscombe (2007) and Liamputtong and Ezzy (2005) suggest that interviews are a data collection tool most suitable when the number of interviewees is less significant than the richness of the information collected. The intention is to explore individual opinions more so than to gather representative data (Grbich 1999). Conversely, it is
argued that research seeking to understand the characteristics or behaviour of larger groups might best be undertaken using a quantitative approach (Kvale 1996).

There is a range of advantages and disadvantages associated with the use of interviews. They offer depth of insight and detail, allow for the investigation of participants’ personal ideas, are subject to flexible adjustments and can be conducted with relatively simple tools. However, interviews can also be time-consuming, costly and are subject to the interviewer’s objectivity (Denscombe 2007).

Nonetheless, in-depth interviews are the most common source of data collection used in qualitative health research (Liamputtong & Ezzy 2005). In-depth interviews might be used in the form of structured, semi-structured or informal interviews. Structured interviews are characterised by a set of determined questions, while semi-structured interviews cover a range of determined topics rather than comprising structured questions. In unstructured or narrative interviews, the interviewer encourages the interviewee to tell their story. This form of interview is characterised by minimum intervention from the interviewer. Health research has shown an increasing interest in narrative interview approaches as a way of exploring individual patient histories. In practice, the different forms of interviews are often used synonymously. However, each interview form differs in its impact on the amount of control the interviewer holds over the interview (Green & Thorogood 2009).

While structured interviews use a sequence of questions in a particular order (Grbich 1999), unstructured or narrative interviews tend to explore the participant’s story without pre-determined questions (Green & Thorogood 2009). The semi-structured interview is a combination of both methods (Minichiello et al. 1999). Kvale (1996) describes the semi-structured interview as:

a sequence of themes to be covered, as well as suggested questions. Yet at the same time there is an openness to changes of sequence and forms of questions in order to follow up the answers given and the stories told by the subjects.

The interviewer prepares a set of questions and aims to cover specific topics in the course of the interview. At the same time, semi-structured interviews allow for the shift and modification of topics and are a flexible instrument to explore issues raised by the interviewee. Semi-structured interviews allow the interviewee to develop
ideas and explain those ideas more broadly. The focus is on the interviewee speaking on themes raised by the interviewer, while simultaneously pointing out their own areas of interest (Denscombe 2007).

Semi-structured interviews in the context of this research allowed for the structured investigation of subjective understandings and offered the flexibility to explore ideas or concepts arising in the course of the interviews further (Liamputtong & Ezzy 2005). Semi-structured interviews assisted in eliciting in-depth information on current, pressing local-based workforce issues faced by a sample of NT nurses and midwives and their managers, and enabled the investigation of personal research interests and questions raised by the interviewees.

The most widely used form of semi-structured interview is the one-on-one interview, which consists of one interviewer and one interviewee. This form of interview is characterised by information originating from one source (Denscombe 2007). Group interviews (or focus groups), on the other hand, gather information from more than one interview participant (Green & Thorogood 2009). The research interviews undertaken for this study were mainly one-on-one interviews. Two managers expressed their wish to be interviewed at once in a group interview.

Denscombe (2007, p. 202) summarises the advantages of interviews as follows:

1. Interviews offer the ability to gather detailed, in-depth information and explore issues over a relatively extensive time.
2. The interview provides insight into the wisdom of the interviewee.
3. The conduct of interviews requires only little equipment.
4. Informant’s ideas can be explored and expanded.
5. Adjustments to topics covered might be made during the interview process.
6. Interviews are generally arranged in advance at a time and place that is convenient for the interviewee and therefore might result in a high response rate.
7. Direct contact at the time of the interview allows for investigation of the relevance of the data while necessary adaptations can be undertaken at the time of data collection.
8. Interviews might be a therapeutic experience for both interviewer and interviewee.
5.5 Sampling and Data Collection Process

Minichiello et al. (1999) describe sampling as the process of choosing a few items, referred to as the sample, from a larger group, referred to as the sampling population. The sampling method most appropriate is dependent on the research question posed. Denscombe (2007) generally differs between probability and non-probability sampling methods. Probability sampling involves the random selection of participants, with each member of the research population having an equal chance of being included. Non-probability sampling includes a choice of selected people to be included in a project. Minichiello et al. (1999) refers to these as random and non-random methods of sampling. Probability sampling includes random sampling, systematic sampling, stratified sampling, quota sampling, cluster sampling and multi-stage sampling. Methods of non-probability sampling include purposive sampling, snowball sampling, theoretical sampling and convenience sampling. Participants might further be self-selected (Denscombe 2007).

The sampling method for this research was a mix of self-selected and snowball sampling. Nurses and midwives, as well as nursing and midwifery managers, were advised about the research and those interested in participating were asked to contact the Chief Investigator directly. Sampling of further respondents was undertaken using a snowball sampling method. Snowball sampling, which is also referred to as chain sampling or nominated sampling, is defined as a technique using networks to identify the sample (Minichiello et al. 1999). This approach is also described as a process of reference from one subject to the next, as initial self-selected interview participants suggest further potential interviewees. Snowball sampling is a strategy frequently used in qualitative research and an appropriate method for building reasonably sized samples in small-scale studies (Denscombe 2007).

Snowball sampling was chosen as a sampling strategy appropriate for this research for the following reasons. Those nurses, midwives and managers acting as self-selected key informants to the research were asked to suggest other potential participants employed in the same professional area. This approach was applied in an attempt to explore the most pressing research priorities in the field, as potential research areas were informed by more than one participant. Snowball sampling
further allowed for the recruitment of a reasonably sized sample for a small, in-depth study.

The right sample size for qualitative research projects has been the focus of much debate. The assumption that the bigger the sample size, the less likely bias is to occur has been discussed by various health researchers (Denscombe 2007; Minichiello et al. 1999). Minichiello et al. (1999) argues that an adequate sample size ideally results in saturation on the themes under investigation. The sample for this study (n=45) identified repetitive themes and was therefore deemed an adequate sample size. The following section comments on relevant ethical considerations for the context of this research.

5.6 Ethical Considerations

Ethics approval for this study was gained from CDU Human Research Ethics Committee (H10068) (see Appendix B). All interview participants gave signed informed consent prior to the interview and received a written description of the project together with the consent form (see Appendices C and D). Different consent forms were developed for clinicians and nursing and midwifery managers. Both forms were given ethical approval.

Prior to the interview, participants were informed about the purpose and benefits of the study, as well as the potential discomforts and risks. The candidate addressed issues of confidentiality, and interview participants were notified about their right to withdraw from the study at any time.

As the research was supported by the DoH, the main employer of nurses and midwives in the NT, interview participants were informed that collected data were kept by the candidate only and could not be seen by the Office of the PNMA unless de-identified. It is acknowledged that interview participants employed in nurse educator roles or university settings are referred to as ‘managers’ for the purpose of this research.

The Office of the PNMA did not participate in data collection or analysis. Knowledge of who had agreed to participate in the research was held by the
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candidate only. To ensure decisions about participation in the research did not impair any existing relationship between the participant and their employer, no names were recorded in any transcripts or publications from the study and interviewees were not named against specific quotations.

5.7 Evaluation and Analysis

Gathered data were analysed using thematic analysis (Pope, Mays, Popay 2007)). Pope, Mays and Popay (2007, p.96) describe thematic analysis as the

[…] identification of the main, recurrent or most important (based on the specific question being answered or the theoretical position of the reviewer) issues or themes arising in a body of evidence.

Conducted interviews were transcribed to facilitate data analysis. Transcripts were allocated a unique transcript number and coded using an open coding approach. Coding is described as the process of labelling data into groups and themes and is the first step in progressing beyond single statements of raw data. Reoccurring segments are taken apart and consolidated in themes or groups (Charmaz 2006). By looking for themes and patterns, high-level analysis can be conducted, leading to the development or confirmation of theory (Denscombe 2007).

Collected data were systematically stored and organised using NVivo software. Coding of the collected data was conducted in two phases. The initial coding phase began manually with an open coding approach. Interview transcripts were thoroughly reviewed and screened using ‘in vivo coding’, a method of coding data directly from interview transcripts using expressions by those studied. Open coding is described as the analysis of data line-by-line or word-by-word. This process aims to break up raw data to group it into themes to develop meaningful categories (Grbich 1999).

The first step in this analysis process was to gain a sense of the interviewees’ opinions and beliefs. Each transcript was analysed, comparing each participant’s responses line-by-line with those of other respondents. This analysis progressed into the development of common themes as codes were developed using each participant’s own words. The transcribing process commenced during data collection and common themes were adapted or extended as new data were gathered. The initial
coding phase allowed for the comparison of similar opinions and assisted in grouping reoccurring themes. The manual coding process was undertaken using Strauss’ (1987) approach to raw data analysis:

1. What is the main issue occurring in this segment of the data?
2. Is there a relation to the research questions and if so, why?
3. How does the segment of data compare to other segments?
4. To which category can the issue be attributed?

Segments of the raw data were compared against those segments of other respondents. Similarities were highlighted and grouped. Identified groups were then categorised and categories adapted or extended as data collection proceeded. Interview transcripts were continuously screened to analyse how categories were linked.

The second stage of the coding process involved the re-examination of identified codes. Categories were refined and attempts were made to develop concepts explaining common ideas from the coded data. Categories were refined through a constant comparative method by which data were compared against previously developed categories, adapting coded groups where necessary. This method is described by Denscombe (2007), who suggests integrating coded data under common categories. These categories were then mapped to the theories of knowledge creation and organisational learning.

5.8 Dissemination of the Research Findings

The findings from this research were presented by the candidate to a number of stakeholders to generate discussion about the research and receive ongoing feedback. These stakeholders included:

1. The Australian Nursing Federation Job Delegate Biennial Conference held in Darwin from 24 to 25 March 2011.
2. The NT DoH Remote Area Nursing Forum held in Darwin on 16 March 2011.
3. The NT DoH Primary Health Care Centre Manager Forum held in Darwin on 28 March 2011.
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4. The NT DoH Nursing and Midwifery Executive Leadership Group Meeting held in Darwin on 12 May 2011.

5. The Australia New Zealand Regional Science Association International Conference held in Canberra from 6–9 December 2011.

6. The NT DoH Nursing and Midwifery Executive Leadership Group Meeting held in Darwin from 14–15 February 2012.

The audience for the presentations included nurses and midwives, remote area nurses and midwives, and line and senior managers. The initial presentations in particular, held in early 2011, served as a useful opportunity to gain feedback on the research approach. The later presentations were invaluable for distributing the findings gathered from the collected data.

A final ‘Research Implementation Plan’ was developed and distributed through the Office of the PNMA. This report outlined the findings from the research, presented the recommendations drawn from the findings and proposed an implementation strategy for the research.

5.9 Limitations

It is acknowledged that there may be self-selection bias in the results of this study. Those nurses and midwives who volunteered to participate might be those who felt most strongly about the themes being researched. Given that key informants were self-selected and further respondents were recruited using a snowball sampling method, participants might be those nurses and midwives most interested in fostering research.

A self-selected qualitative approach was, however, deemed appropriate to gain rich insights into the most pressing, local-based workforce challenges as perceived by clinicians and their managers, and to explore levels of interest, confidence and enthusiasm in researching these challenges.
Chapter 6. Findings

6.1 Introduction

This chapter presents the findings drawn from this research, concentrating on the reoccurring themes identified from analysing raw interview data. Themes were collated under subheadings within this chapter, and each is supported by direct quotations from interview participants.

More specifically, this chapter presents the attitudes towards action-oriented workforce research as elicited from a sample of 45 nurses, midwives and managers. It addresses interviewees’ previous research exposure, skills and experience with research, perceptions of the most pressing local-based workforce issues, and levels of confidence and enthusiasm in researching these issues.

Barriers to research engagement are discussed, and support structures required to establish clinician-led research are outlined. Research interest into workforce issues is addressed and personal research questions as proposed by clinicians and managers are presented. A detailed discussion of the findings and how these findings relate to the research questions and literature review presented in Sections 1.4 and 3.1 will be given in Chapter Seven.

6.2 Understanding Attitudes Towards Action-oriented Workforce Research

6.2.1 Research Skills and Experience

This section describes the research activity and, in particular, the previous research exposure, skills and experience of the interviewed nurses, midwives, and nursing and midwifery managers. Previous research experience among both clinicians and managers was found to be considerably limited. The lack of research activity appeared to be the result of the following three groups of factors, being educational (that is, tertiary v. hospital-based education), organisational (that is, lack of organisational research support structures, grants, scholarships and mentor assistance) and individual (that is, levels of enthusiasm, age, willingness to change and critical inquiry abilities).
Interview data indicate that a systematic approach to research was lacking within the NT nursing and midwifery workforce, and interview participants unanimously described existing research efforts as ‘ad-hoc’ and ‘personally driven’. Despite the observation that clinicians and managers had previously had some limited exposure to and/or experience with research, few stated that they had been, or were, actively involved in research affecting their current workplace. Four managers (n=18; 22.2 per cent) declared that they had carried out research projects themselves. These projects generally related to clinical issues, with only one manager having conducted workforce-related research.

While managers had at least some experience with research, the involvement of clinical staff was comparatively moderate. Two nurses (n=24; 8.3 per cent) stated that they had previously been engaged in workforce-related research; three nurses and midwives (n=27; 11.1 per cent) declared that they had been, or were, part of clinical research projects. None of the participants, however, had conducted department-supported research around issues of concern within their workplace.

Some nurses, midwives and managers had consulted research studies to inform their practice, and here too, clinical research was prevalent. The most common evidence found within the workforce was described as ‘professional judgment and wisdom’. A substantial cohort of nurses in the NT—in particular those belonging to the ‘baby boomer generation’—had been trained under a hospital-based system. Managers indicated that research was largely unfamiliar to nurses and midwives having received such training, and comprehensive educational support programmes were requested. This was exemplified by both staff and managers, who noted:

* A lot of nurses are trained in the old hospital system. We’re not university trained. It wasn’t a culture that you were born into. And you’re not given any training or grounding in undertaking research. Nurse Manager, Interview 09

* Even if you’d have a research interest; you know you go to your line manager who probably doesn’t know the first thing about research either. Midwife, Interview 02

The study identified two major groups of clinicians: those who were trained under a hospital-based system and those who underwent tertiary education (some of whom began their career under a hospital-based system). It was revealed from various
comments that education levels affected nurses and midwives’ enthusiasm and confidence towards engaging in research.

Those interview participants with tertiary education indicated higher levels of confidence and greater interest in conducting research. Conversely, nurses and midwives trained under ‘the old hospital system’ assessed their confidence levels as rather poor and terms such as ‘intimidating’, ‘daunting’, ‘challenging’ and ‘overwhelming’ were initial responses. Comprehensive programmes of support and education were requested to build research skills:

*I’ve never thought about putting something down on paper. I never thought that I was academic enough to actually do that. I don’t know how to. See that’s the point. There would have to be some kind of education thing for me to even begin it.* Nurse, Interview 12

The research orientation within workplaces, and particularly on hospital wards, was described as insufficient, and participants stressed that exposure to, and interest in, research was in most cases personally driven (or dependent on the level of research focus among line managers). Expertise about research was limited and managers raised concerns about the ability of staff to differentiate between quality improvement and research. At the same time, clinicians indicated little consideration from managers in supporting their research interests. This study identified a strong need to educate and expose staff to research to familiarise them with methods and concepts (for example, by distributing relevant research articles or establishing journal clubs). Nurses and midwives typified these findings by stating:

*We’ve got one thing, and I’ve been really really slack, it’s been on the board for well over 12 months now, and I’ve actually got the slide sheet; the thing was that we need to get our women out of the bath should they become unconscious or debilitated in some way. I don’t know about doing research on it. What I want to do is develop the programme and educate people on how to get them out. Is that a research project?* Midwife, Interview 12

*I mean if you’re not familiar with research, I’m aware that I’m going to need more time. Therefore, all the information like how do I go about it should be readily available. If I personally had those things in place, I’m mentally ready. I think that’s really what would make more people interested in the whole thing. If the information’s just right there, and also things that could be, you know what example is available.* Nurse, Interview 10
These findings were not applicable to public health nursing settings, where it was identified from the interviews that staff holding a public health degree had wider exposure to, and therefore greater interest in, conducting research. It was acknowledged that public health nurses regularly participated in journal clubs and education sessions (held once a fortnight in Alice Springs) to discuss current research articles or other relevant issues.

That area, especially where most of us are either completing or have just completed our Master’s of Public Health, there’s a couple of us here interested in undertaking some research into issues specific to our area; and yeah, we’re quite frequently needing to update current practices through research, obviously. I mean I haven’t been a general nurse for a very long time, so I don’t know if that’s the same. Nurse, Interview 17

Nurses and midwives in hospital settings stated that they were considerably less research focussed:

In the past, we have not been research focussed. The management doesn’t really employ new ways of doing things. I think I’d be pretty safe in saying that. There’s no portfolio for research. Nurse, Interview 30

Managers in Mental Health expressed particular concern about the lack of research focus and criticised the ‘minimalist attitude to research’ within mental health settings more broadly. It was reported that mental health research undertaken by nurses was generally limited. Existing research would be presented at conferences more so than published in journals. Access by the wider public was therefore restricted.

Better support structures were a major requirement and participants suggested the establishment of research mentor positions to assist them with the conduct of research. It appeared that the immediate work environment and research orientation within that environment significantly affected clinicians’ intentions to conduct research themselves. Despite the perception that the NT has sufficient supervision capacity to guide nurses and midwives through their research, a formal and consistent partnership agreement between practice and university facilities was lacking. Support programmes were requested to not only enable and build research skills, but also to update existing knowledge:

I remember doing a research unit or similar in my undergraduate studies, but unless you’re actually participating in it—quantitative or
Support structures required to foster the research engagement of staff will be discussed in more detail in a later section of this chapter. The following section addresses levels of research confidence and enthusiasm among clinicians and managers.

6.2.2 Levels of Confidence and Enthusiasm

Overall, nurses, midwives and managers varied greatly in their research confidence levels. However, little difference existed in levels of enthusiasm. This might result from the self-selection of interview participants (volunteers might have been those who felt strongest about engaging in research), or indicate that nurses and midwives generally had a fair idea of research needs and enthusiasm for fostering research, regardless of whether they were interested in engaging in it themselves. Data suggest a connection between confidence and education levels, as those nurses, midwives and managers with tertiary education expressed greater confidence and self-trust in their research skills. Evidence from this research suggests that nurses and midwives trained under a hospital-based system were less confident in their research abilities, and many described research as ‘daunting’ and ‘intimidating’. Interestingly, it appeared that confidence levels did not considerably differ between managers and clinicians. This might be attributed to tertiary education backgrounds among both managers and clinicians.

Clinicians had a fair idea of the most pressing workforce issues and research needs within their workplaces (although some suggestions related to quality improvement more so than to research). While some participants had used research to inform their clinical or management practice, only very few had carried out projects themselves. However, most participants seemed to be aware of changing requirements for nursing and midwifery practice, and the need to ground both management and practice approaches in sound evidence. Support structures were requested for nurses and midwives to build and refresh research skills, and to strengthen levels of
Findings

confidence to actively conduct research. Assistance and support structures required for nurses and midwives will be presented in a later section of this chapter.

6.3 The Ability to Articulate Workforce-Related Research Questions

This section addresses the most pressing workforce issues as identified by clinicians and managers, and discusses participants’ research interest into these issues. It specifically comments on clinicians’ ability to articulate their personal research questions. Workforce issues will be presented relating to the workforce more broadly, and according to specific workplaces including Royal Darwin Hospital (RDH), Alice Springs Hospital (ASH), Gove District Hospital (GDH), Katherine Hospital (KH) as well as Community Health, Mental Health, Remote Health and Defence Nursing.

6.3.1 Most Pressing Workforce Issues

Themes were drawn from questioning interviewees about what they considered to be the most important local-based workforce issues affecting their workplaces, as well as the challenges for the NT nursing and midwifery workforce more broadly.

Overall, the most pressing workforce issues identified from the data related to cultural and demographic challenges, ongoing staffing shortages, high levels of staffing turnover, an emphasis on short-term staffing contracts (many of them for ‘agency nurses’), and limited career paths for nurses and midwives in remote work settings.

Issues such as staffing shortages, changes in workforce demographics and an increasingly multicultural workforce were raised as being the most significant problems within the workforce more broadly. Managers perceived challenges in the development of management and leadership skills within their workforce and reported continuing difficulties in attracting, recruiting and retaining specialist nurses (particularly ED and intensive care nurses) and midwives. General workforce issues perceived by clinicians were consistent with managers’ perceptions. These ranged
Findings

from ongoing staff shortages to issues in recruitment and retention, geographical isolation and high rates of workforce turnover.

Nurses and midwives reported issues arising from a transient workforce, high burnout rates, and travel distances to and from communities as the most pressing challenges affecting their specific workplaces. The emotional burden of Indigenous disadvantage, accommodation issues in remote communities across the NT, and old and culturally inappropriate hospital facilities were determined to be equally challenging. A major concern was the lack of appropriate preparation in relation to working with Indigenous clients. Despite the attempt to engage Indigenous people in nursing and midwifery roles, numbers of community members in nursing or midwifery roles remain small. It was widely perceived among interviewees that staff are not adequately prepared for Indigenous health issues and, as a consequence, become overwhelmed and emotionally burdened. This observation was re-enforced by managers and clinicians who stated:

So probably one of the most critical things; having that our workforce doesn’t currently in my view have the ability to meet the cultural needs of the community we serve. Nurse Manager, Interview 16

It’s having awareness of other people’s culture and realising how your culture and background impacts on the health service you provide and certainly it’s a big issue in my job working exclusively with Indigenous women; in regards to maternal health, I don’t think there is a lot of cultural security and safety. Midwife, Interview 02

The high proportion of internationally qualified staff was repeatedly described as another pressing workforce challenge by nurses, midwives and managers in both Central and Top End Australia. Language barriers (a majority of overseas-trained nurses and midwives speak English as a second language), the transition into the Australian health care system, and cultural impacts on both workplace practices and interaction with patients seemed to be the most dominant challenges in this context. Interview participants indicated that high proportions of Indigenous clients across the NT would intensify these challenges (recognising that Indigenous peoples do not speak English as a first language). This observation was supported by several managers who noted:
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There’s good programmes offered by the department. However, I do not think that they address those cultural gaps. Nurse Manager, Interview 16

You know 60 per cent overseas-trained with 85 per cent Indigenous, both with English as a second language; there’s some communication that happens there; you know it’s understanding that. Nurse Manager, Interview 38

Approximately 50 per cent of our workforce is from overseas and 47 per cent where English isn’t their first language. There’s some dominant other cultural groups in the workforce. We’ve had issues with that group speaking their own language in the workplace and in front of patients. Nurse Manager, Interview 16

Interview data suggest that the majority of internationally qualified nurses and midwives in the NT are from India, Africa or Asia. Other dominant groups were from New Zealand and the United Kingdom. Cultural backgrounds significantly affect the way clinicians deliver care, engage in problem-solving exercises, and communicate and interact with patients or colleagues. Attempts to tackle these challenges require more appropriate trainings and transition programmes into the Australian health care system. Existing programmes were unanimously deemed insufficient. Language proficiency was seen as a major challenge, particularly for nurses and midwives from non-English speaking countries. Managers acknowledged a more vigorous registration process for internationally qualified nurses wanting to practice in Australia, which was believed to reduce at least some of the existing language barriers. Several managers, however, raised concern about language proficiency:

I had one participant in a programme two weeks ago and she’s been through probably about four or five of my programmes and we’re talking about English and she said to me ‘I’m only just starting to understand your English’. Nurse Manager, Interview 13

We’re doing an Aboriginal cultural awareness programme, but it needs to be a cultural awareness programme. What I mean is, rather than saying specifically around Aboriginal culture or being aware of overseas nurse culture, just having a cultural awareness programme where people learn to respect each other and be aware of language and communication and that as well. Nurse Manager, Interview 13

It appears that culture strongly influences hierarchy and decision-making processes and affects attempts at building management and leadership skills within the workforce. More specifically, culture was noted to play a significant role in
approaching problems and dealing with performance management issues. Managers observed a lack of assertion skills not only among internationally qualified nurses and midwives, but also among the NT nursing and midwifery workforce more broadly. The workforce’s lack of critical analysis abilities and interest in keeping up with contemporary issues were major concerns.

Other concerns were expressed about rising levels of violence in communities and subsequent distress about staff safety. Some managers feared that a short-staffed working environment, the amount of overtime and the growing burden of (chronic) disease in communities would considerably increase the number of burnouts among their staff. Workforce challenges specific to individual workplaces or health areas are discussed in the following sections.

6.3.1.1 Alice Springs Hospital

Clinicians and managers interviewed at ASH (n=6) identified the transient workforce and staffing shortages, particularly in midwifery, as most pressing. In addition, many of the interviewees reported challenges in relation to the multiculturalism of staff employed at the hospital. It was noted that different training backgrounds among internationally qualified clinicians often required up-skilling strategies. A more comprehensive transition programme for internationally qualified nurses and midwives into the Australian health care system, and specifically into the NT context, was requested. It was deduced from this study that, while a multicultural workforce can enhance mutual learning, the up-skilling of staff put a significant burden on Australian-educated clinicians.

Some midwives expressed concern about the practice of raising numbers on the floor by engaging nursing and midwifery educators in clinical roles. Interview participants felt that this strategy would leave them short of educational support. Other participants voiced concern about the ageing of the nursing and midwifery workforce:

*In our ward, there’s probably 50 per cent that will be retiring in the next 10 years. I’m nearly 56 and there’s quite a few around my age.*

_Nurse, Interview 12*
Further, it appeared that staff were overwhelmed and emotionally burdened by Indigenous health issues. Many of the participants indicated they were not adequately prepared and that existing cultural trainings were insufficient.

### 6.3.1.2 Gove District Hospital

Looking at the most pressing workforce issues as perceived by managers and clinicians at GDH (n=12), similar issues relating to recruitment and retention were identified when compared with other hospitals in the NT. Other issues raised were the timely supply of up-to-date equipment and stock items due to the isolation of the work setting, the unavailability of after-hours resources and the limited numbers of staffing specialists. It appeared from the gathered data that skill mix issues were regarded as particularly pressing where remoteness was high and staff specialists in short supply.

While interview participants acknowledged the amount of existing professional development opportunities offered by the hospital, extended educational opportunities were requested:

> *We’re an isolated community obviously; quite rural; you know, not really affiliated with any university. We don’t have the resources were we can just go off to a lecturer.* Nurse, Interview 27

> *There’s no courses here; you can’t do a course in research. Educate is the only way to change someone’s mindset, isn’t it?* Nurse, Interview 30

Much distress was observed about increasing numbers of smokers and suicide attempts among the Indigenous population. Interview participants indicated that the availability of appropriate interpreters was a major challenge, and that language barriers with Indigenous clients significantly affected health outcomes.

Moreover, it was observed that the lack of a casual pool of staff affected clinician’s intentions to stay for the longer term. The backfilling of positions appeared to be a major burden on both clinicians and line managers. The research identified a group of long stayers, and many of those nurses, midwives and managers indicated no intentions to leave, as they had established strong family and community bonds in the region. A second group of staff appeared to be those who had only recently moved to Gove with uncertain intentions of staying for the longer term.
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6.3.1.3 Katherine Hospital

Most of the pressing workforce issues identified by managers and clinicians at KH (n=4) were consistent with those challenges described in previous sections. Remoteness affecting recruitment and retention, particularly of midwives and specialist nurses; the lack of resources and equipment on-site; and the limited availability of postgraduate education opportunities were identified as the most significant issues. Interview participants raised particular concern about educational arrangements:

We’re a small region and I think education is cancelled if we have less than six people attending; and that’s a real frustration. Nurse Manager, Interview 38

If there were more courses run down here, it would be lots better for the clinical practice; and if we had notice as well because it can be rostered into. I do the rosters on the ward, so it would make it a lot easier staffing wise. Nurse, Interview 39

Other concerns aligning with the findings presented in previous sections related to the transition of internationally qualified nurses and midwives into the Australian health care system, the need to better manage the pool of multicultural staff and clients, and the need for mentor support for internationally qualified nurses and midwives:

I guess the culture; the background and diversity of staff that we have. We have a number of cultures I guess represented across the whole place. There’s a number of different cultures; the challenge also being that people have been overseas-trained and are not that familiar with the Australian health care system and how it operates, so it becomes a bit of a learning issue for everybody. Nurse Manager, Interview 38

It’s multicultural. Here in this ward, the number of overseas-trained nurses is 80 per cent. In the hospital, it’s probably about 40 per cent. Nurse Manager, Interview 40

Language issues and the availability of interpreter services further exacerbated cultural challenges. Concerns were also raised about chronic disease management and the social impacts of chronic illness in the Katherine region.
6.3.1.4 Royal Darwin Hospital

Findings from the interviews at RDH (n=2) indicate that ongoing vacancies in the ED, intensive care unit (ICU) and maternity unit were the most prominent workforce issues. Despite a decrease in workforce turnover rates in recent years, FTE deficits remained particularly high during the wet season. However, comments revealed that the number of FTE employed was at its highest point in the hospital’s history. Agency contracts to combat shortages had proven exceptionally costly over the years, and attempts were reportedly being made to reduce the number of agency personnel employed (for example, through higher numbers of Enrolled Nurses or Patient Care Assistants). A major concern appeared to be specialist qualifications within the hospital:

*The other pressure I guess; the paediatric unit. We are the tertiary referral for all of the Territory and, in one particular ward, up until this year, we only had one nurse with a postgraduate. That is not on.* Nurse Manager, Interview 19

It appeared from the comments that some of the introduced management strategies negatively affected staff recruitment and retention. Midwives noted that not all midwifery models of care were offered, which was perceived as a major barrier to attracting and retaining staff in the NT. Similarly, the limited availability of staff accommodation on campus was seen as a barrier to recruitment and retention:

*I couldn’t get accommodation when I first came up here at the staff accommodation. I ended up getting somewhere online and paying a fortune. And then when I got here just had to find something else. But yeah I just found something online that really wasn’t suitable, but that’s what I had to do to move here and I suppose other people, if they couldn’t get it, they probably just wouldn’t have come.* Midwife, Interview 03

Cultural safety and security were further issues identified:

*I mean sadly, you know at the Royal Darwin, it’s high percentage of Indigenous patients, but RDH does cultural safety and security pretty badly. There’s research that’s been conducted out there that proves that unfortunately. Was done by CDU a few years ago, published in the Journal of Rural and Remote Health in 2002. There was a series of three articles that looked at this very thing; we didn’t come out very well. I mean its 8 years old now so it would be interesting to follow up some of the issues that arise.* Midwife, Interview 02
A range of existing strategies to alleviate staffing shortages were identified from the interviews. Employed nurse models for Midwifery and Renal, and exchange programmes with the Royal Women’s Hospital in Melbourne and the Princess Alexandra Hospital in Brisbane could tackle at least some of the existing shortages and alleviate pressure in the case of emergency.

Managers stated that efforts were being made to introduce a culture of study within the hospital. Existing research efforts were, however, described as ‘ad-hoc’ and managers noted that a budget for research education purposes was lacking. It appeared from comments made by interview participants that a significant number of nurses in the ICU were currently engaged in study.

Attempts were also being made to strengthen the relationship between the hospital and the CDU through the introduction of joint priority projects. However, these preliminary discussions between the hospital and CDU had seen limited financial support at the time of the interviews.

6.3.1.5 Community Health, Mental Health, Remote Health and Others

The remaining interview participants (n=21) belonged to Community Health (n=9), Mental Health (n=2), Remote Health (n=6), Defence Nursing (n=3) and university settings (n=1). The most pressing workforce issue identified by Community Health nurses was the small number of people accessing child and family health services, particularly in remote and very remote areas. This observation was attributed to the lack of public transportation and poor knowledge about the services offered. It was further revealed from the interviews that there was no government policy on birth notifications in the NT, which caused major disruptions to service delivery. Participants indicated a strong need to develop a policy framework around birth notifications in the NT, and to implement more tailored database applications to record meaningful patient data:

*There is no formal notification of someone having had a baby. I don’t know if someone’s had a baby. I don’t know if they are back [in the community]; and invariably also nobody is asking clients where they are going to be staying when they leave the hospital. So I go to the address that’s in the system and it won’t be right.* Nurse, Interview 22
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I could record all this information when I see people, but I can't because the application that we use is not designed for us. I'm really interested in research and collection of information and being able to, you know, inform on policymaking decisions. Nurse, Interview 22

Interview participants further indicated the need for a specific assessment tool for Indigenous children. It was acknowledged that the assessment tool currently used was not successfully applicable to Indigenous children:

The tool that we use isn't really very good for doing assessments on Aboriginal babies. They come into an office like mine and see toys that they normally don’t have. They sometimes don’t even know what to do with them. And maybe you can’t do some of that in an office; maybe you need to have, you know, a mobile playgroup. Nurse, Interview 22

Clinicians in homebirth settings expressed similar concerns. The research identified a strong need for more tailored database applications, and it was acknowledged that meaningful data could be drawn from collected patient information:

If they collected some information about position of birth, like in what position did women give birth, that might give some meaningful statistics back to midwives because most midwives can cope with birth standing anywhere else, but most medical births are done with the women flat on her back. And that makes a huge difference to the outcome of birth. So it’s just a really simple piece of data, but if it was started to be included in collections, you might get some better stats from it. Midwife, Interview 04

The most pressing workforce issue as identified by Defence Nursing officers was the ongoing struggle to remain clinically current and competent. Interview participants stated their skill levels had diminished considerably due to a lack of exposure to acute health care after joining the military nursing workforce. It appeared from the interviews that this issue was particularly pressing among full-time nursing officers; part-time employees were not affected, as the majority worked for nursing agencies on a regular part-time basis. Emphasis was placed on establishing a memorandum of understanding between the DoH and the Defence Nursing sector\(^1\). Potential was identified for placements at RDH, and nurses pointed out that similar models exist

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\(^1\) Note: On 7 April 2011, an agreement was signed between the Northern Territory of Australia (as represented by DoH) and the Commonwealth of Australia (as represented by the Australian Defence Force) enabling Australian Defence Force Health Staff to access professional development through clinical placement opportunities in DoH facilities in the NT.
Findings

between hospitals and defence sectors interstate. Interview participants were aware of unofficial channels for working options at RDH, but these were perceived to be informal and personally driven, and therefore were not very widely used.

It appears that formal strategies to engage military nursing officers within the NT civilian nursing sector could alleviate at least some of the existing workforce shortages. Defence nursing officers and managers reported:

> Basically, we don’t really do our job clinically. We generally tend to do the role of general service officers, which is administration of soldiers. There’s no relationship between the Territory Government and [the Defence Force], so we can’t actually update ourselves clinically within the allocated work time. But if I would work say in another state, there’s an agreement made up between those states and defence. Nurse, Interview 06

> Information exchange between the civilian and military sector is just personally driven. It’s a matter of being prepared and go and find people. Nurse Manager, Interview 05

Interview participants within the Top End Remote Health context expressed major concerns about distance management issues and the lack of resources available to staff on-site. Challenges resulting from distance management and the lack of resources were accompanied by education and accommodation issues in remote and very remote communities. It was revealed from the interviews that ongoing professional education opportunities for staff were difficult to access due to the on-call nature of nursing and midwifery work. Further, participants stressed the need for maintenance of the existing housing stock.

The Australian Nursing and Allied Health Rural Locum Scheme (NAHRLS) supports staff in undertaking short-term leave and might bring at least some alleviation to educational challenges. However, strategies to tackle housing issues (such as renting houses in nearby communities) have brought little alleviation and have proven to be exceptionally costly. Managers noted that staff accommodation is supplied by NT Government Employee Housing, with little influence from Top End Remote Health:

> We have houses that have not been repaired in over two years. There are houses where you can look through the floor and see the ground; houses have moved apart a little bit. So, in some areas, the houses are quite good, but in general it’s very difficult to; there are houses that are
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not up to standard and in need of maintenance and that maintenance has been known about for over two years and not been attended to because the NT government employee housing system doesn’t have enough resources to address all of the issues. That’s a fundamental issue for recruiting people. Nurse Co-ordinator, Interview 25

Generally, there appeared to be a strong sense of disconnection between higher management levels and staff in remote and very remote settings. While clinicians requested extended management support structures (such as regular recreational breaks and on-site support), managers were well aware of distance management issues, but saw themselves confronted with limited resources to tackle these issues.

Similarly, it appeared that the relationship between community members and health centres needed to be reinforced. Suggestions were made for the involvement of community members in recruitment and selection processes of nursing and midwifery staff. Community control approaches were limited and policy frameworks lacking:

*I’m sure it’s encouraged, but I don’t know that we actually have it in policy. I think that relationship between the community and health centre needs to be strengthened. Communities have no sense of control over what’s going on in the health centre whatsoever.* Nurse Manager, Interview 25

Some interview participants criticised staff development processes and career pathways within the remote workforce. It appeared that existing guidelines prevented managers from retaining suitable staff:

*We take them on as a Nurse 2 role at one year’s experience. If they do the N2 and then they take on a Nurse 3 position, and I think that should be seamless if their assessment is appropriate and they come out of an N3 with three years’ experience, I think that they should be eligible for a Registered Nurse 4; a Nurse 4 position without having the four year rule applied to them. I think we hurt ourselves if we don’t do that.* Nurse Manager, Interview 25

Transport was a major issue for Central Australian Remote Health, and concerns existed particularly about the inaccessibility of communities due to flooding. While it was recognised that remote communities in the ‘Top End’ enjoyed alternative forms of transport due to its wet season, communities in Central Australia were missing similar benefits. Greater flexibility in transport budgets was requested.
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Further, managers experienced major distress about staff safety due to rising levels of violence and alcoholism in communities. Some managers indicated that a short-staffed working environment, the amount of overtime and an increasing burden of chronic disease in communities would considerably affect burnout numbers among their staff. Concern was also voiced about the ongoing difficulty in engaging Indigenous Australians in nursing and midwifery roles.

6.3.2 Personal Research Interests

It appeared from the data that many of the cultural questions identified were closely aligned to workforce or clinically related issues. However, due to the significant role culture plays in nursing and midwifery in the NT (there are large numbers of internationally qualified nurses and midwives and large proportions of Indigenous clients with English as a second language), it was deemed appropriate to classify these research interests as 'culturally related'.

Nurses, midwives and their managers identified a broad range of workforce-related research questions, based partly on previously illustrated workforce issues and other personal interest areas. It appeared that only a few participants had no specific research interests. It is acknowledged that this might reflect bias resulting from the self-selection of interview participants. However, it was the intention of this study to conduct an in-depth assessment on levels of interest in conducting workforce research, rather than to examine the workforce as a whole. Those participants that had no research questions were asked about issues affecting their current workplace, which led to the identification of potential research interest areas. Results suggested that research interest areas among clinicians and managers were not exclusively around workforce issues; a range of clinical and cultural questions were determined to be of equal importance. While managers and clinicians’ immediate scope of practice had significant influence on their research interests, interviewed nurses and midwives indicated great interest in not only clinical, but also workforce-related research topics. Overall, it appeared that workforce research made up a smaller proportion of research interests among clinicians, while managers paid greater attention to workforce-related questions.
Clinicians were driven by a range of motivations to engage in research. Drivers included personal professional development, the will to change and improve current practice, informing and influencing policy decisions, feeling safe as a clinician, contributing to the knowledge base of the profession and strengthening the reputation of nursing as a research-oriented profession. The following table shows numbers of research questions articulated by interest area:

Table 8: Proposed Research Questions by Interest Area

<table>
<thead>
<tr>
<th>Research Interest</th>
<th>Managers (n=18)</th>
<th>Total %</th>
<th>Nurses Midwives (n=27)</th>
<th>Total %</th>
<th>Total (n=45)</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workforce-related</td>
<td>19</td>
<td>73.1%</td>
<td>11</td>
<td>28.2%</td>
<td>30</td>
<td>46.2%</td>
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<tr>
<td>Clinically related</td>
<td>3</td>
<td>11.5%</td>
<td>23</td>
<td>59%</td>
<td>26</td>
<td>40%</td>
</tr>
<tr>
<td>Culturally related</td>
<td>4</td>
<td>15.4%</td>
<td>5</td>
<td>12.8%</td>
<td>9</td>
<td>13.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
<td><strong>100%</strong></td>
<td><strong>39</strong></td>
<td><strong>100%</strong></td>
<td><strong>65</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Interview participants identified 65 research questions relating to workforce, clinical and cultural issues within the NT workforce. While nurses and midwives identified 39 research areas, managers proposed 26 questions. These numbers are likely to result from greater numbers of nurses and midwives participating in the research (n=27) when compared with managers (n=18). Most participants proposed more than one research interest.

Overall, nurses and midwives proposed 11 workforce-related research questions, 23 clinical research interests and five cultural research questions. Managers suggested 19 workforce-related, 3 clinically related and 4 culturally related research questions. Interestingly, clinicians proposed both workforce and clinically related questions, while managers were interested mainly in workforce research. The greater overall proportion of suggestions was made for workforce-related research questions (46.2 per cent), followed by clinically related questions (40 per cent) and a number of cultural interest areas (13.8 per cent).
More specifically, workforce research interests covered a range of issues including the challenges arising from providing the right nursing and midwifery skill mix to cultural competence levels of clinical staff to new and innovative strategies for the engagement of Indigenous people in nursing and midwifery roles. Other workforce-related interest areas revolved around safety and quality issues; the effects of mental health programmes on alcohol abuse and violence issues in communities; occupational health and safety issues; and new approaches to recruitment and retention.

It appeared from the data that quality improvement and research were closely aligned for many clinicians, and educational support was required for nurse and midwife researchers to distinguish between clinical audit, quality improvement and research. Other interview participants expressed particular interest in the credibility of job sharing options at GDH, burnout numbers of midwives in caseload midwifery models, the re-integration of nurses after practicing in remote settings, and the art of critical thinking at the workplace:

One thing I’d really like to do is just look at burnout of midwives in caseload midwifery models, which is very relevant to where we work. And I’d like to look at why that is and what can be done to improve working conditions. And it’s the most satisfying way to work, but it’s also got the highest rate of burnout. I’d also like to look at issues around cultural safety and security, particularly in relation to maternal health. It’s certainly a big issue in my job working exclusively with Indigenous women. Midwife, Interview 02

Managers expressed research interest in clinicians’ sense of wellbeing and challenges in work-life balance. Further research interests were concerned with questions around workload management and, in particular, with exploring the concepts of Nursing Hours per Patient Day against Trend Care systems. Other interests related to the impact of people’s home life on their work life. Managers were also concerned with finding out more about the attraction of nurses to certain specialist areas; the introduction of a zero tolerance to aggression policy and its impacts on perceptions of patients; and the perceived loss of social grace within the mental health workplace and its impact on nurse-client relationships.

Culturally related research questions revolved, for example, around promoting organ donation among Indigenous Australians:
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I’d love to work out what some of the challenges are in the Indigenous population because, you know, it’s widely believed that Indigenous people don’t believe in organ donation, but the people that I’ve talked to, I think there’s just so many different views in all different cultures. It would be good to get just a bit more information from communities on what their understanding is. The other thing too, not Indigenous but young men are very reluctant to organ donation. See what the problem is. Nurse, Interview 18

Further research interest was into teenage pregnancies in Indigenous communities, the impacts of an international workforce on the standards of care, and the development of Indigenous-specific early childhood assessment tools for Indigenous children. Interview participants suggested:

Look you know I’ve got a thousand. How can we better work together? Probably one of the biggest things too is that a lot of overseas nurses in particular bring a wealth of experience with them and how can that be worked upon? How can they bring that experience more successfully into the workforce? And then how Australian nurses in particular can embrace them and not be so negative? Nurse Manager, Interview 13

I’m really keen on that question about international workforce and standards of care. Another hospital in the Territory that has 60 per cent of overseas-trained staff, and I’m aware that occasionally hand-overs are done in a language other than English, and that would have some bearing on your standards of care. Nurse Manager, Interview 38

Multicultural population; like I’ve got a client from Italy, a client from Cambodia, a client from East Timor, I got a Philippine, I’ve got multicultural clients. I love the Internet; I do research on multicultural stuff. Multicultural clients is a big challenge. Nurse, Interview 42

Clinical research interests revolved around the development of more tailored public health programmes to manage Trachoma, a disease of the eye occurring particularly in remote and very remote Indigenous communities across the NT. It was revealed from the interviews that Australia is the only developed country to continue to have cases of Trachoma, and that current strategies to combat the disease are not specifically tailored to the remote NT context.

Other research interests centred on the increasing numbers of people affected by Pertussis in Alice Springs as well as research into the safety of homebirth in communities. Suicide attempts were perceived to be increasing, and interest was expressed in researching this issue. One nurse articulated interest in researching the clinical outcomes of non-pharmacological pain relief measures, such as music or
Findings

...smells, in infants. Another participant articulated research interest into vaccine cold chain education and the challenges arising from remoteness and hot climates:

*I’d love to do some clinical stuff. I’d like to look at lots of things. One of them implementing the strategy we use to manage Trachoma; using that strategy in the first world. Because it is a strategy developed for the third world because Trachoma is a marker of a third world country.*

Nurse, Interview 08

Further interest areas reported by nurses and managers, particularly in Darwin and Katherine, were mental health issues resulting from homelessness; the treatment of scabies; infection control; and the perceived increase in the number of smokers. The effectiveness of strategies to manage chronic disease was another interest revealed. It appeared that the majority of public health research interests revolved around the timeliness of vaccinations and the effect on health outcomes. This was illustrated by several interview participants:

*Pertussis is increasing in Alice Springs and we were looking at doing some research into that. The schedule for immunisation changed about five years ago, and now we can see an increase and whether that had an impact.* Nurse, Interview 17

*Katherine has got a very large number of homeless people and I think that would be a really good research topic to look at; the health status because of the homelessness.* Nurse Manager, Interview 38

Specific research interests within the military nursing workforce were the effects that overseas deployment places on families, and the impact that defence families are placing on civilian health resources in the NT as a result of their high stress levels and marital breakdown rates.

Research interests generally seemed well articulated, although challenges might arise from refining broader interest areas into manageable research questions. It appeared that participating nurses, midwives and managers had a clear idea of research priorities for both their individual workplaces and the nursing and midwifery workforce more broadly. The following section addresses barriers to engagement in research, focussing on individual and organisational factors.
6.4 Opportunities and Barriers for the Establishment of Workforce Research
6.4.1 Barriers to Research Engagement

This section comments on the barriers to engagement in research as identified by participating nurses, midwives and managers. Findings from the interviews suggest that educational backgrounds were the most prominent barrier to research engagement among nurses and midwives, while organisational factors related primarily to the lack of dedicated research and education budgets. In the absence of research support structures, most clinicians felt that they were constrained by the organisation in their abilities to conduct research. Most hospital-trained nurses did not have any research education, and those nurses and midwives with tertiary education levels found it difficult to locate research-specific scholarships or supervision assistance. Other barriers resulted from the current organisational focus on processing external knowledge, rather than on creating knowledge from within.

The need to create internal knowledge from within the organisation was poorly understood. Usually, management knowledge was externally sourced, and the knowledge applied in nurses and midwives’ daily practice was mainly experiential. Clinicians’ access to external knowledge sources was limited, particularly on the wards. The internal generation of knowledge through research was not common, and those existing projects tended to be clinically focussed. The engagement of clinicians in direction setting for the organisation was not a business priority:

So if you go off the floor, I can’t then have a nurse to replace you. The only way I can replace you is through a casual or an agency nurse, but that costs me more, so I can’t agree to give you a month off to go and study or research. I could, but I won’t. Can’t say I won’t because I do. I’ve done it. But you’d have to tell me why; what’s the benefit for the organisation. You’d have to pay for it. You know, and that’s the other thing; as soon as somebody said but this will benefit the organisation, there’s an expectation that I will fund it. But I don’t have a budget; when it comes to education, I don’t have a budget. Nurse Manager, Interview 19

Some of the nurses and midwives who indicated interest in conducting research not only perceived lack of support from higher management levels, but also indicated little understanding from their local work environment:

There’s a few questions we wanted to ask and got told it was too big; looking at self-administration of medications. Anyway, not to give up on
Findings

it, we thought we’d concentrate just purely on one aspect. Nurse, Interview 13

I like the idea of a PhD, but it’s about getting the right time, the right place and the right topic to bring it all together. I have to say the workplace has been pretty unsupportive when I did my Master’s. No study leave, nothing. I was working full-time and I probably studied a bit too quickly, but I would have to say the Royal Darwin—I was working there at that time—was completely unsupportive. So I don’t know how that would be, you know doing a higher degree. Midwife, Interview 02

Age was also seen as a major drawback to engaging in professional development activities. Those nurses and midwives that were most doubtful about engaging in research were hospital-trained and currently in their mid-50’s. Other barriers related to the inability to differentiate between quality improvement projects and research.

Language barriers and cultural reasons were identified as a major impediment to engaging in critical inquiry. To combat at least some of the existing challenges (such as language and culturally related barriers to research engagement) that existed, particularly for internationally qualified nurses and midwives, this study identified the need for better training programmes dealing with culture and communication in general. There was also a strong need for better transition of internationally qualified clinicians into the NT health care system, and the context of practice in the NT.

Interview findings suggest that language barriers affect patient outcomes, pose challenges to critical thinking abilities and impede the concept of change within the profession. Managers stated that many of their international staff felt they could not question clinical practice or management approaches. While a multicultural workforce can stimulate an environment of mutual learning and innovation, insufficient cultural and language-related trainings can hinder collective workforce development. Critical thinking was observed to be an untapped resource, and additional comprehensive training programmes were requested. A number of suggestions were made to overcome these barriers and to foster the research engagement of clinicians. These suggestions will be presented in the following section.
6.4.2 Research Support Structures

The most pressing workforce issues identified by nurses and midwives largely aligned with managers’ perceptions of workforce priorities. However, it appeared that there was little consideration from higher management levels regarding fostering support structures to facilitate research on current issues. Research was generally not regarded as a business priority and none of the interviewees were aware of any strategic plans for developing research capacity. Investment in research support structures was not considered viable by some managers, as the development of a bottom-up approach to research would entail the allocation of financial resources (such as mentor support structures and scholarships). Other managers stated that the establishment of research support structures would impose too great a burden on an already challenging work environment. It appeared that existing financial resources were primarily devoted to short-term demand management strategies, such as the recruitment of internationally qualified nurses and midwives. Fostering clinician-led research appeared to play an insignificant role in informing long-term business strategies.

Nevertheless, many of the interviewed managers and clinicians stated that they would welcome the incorporation of research into the workplace, although both clinicians and managers were critical about their ability to conduct research. The need for extended and systemic research support was, however, only poorly understood within the system more broadly. Additionally, limited data existed on previous nursing and midwifery research partnerships or projects in the NT. None of the interview participants were aware of any research-specific funding opportunities, current nursing and midwifery research databases or catalogues:

*When I came here, there were often references to the list of research priorities that the Department had, but when I asked what they were, nobody could tell me. There is no register of research that’s been undertaken. Nurse Manager, Interview 01*

It appeared that clinicians were reluctant about investing in their professional research development unless the organisation would subsidise at least some of their educational expenses. With perceived levels of research skills being low, the implementation of support structures was urgently required.
Findings

It was primarily Remote Health that indicated activity in the development of research guidelines (available through the Atlas providing governance and other information for Remote Health employees). Nurses and midwives in Remote Health acknowledged existing options for study support, such as remote workforce grants, subsidies for Internet costs or the entitlement to four weeks study leave per year. It was for these support structures that research efforts in Top End Remote Health were perceived to be more advanced, and interview participants indicated that there was a significant amount of clinical research undertaken. Support structures included a manual into the approval process of research proposals, and guidelines for engagement in research.

Interview participants employed in other nursing and midwifery areas were not aware of any specific research-related policies or guidelines within their workplace. Nurses and midwives were also largely unaware of existing research support structures offered by the DoH more broadly, such as the Research Support and Education Program (RESP). The introduction of a marketing strategy to promote research enthusiasm and engagement was suggested by managers. It appeared that the existing focus on research needed to be shifted towards nursing and midwifery, as existing research support structures focussed on medical more so than nursing or midwifery-related matters. No formal research networks could be identified between any individual workplaces and educational institutions. Existing university partnerships were often the result of individual manager’s efforts, and a broader support system behind these partnerships was lacking:

So I think the first thing is that there needs to be a well-organised ongoing marketing strategy for everybody from the staff, the direct care staff—and I mean nurses, doctors, through to the General Manager and in fact the Chief Executive of the Department of Health—to appreciate the role of research and to identify those areas where we could get some wins. I think that that marketing would have to be a multi kind of marketing, and I’m not talking about advertisements on the TV, stuff like that. I’m talking about getting a group together that actually feels that this is an important component going on and then having them come up with a series of messages.

That would be on-track and would be very, could be fed through to the different groups at different meetings or as they discuss strategic planning or whatever else needs to be done, at the ward level, at the high level. Nurse Manager, Interview 19
Findings

The majority of interviewees had a firm idea of the support structures required to foster nursing and midwifery-related workforce research. These included the development of an organisational research branch or manager, research skill workshops and a dedicated research/administration time within work hours. Suggestions were made for a register or database including research tool kits and guidelines, showcasing existing nursing and midwifery research projects and promoting available funding opportunities dedicated to professional research development. Participants identified mentor assistance, financial support and recognition as vital support structures. This was exemplified by several line and senior managers, who stated:

*There’s plenty of people here interested in doing research. But again it comes down to whether or not they’d actually get time to do it. I mean if we allocated one day a week to research or whatever. And the other thing from a management point of view is who would fund that. I think most people do research in their own time.* Nurse Manager, Interview 29

*Making more time available for nurses to do it would be the first thing because I think the will is there; the excitement is certainly there.* Nurse Manager, Interview 31

*In some jurisdictions, they do actually allocate the more senior nurses on the ward such as the Clinical NurseManager—probably here the N4s and up—allocate them a day a week to do research/administrative work. In order to get research done in your organisation, you need to head hunt and free up people to do it.* Nurse Manager, Interview 01

To facilitate the conduct of research within workplaces from an organisational perspective, suggestions were made for a strategic research partnership between the NT DoH and CDU. Suggestions included, for example, setting up workshops introducing interested nurses and midwives to the concepts of research, instructing them on how to narrow down their personal research questions, developing a research proposal, obtaining ethics approval, collecting data, and analysing and disseminating the research. In general, most interview participants were aware of changing trends in nursing and midwifery and supported the idea of introducing research support structures. However, flexibility in research education approaches was required and played a significant role in attracting interest:

*Miscellaneous enrolment in single-stand-alone subjects: that they may want to use to go towards their Master’s, but not necessarily make them*
Findings

do their Master’s because some people are in different stages in their work career and may not want to do a whole qualification, but they may want to do particular things. I think just having options. Nurse Manager, Interview 21

Flexibility with work and understanding from management. You want to contribute something to the Universe and so then to make the workplace better for whatever you’re researching. So flexibility with working hours really would be the big thing; financial assistance too. Midwife, Interview 02

Other ideas included the establishment of research mentor positions (for Top End and Central Australia); advising nurses and midwives about research study options; coordinating workshops introducing staff to the concepts of research; and accompanying nurses and midwives through the conduct of a research project.

In the absence of research education programmes, suggestions were made for professional development workshops run for the period of a year, and the introduction of different education levels, such as workshops for novice or experienced researchers. Further suggestions were made for research mentors to interlink with existing library resources. It appeared from the interviews that these resources were underused and many nurses and midwives stated they would inform their practice by relying on experiential knowledge more so than current research.

Access to internal knowledge creation options could be enhanced through the provision of scholarships for research degrees or stand-alone courses, or by awarding other financial assistance. Mentors might assist nurses and midwives in finding scholarships suitable for their needs and putting in applications for these. Different models for establishing research mentor positions were suggested (such as creating a half-time position or buying in mentor support from a university):

You would have to have one mentor in the Top End and one in Central. I mean, if you got only five people that’s different, but if you had 10 in the Centre and 10 in the Top End; especially you want the mentor to go out at least once or twice to the community. Nurse Manager, Interview 09

Ideas for flexible research education included Master’s by Research courses, stand-alone research workshops and short-course research trainings tailored to specific workplaces. Investment in professional development was not only seen as a pathway to foster research, but also as a strategy to value staff. Managers were encouraged to
describe their experience with the establishment of professional research development:

In that 10 workshops over the 12 months, we walked them through the whole process. We only wanted very small research projects, but we actually took them through the process as a means of enhancing their understanding. And at the end of the 12 months, they’d all done a piece of research. Nurse Manager, Interview 01

There’s probably two different ways of doing it. One would be in my opinion very sustainable is to integrate it within their postgraduate studies, so that students doing a postgraduate course, for example, all have to do a topic that introduces them to clinical audit and research; that sort of thing. And then they do a Master’s project; that extends over a full year. Nurse Manager, Interview 20

I think there would be interest in engaging nurses themselves in research. I am certainly interested in the 0–5 programme. With the up to five programme, I actually did a couple of little books and publications. They were published up to the extent that we got a Grant and then they were distributed and copies over to schools; in the Kimberley’s at the time. We did that in joint collaboration with the School; and what it was it was trying to teach, you know, you can have a very early and basic childhood stuff. Someone who’s a researcher, who can give some guidance, would be needed. Nurse, Interview 24

For a research culture to develop, managers emphasised the need both to establish better partnerships with Universities and research institutions to offer introductory research workshops and education programmes, and to have an individual driver, responsible for coordinating the development process around research. Investment in research was believed to create competitive advantage, as the remote NT nursing and midwifery context and high proportion of Indigenous clients pose some unique research questions for health care in Australia.

Incentives and recognition were seen as vital in attracting research interest, and support for nurses and midwives in showcasing and publishing their research was required. One suggestion was made for integrating clinician-led research as an independent category within the yearly Nursing and Midwifery Awards held by the DoH. Despite the need for flexible research engagement and comprehensive support structures, guidelines were requested for ensuring that supported research creates a return on investment for the organisation (such as being collaborative and informing workforce policies).
Findings

A major suggestion was made for establishing research as a team approach. A better understanding of the concept of research was seen as vital in fostering a research culture. Managers expressed that nurses trained under the hospital system in particular would require further education to introduce them to the concepts of research and the various methodologies available.

The introduction of mentorship through experienced nurse and midwifery researchers was suggested and recommendations were made for setting up meetings with experienced researchers as a potential facilitator for generating research enthusiasm. Nurses and midwives who had previously been in contact with research stated they were inspired by other researchers’ ideas and stories:

*I’m not involved in research but I’ve got a friend who’s doing her PhD in breastfeeding. So I’ve been listening to her talk about research ever since I met her—5 years. She had a database and she set it up. And she’s writing her PhD right now and so we’ve been involved with her as she goes through different phases of the actual research. That’s been very interesting to watch.* Midwife, Interview 04

Other recommendations were made for improving communication between the military and civilian nursing sectors, introducing journal clubs and newsletters fortnightly or monthly nursing research forums. Several interviewed nurses expressed their wish to see greater involvement and exchange between the military and civilian nursing sectors in the NT. Research activities could be collaborative and interviewed military nurses expressed their interest in fostering such partnerships.

To be sustainable, suggestions were made for integrating research within postgraduate studies and establishing a task group between DoH and CDU to develop a more comprehensive strategy around professional research development. Previous efforts to foster such partnerships have been poorly funded.

It appeared from the interviews that, while the will to foster workforce research was strong, dedicated financial resources were scarce and commitment was difficult without devoted research budgets. The establishment of a bottom-up approach to research was seen as a major challenge, as NT nursing and midwifery research priorities were not evident and the establishment of support structures to foster nurse and midwifery research was not a priority:
Findings

I think it always gets down to resources, time and the competing priorities of the clinical workload; that always comes first. An opportunity for down time, the hospitals is in peaks and drops always, and to use the drop period as a time to be able to support nurses to do research, and for us to promote that, and I guess the first step of that would be to trend the hospital activity. Nurse Manager, Interview 38

While both managers and clinicians appeared to have a good understanding of the potential of research to tackle nursing and midwifery workforce challenges, the ability to access research support structures and the ongoing tradition of introducing externally generated knowledge has led to limited efforts in developing bottom-up approaches to the creation of knowledge.

The following section presents the personal research interests as proposed by clinicians and managers, which could inform a future research agenda. These questions relate to the most pressing clinical, cultural and workforce-related issues as experienced by clinicians in their immediate workplaces.

6.4.3 A Future Research Agenda

The following table presents workforce, clinical and culturally related research questions as articulated by interviewed clinicians and managers. Clinicians were asked to identify the most pressing research questions arising from their personal clinical or management practice. Again, while some of these questions referred to specific workplace issues, others related to the NT nursing and midwifery workforce more broadly. Proposed questions were categorised into three main groups: workforce-related, clinically related and culturally related. These groupings were further categorised into sub-groups. The questions forming this agenda are based in part on the most pressing workforce issues presented in earlier sections, as well as other personal research interests articulated by the interviewees. This agenda could inform future research efforts within NT nursing and midwifery and provide direction for the priority setting of research development activities.
### Table 9: Research Interest Areas, NT Nursing and Midwifery Managers

<table>
<thead>
<tr>
<th>Interest Area</th>
<th>Posted Questions</th>
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<tbody>
<tr>
<td><strong>Workforce-related</strong></td>
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<tr>
<td>• Multicultural workforce</td>
<td>The impact of an international workforce on the standards of care</td>
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<td></td>
<td>Bringing overseas-trained nurses’ experience more successfully into the NT workforce</td>
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<td>Teamwork building measures in highly diverse work areas</td>
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<tr>
<td>• Skill mix</td>
<td>The use of an unregulated workforce in the delivery of patient care</td>
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<tr>
<td>• Work-life balance</td>
<td>Work-life balance and sense of wellbeing in mental health nurses</td>
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<td>How home life affects work life, and how work life affects home life</td>
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<tr>
<td>• Staff safety</td>
<td>The impact of a zero tolerance to aggression policy on people’s perceptions of patients</td>
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<td></td>
<td>Issues around safety and quality and risk at ASH</td>
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<tr>
<td>• Critical thinking abilities</td>
<td>What do people understand about the process of critical thinking? Why isn’t critical thinking occurring in everyday practice?</td>
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<tr>
<td>• Remote workforce</td>
<td>What motivated people to go remote?</td>
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<td></td>
<td>The integration back into the larger community after finishing working in remote. How do people cope and where do they go?</td>
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<tr>
<td>• Military nursing</td>
<td>The impacts defence families place on the civilian health sector in the NT</td>
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<tr>
<td>• Other</td>
<td>The benefits of training cost centre managers to be accountable for their own budgets and equipment</td>
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<td></td>
<td>How many clients per allocated nurse</td>
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<td>Findings</td>
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<tr>
<td>Nursing Hours per Patient Day against Trend Care as a patient acuity nurse dependency system</td>
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<tr>
<td>Measuring the impact of education on nursing practice</td>
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<tr>
<td>The importance of observations in rescuing patients from deterioration. Adapting Mews (Modified Early Warning Score) to specific hospital contexts</td>
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**Clinically related**

- **Homelessness**
  - Homelessness and socio-economic related illnesses in Katherine: Rheumatic Heart and Scabies

- **Self-administration of patients**
  - Patient education: Encouraging good medication control

**Culturally related**

- **Community control; cultural security and competence**
  - Social bonding and interaction with the community
  - The impacts of Health board members’ involvement in Health boards: Broad health education and impacts on responsibility of financing and staffing decisions
  - Cultural competence in nursing and midwifery staff in Central Australia
  - Community engagement in selection and recruitment processes of nursing and midwifery staff
### Table 10: Research Interest Areas, NT Nurses and Midwives

<table>
<thead>
<tr>
<th>Interest Area</th>
<th>Posted Questions</th>
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<tbody>
<tr>
<td><strong>Workforce-related</strong></td>
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<tr>
<td>• Recruitment and retention</td>
<td>Recruitment and retention in a rural ED</td>
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<tr>
<td></td>
<td>The role of Nurse Practitioner candidates and Nurse Practitioners in a rural ED</td>
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<td></td>
<td>The role of Domestic Violence Officers in a rural ED</td>
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<tr>
<td>• Work-life balance</td>
<td>Burnout of midwives in caseload midwifery models</td>
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<tr>
<td>• Education and training</td>
<td>Innovative education and training options for the remote setting: New social media</td>
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<td></td>
<td>How do military nurses look at maintaining their clinical skills in the NT</td>
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<tr>
<td>• Occupational health and safety</td>
<td>Baths as a pain relief for birthing women: Programme Development and Education on lifting unconscious women out of the bath without injuring ourselves</td>
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<td></td>
<td>Breastfeeding aid for back supporting in breastfeeding education</td>
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<tr>
<td>• Other</td>
<td>The change in professionalism of nursing</td>
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<td></td>
<td>The credibility of job sharing options at GDH</td>
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<tr>
<td></td>
<td>Midwives v. Obstetricians and Midwifery v. Obstetric Management in homebirth centres</td>
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<tr>
<td><strong>Clinically related</strong></td>
<td></td>
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<tr>
<td>• Homelessness</td>
<td>Homelessness and the delivery of mental health care</td>
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<tr>
<td>• Suicide</td>
<td>Causes and prevention of increasing suicide attempts coming in at GDH</td>
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<tr>
<td>• Smoking</td>
<td>Causes and prevention of increasing numbers of smokers treated at GDH</td>
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<tr>
<td></td>
<td>The profile of the Indigenous non-smoker</td>
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<tr>
<td>• Midwifery</td>
<td>Home birth and birth centres outside of hospitals</td>
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<td>Findings</td>
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<tr>
<td><strong>Midwifery care in the community.</strong> Looking at getting Indigenous women birthing back in their communities</td>
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<tr>
<td>The effects of castor oil for constipation with pregnant women</td>
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<tr>
<td>Postnatal exercise programmes and postnatal depression</td>
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<tr>
<td>Men in labour as support people</td>
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<tr>
<td>Teenage pregnancies in Tennant Creek</td>
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<tr>
<td><strong>Public Health</strong></td>
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<tr>
<td>Increasing Pertussis cases in Alice Springs</td>
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<tr>
<td>Vaccine cold chain education. Distance and hot climate challenges</td>
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<tr>
<td>Immunisation in the remote setting</td>
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<tr>
<td>Using the SAFE strategy to manage Trachoma in a developed country. How is it different in the NT?</td>
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<tr>
<td>The impact of time lines of giving Hepatitis vaccines to children born to Hepatitis positive mothers</td>
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<tr>
<td><strong>Child and family health</strong></td>
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<tr>
<td>Indigenous-specific tools for developmental assessments in Indigenous children</td>
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<tr>
<td>Infants returning to the paediatric unit with failure to thrive</td>
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<td>The effects of using non-pharmacological pain relief measures in small infants</td>
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<tr>
<td><strong>Other</strong></td>
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<tr>
<td>Scabies treatment: What do nurses do and what does the research say?</td>
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<tr>
<td>Triaging of clients in ED in a rural place</td>
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<tr>
<td>Infection Control. The latest in skin practice</td>
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<tr>
<td>The latest in Chronic Disease and Chronic Wounds</td>
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<tr>
<td>Effects of disadvantage for communities leading to alcohol and substance abuse, and effects of mental health programmes addressing these issues</td>
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Culturally related

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<tr>
<th>Culturally related</th>
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<tbody>
<tr>
<td>Multicultural clientele</td>
<td>Indigenous beliefs and organ donation. Speaking to elders</td>
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<tr>
<td>The multicultural aspect of mental health clients. Impacts on the delivery of care</td>
<td></td>
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<tr>
<td>Clients and language barriers at GDH</td>
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<tr>
<td>Cultural safety</td>
<td>Cultural safety and security, particularly in relation to maternal health</td>
</tr>
<tr>
<td>Increasing access to remote area services by better understanding and valuing Aboriginal systems</td>
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While several interview participants indicated at least some experience with generating formal research questions (through the development of a research proposal in their undergraduate studies), it appeared that some participants would require mentor assistance to refine their research interests. The aforementioned research questions were not altered or modified by the candidate. Rather, they are presented as articulated by the interview participants. Arguably, some of the questions related to quality improvement, rather than to research. However, generally, interviewed clinicians and managers believed that their research questions could have the potential to enhance management and clinical practice approaches significantly. A continuing investigation of the proposed interest areas and inclusion of other emerging issues was deemed important to keep the proposed research agenda up-to-date.

This chapter has presented the findings drawn from this research, addressed the most pressing workforce issues as identified by interview participants, outlined interest in researching these issues, and explored the personal research questions and ideas as articulated by clinicians and nursing and midwifery managers. The following chapter discusses the findings from this research in terms of the contribution made to research, policy and practice.
Chapter 7. Discussion, Conclusion, Recommendations

7.1 Introduction

The purpose of this chapter is to discuss the research findings presented in Chapter Six, and to relate these findings to the organisational knowledge creation, organisational learning and research capacity-building literature presented in Chapters Two and Three. More specifically, this chapter discusses how the findings from this research confirm, or add to, the theoretical background underpinning this study. The chapter commences with a brief review of the research purpose and the research questions developed for this study. It then summarises the chapters presented in this thesis and proceeds with a recapitulation of the main findings, discussing how they relate to the organisational knowledge creation, organisational learning and research capacity-building literature reviewed for this research. In addition to the theoretical contributions of the research, a range of practical recommendations have been offered to the NT DoH. The chapter concludes with a discussion of potential areas for future research.

The lack of empirical data to understand current research capacity and activity within the NT nursing and midwifery sectors and the call for an investment in research to underpin policy development (Department of Health and Community Services 2008a) suggested the need to assess levels of interest in, and capacity for, clinician-led workforce research within the NT. The overarching research question was what mechanisms, structures, or facilitators would be required to stimulate a workforce research culture.

This research was motivated by the assumption that policy efforts might benefit from engaging clinicians in both ‘formulating the issues’ and suggesting responses. The engagement of clinicians in workforce-related research might lead to more applicable workforce approaches than those developed in the past. This model has been shown effective in the context of clinical research, in which ‘action-oriented research’ leads to improved clinical practice by nurses and midwives.
As outlined in Chapter One, this thesis has answered the research problem by addressing the following research questions:

1. How might the concepts of organisational knowledge creation and organisational learning assist the NT nursing and midwifery workforce in fostering the engagement of clinicians in conducting workforce research?
2. What have been the experiences of similar jurisdictions in implementing research capacity-building models for nursing and midwifery (workforce) research?
3. What are NT nurses and midwives’ attitudes (levels of confidence and enthusiasm) towards the conduct of workforce-related research?
4. How well can NT nurses and midwives articulate research questions that might inform an action-oriented workforce research agenda?
5. How might the establishment of a workforce research culture within the NT nursing and midwifery workforce be undertaken? Which professional development strategies are needed? What challenges may arise?
6. What concrete strategies for creating a research culture arise from this research as potentially useful for NT nursing and midwifery?

Chapter Two attempted to answer the first research question by providing a better understanding of the role of the organisation in building capacity for the creation of knowledge through clinician-led research. The chapter reviewed models of knowledge creation as described by Nonaka (1994) and theories of organisational learning (Argyris 1992) that might assist organisations in creating knowledge and disseminating it to the wider organisational context. It was revealed from the literature review that knowledge creation is rarely organisationally initiated and managed (Fitzsimons, McCance & Armstrong 2006; Rafferty & Traynor 1999; Spencer 1997). The lack of support structures to facilitate the engagement of clinicians in research and development imply the need for institutional approaches to foster knowledge creation and organisational learning from a systems perspective. These findings were exemplified by the empirical data collected for this study. The lack of organisational support systems in place appeared to inhibit research engagement and participating clinicians were critical of their current research abilities. Similarly, managers indicated that critical inquiry abilities among staff were
considerably limited. Only very few nurses and midwives indicated intentions to invest in their own professional research skill development.

Chapter Three answered the second research question by reviewing models for the establishment of clinician-led (workforce) research. The chapter attempted to put the theories of knowledge creation and organisational learning in a practical context by suggesting models for embedding knowledge creation into the organisational system. The chapter identified suitable models, such as nurse researcher positions, that could be applied within the NT nursing and midwifery workforce to systematically facilitate research capacity from a systems perspective.

Chapter Four outlined the setting for this research. The chapter provided essential background information on the nursing and midwifery workforce by addressing the geographical and demographic context of the NT. It outlined current workforce planning issues and presented key workforce trends. It discussed population characteristics and their implications for service provision. The chapter concluded by commenting on the currently limited research clinician-led research activity within the nursing and midwifery sectors of the NT.

Chapter Five presented the methodology applied in this research. The methods used for this study included a review of relevant literature and the conduct of qualitative, semi-structured in-depth interviews. The findings from the empirical part of this research attempted to address the remaining research questions proposed for this thesis.

Chapter Six presented the findings drawn from the research. These findings revealed that research skill levels among participating clinicians were considerably limited. It was suggested that there is a lack of organisational support for the active engagement of clinicians in research.

While there is a an abundance of literature devoted to knowledge creation and capacity building for clinical research, there is relatively little understanding of whether the same principles would be valuable for the conduct of workforce research. This study intended to provide a better understanding of levels of confidence and enthusiasm among clinicians towards researching workforce-related issues. The following section attempts to relate the findings from this study to the
theoretical background presented in Chapters Two and Three. A range of recommendations will be provided and areas for future research will be outlined.
7.2 Reflections on the Literature

This research suggests re-thinking the role of the organisation in building research capacity. Further, the implementation of system-wide capacity-building models is recommended to facilitate the establishment of clinician-led workforce research from an institutional perspective.

As outlined in Chapter One, the NT has experienced protracted workforce shortages dating back to the early 1990s (Department of Health and Families 2008a). Workforce challenges are intensified by an ageing of the nursing and midwifery workforce, major shifts in consumer expectations and changing morbidity patterns of the patient population (World Health Organisation 2009). The issues of isolation and distance that are so typical of the NT context have put an additional burden on workforce planning and management (Garnett et al. 2008). Participants from this research identified cultural and demographic challenges, ongoing staffing shortages, high levels of staffing turnover and an emphasis on short-term staffing contracts as the most pressing workforce issues.

Overall, the general workforce issues articulated by clinicians and managers interviewed for this research aligned with the workforce-related pressures presented in the literature (Department of Health 2012a; Garnett et al. 2008; Productivity Commission 2005). It appeared that the idea of engaging clinicians in addressing these issues through the conduct of research has not been explored widely by either nursing and midwifery scholars or health care practice organisations.

Current approaches demonstrated by the NT DoH to combat workforce challenges have been driven by an inherited culture of short-term business strategies, such as the use of agency nurses and midwives or overtime hours by existing staff. These strategies have proven exceptionally costly (Department of Health and Families 2009a; Department of Health and Families 2009b) and are thus unlikely to be sustainable.

This study was based on the assumption that the attempt to engage clinicians in conducting workforce (as well as cultural and clinical) research might facilitate the creation of new and innovative insights into old and long-standing workforce problems. The study used the theories of knowledge creation and organisational
Discussion, Conclusion, Recommendations

Learning to explain how this might be facilitated by the organisation. The results from this research are summarised in the following section.

7.2.1 Limited Research Exposure and Experience

The main research problem of this thesis was to investigate levels of interest in, and capacity for, clinician-led workforce research within the NT nursing and midwifery sectors. The research identified interest among a sample of 45 nurses, midwives and nursing and midwifery managers in researching workforce issues and so contributing to internal knowledge creation. Interviewed clinicians generally had a firm idea of the most pressing workforce challenges affecting their workplaces and indicated interest in exploring these issues. To engage in research addressing workforce issues, a range of research support strategies were proposed. These strategies were generally aligned with the knowledge creation and organisational learning strategies presented in Chapter Two (such as exchange of tacit/explicit knowledge, research mentor positions or the use of information technology, such as databases to record meaningful data) and the research capacity-building models presented in Chapter Three (such as the introduction of a nurse researcher position).

The findings from this research have reinforced the literature in arguing that capacity building will require the incorporation of research as a vital part of the strategic agenda. Both the organisational knowledge creation and organisational learning literature presented in Sections 2.1 and 2.2 have argued a similar need for the systematic integration of knowledge creation and learning strategies within the organisational system (Argyris & Schön 1996; Nonaka 2007).

The concept of knowledge creation as presented by Nonaka (1994) implies particular potential for the research engagement of nursing and midwifery clinicians into workforce-related issues. The modes of knowledge creation as described by Nonaka begin with the individual, who creates tacit knowledge through observation or imitation (socialisation). Tacit knowledge is then combined with (external) information through the conduct of research, and transferred to the wider organisational context through the establishment of manuals, guidelines or policies (externalisation). This knowledge is shared between team members or colleagues...
(combination), and is again internalised by individuals through a learning process (internalisation). Given the predominantly tacit nature of knowledge within both the nursing and midwifery professions, it is argued that research undertaken by nursing and midwifery clinicians might not only inform a more effective and efficient workforce system, but might also improve patient outcomes.

The overall observation from the findings of this research is that the strong focus on short-term strategies to alleviate workforce shortages has hindered organisational innovation and knowledge creation approaches from within the system. The current research exposure and experience among the sample studied for this research was considerably limited. Similarly, levels of research confidence were generally low, although high levels of enthusiasm were reported. Given the self-sampling strategy used to recruit participants, volunteers might have been those who felt most confident and enthusiastic about fostering, or engaging in, workforce research. It could be argued that levels of confidence and enthusiasm are lower among those nurses, midwives and nursing and midwifery managers that did not choose to participate. Future research is required to explore this issue.

The lack of research exposure and experience among the sample studied for this research occurred as a result of educational, individual and, to a large extent, organisational factors. These findings are consistent with Brown et al. (2009), who identify organisational barriers as the most prominent obstacle to evidence-based practice. They also reinforce the work undertaken by Berta et al. (2005), Luckenbill-Brett (1989) and Rafferty and Traynor (1999), who argue that the limited research experience of nurses and midwives, and the generally limited research standing of the nursing and midwifery professions, arose largely from skill deficits and the lack of organisational consideration for research support structures. The findings from both this research and the literature imply that the concept of internal knowledge creation has not been explored very widely within the nursing and midwifery sectors generally.

Despite the call for evidence-based nursing and midwifery practice and policy, it seems that health care organisations have largely failed to recognise the potential of knowledge generated by nurses and midwives themselves. The lack of institutional consideration for knowledge creation approaches became particularly apparent when
studying workforce research activity and capacity within the public sector of the NT. Much of the existing knowledge within the nursing and midwifery professions appeared to be based on experiential knowledge or was externally imposed. Despite the increasing recognition of the value of knowledge creation and organisational learning within the public sector (Common 2004; Syed-Ikhsan & Rowland 2000), the NT has long been concerned with responding to external pressures (single-loop learning), rather than introducing innovative ways (double-loop learning) for dealing with workforce issues (Argyris & Schön 1996).

7.2.2 Varied Levels of Confidence, Little Difference in Levels of Enthusiasm

The historical dependence on the medical profession and limited focus on internal knowledge creation strategies have resulted in low levels of research skills and confidence among nursing and midwifery clinicians (Brown & Sorrell 2009; Retsas 2000). Observations from this research have confirmed this. The overall research confidence of clinicians was considerably limited. This lack of skills and confidence is not surprising given the long disregard for research education and capacity-building approaches within the workforce. While it was acknowledged that nurses and midwives carry out improvement activities as part of their daily clinical practice, many of these activities occur as an informal part of practice. This was reflected in the finding that some of the proposed research interest areas related to quality improvement more so than to research.

These findings have reinforced the work undertaken by Tanner and Hayle (2002) and Richardson (2005) presented in Section 2.2.2, who argue that clinicians have historically carried out improvement activities as part of their clinical practice, but have often shown limited abilities to engage in formal research. Again, these findings indicate the need for skill development to improve the research literacy of nursing and midwifery clinicians in the NT.

While some areas (for example, public health nursing settings) indicated wider exposure to, and therefore greater interest in research; other areas (for example, Hospital nurses, Mental Health nurses) were found to be considerably less research focussed. Similarly, great variety existed in levels of confidence towards engaging in
research. Again, limited levels of confidence seemed to occur as a result of educational backgrounds. Conversely, levels of enthusiasm did not greatly vary between nurses, midwives and managers. This observation might not be surprising, as previous studies have repeatedly argued that research confidence levels among clinicians are generally low, and that capacity must be built through the provision of organisational support and skill development opportunities (Fitzsimons, McCance & Armstrong 2006; Newell 2002; Retsas 2000; Tanner & Hayle 2002).

Although it appeared that the current system within the NT allowed for ‘ad-hoc’, self-supported research activity, system-wide approaches tended to be overwhelmingly focussed on short-term business goals, such as combating shortages in workforce supply numbers. Again, the lack of a systems approach to allow for innovation processes is likely to have contributed to the limited research standing of the nursing and midwifery professions. This lack of research orientation has traditionally been seen as a failure on the part of the individual (MacGuire 2006; Parahoo 2000; Wimbush 1999), with little or no consideration of organisational responsibility. This phenomenon is not specific to the NT. Research from the UK and the US indicates a similar neglect of organisational responsibility (Hart & Bond 1995; Newell 2002; Tanner & Hayle 2002). However, it appeared that the NT faced particular challenges in generating a systems approach to innovation creation, caused in part by severe and ongoing workforce shortages and high levels of staffing turnover. While the value of clinician-led research is well justified in the academic literature (Chan et al. 2010; Gething & Leelarthaepin 2000; Tanner & Hayle 2002), the current system within the NT has become unable to progress beyond the tradition of focussing on short-term business strategies to combat workforce shortages. Little to no consideration is given to internal innovation or research capacity-building approaches.

7.2.3 Opportunities for, and Barriers to, the Establishment of Clinician-led Workforce Research

While the benefits of supporting clinicians to conduct research have experienced at least some recognition in clinical settings (Chan et al. 2010; Gething & Leelarthaepin 2000; Priest et al. 2007), the potential of engaging clinicians in workforce-related
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research has not been very widely discussed in the literature. Yet, a growing body of
text: "research literature on research capacity building in health care is urging nurses and midwives
to not only react to workforce changes, but also to actively shape and influence them (Brown & Sorrell 2009). The findings from this research support the notion that
knowledge creation in workforce issues is only infrequently organisationally initiated and managed (Fitzsimons, McCance & Armstrong 2006; Rafferty & Traynor 1999). While ‘ad-hoc’ individual commitment to clinical research appeared to exist within the NT nursing and midwifery sectors, there was an apparent lack of consistent and system-wide commitment to (workforce) knowledge creation. Very few nurses and midwives indicated a willingness to invest in their own research development. Interview participants that indicated interest felt constrained by the organisation in their abilities to actively engage in research.

It could be argued that the current system within the NT DoH has disregarded the potential of internally generated knowledge. It is a common argument made in the research capacity-building literature that the nursing and midwifery professions show low levels of research activity due to an underinvestment in skill development and organisational support structures (Fitzsimons, McCance & Armstrong 2006; Priest et al. 2007). The barriers to systematic research capacity building as presented in the findings section of this thesis did not considerably differ from what has been presented in the literature. Again, these barriers related primarily to the lack of consideration for research support from a systems perspective (Nonaka 2007).

Similar to the literature, the lack of educational budgets dedicated to research activity and development, and the current focus on externally generated knowledge posed major obstacles to the implementation of internal research capacity. In addition, the limited availability and utilisation of external knowledge sources (for example, research articles) has led to a situation in which most of the knowledge currently applied by clinicians and managers in the NT is experiential. The work conducted by Nonaka (1994) and Berta et al. (2005) presented in Section 2.1 argues similar limitations. The lack of internal knowledge creation results from historical and structural boundaries; internally created knowledge often stems from top management levels, with little or no input from front-line staff (Newell 2002).
The findings from this research advocate the implementation of centralised, system-wide top-down support structures to engage front-line staff in research. These might prove useful in facilitating the generation of internal knowledge and breaking the current tradition of applying primarily experiential knowledge. It needs to be understood that the lack of research focus within the nursing and midwifery professions has in part resulted from an inherited tradition of dependency on the medical profession. The current focus on short-term business strategies and major research skill deficits have affected the ability of nursing and midwifery clinicians to take responsibility for their own practice, and engage in critical thinking and inquiry. A change in mindsets among both managers and clinicians, and institutional approaches for innovation and research development are required (Chan et al. 2010; Retsas 2000; Wimbush 1999).

7.2.4 Research Support Structures

While research ability and capacity appeared to be limited among the sample studied, the willingness to change current practice and policy approaches indicated potential for future research development. A range of research support structures were proposed. These aligned largely with the strategies for enabling and managing knowledge creation presented in Section 2.1.6, and the research capacity-building models presented in Chapter Three. Suggestions were made by interview participants for formal research networks and partnerships with research facilities and institutions (Fitzsimons, McCance & Armstrong 2006; Martins & Terblanche 2003; Wimbush 1999); the development of policies and guidelines for the conduct of research (Fitzsimons, McCance & Armstrong 2006; Wimbush 1999); and the incorporation of research into workplaces or the development of a Territory-wide database. Similar strategies were also proposed by Spencer (1997), McNicholl, Coates and Dunne (2008) and White (2002).

The major contribution of this research has been to demonstrate that the concepts of knowledge creation and organisational learning might assist health care facilities in the establishment of clinician-led research into workforce issues. The findings from this research contribute to a better understanding of levels of confidence and enthusiasm among clinicians and managers towards engaging in workforce-related
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research. These findings were consistent with the knowledge creation, organisational learning and research capacity-building literature presented in Chapters Two and Three, which identified a general lack of research skills and competence among clinicians.

The findings from this research have reinforced the observation that a lack of systematic research support results in major challenges to innovation and development capacity. In support of the literature, the research reinforced the importance of the organisation in committing to system-wide approaches for research capacity building and, in particular, the importance of strategic, collaborative networks; skills development; and system enablers and maintainers (for example, mentoring/nurse researcher positions). This research has not only strengthened some of the study findings presented in the literature review undertaken for this thesis, but has also attempted to provide a better understanding of how organisationally initiated clinician-led workforce research might be undertaken within the specific NT context. The following section discusses in detail the recommendations of this research for policy and practice in the NT.

7.3 Implications and Recommendations for Policy and Practice

Considering the paucity of research capacity-building literature relating to the establishment of clinician-led workforce research in particular, this thesis has contributed to a better understanding of levels of interest in, and capacity for, research within the NT nursing and midwifery sectors. This research has assessed whether nurses and midwives would want to engage in research addressing workforce problems, and has identified interest among a sample of 45 nurses, midwives and managers towards engaging in research. The findings from this study are consistent with the research and development framework introduced by Fitzsimons, McCance and Armstrong (2006) and could assist the NT DoH by bringing greater attention to:

1. Proactive research capacity development through networking and partnerships with CDU and other relevant research institutions (Strategy development);
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2. Contributing to evidence-based decision making in health practice and policy, through promoting and recognising staff-led research engagement (Building capacity);
3. Building and maintaining research capacity through research skill development, training programmes and mentor support (Infrastructure);
4. Enhancing policy and practice outcomes through the incorporation of research outcomes within workforce policies (Research in practice);
5. Developing outcome measurements (Outcome assessment).

The NT DoH could proactively develop research capacity through the establishment of a funded research work group with CDU and other relevant research institutions. The research has identified a lack of strategic commitment to developing research capacity and collaboration, with existing efforts being described as ‘ad-hoc’ and ‘personally driven’. Paying greater attention to knowledge creation and organisational learning, and developing research capacity in a more consistent and centralised manner, could assist with establishing a sustainable approach to research capacity building (Argyris 1992; Fitzsimons, McCance & Armstrong 2006; Nonaka 1994).

More specifically, the NT DoH could promote clinician-led research by implementing a marketing strategy around staff engagement. It appeared from the findings that greater exposure to research would enhance interest beyond the sample studied for this thesis. Equally, greater involvement is likely to enhance the application of research findings to management and clinical practice (Common 2004; White & Taylor 2002). Research sabbaticals could be introduced and 0.2 FTE, one day a week or 52 days a year could be allocated to research and administration activities. It was identified from the study that time constraints were among the most prominent barriers to research engagement. The NT DoH could appoint a nurse researcher/mentor position for Top End and Central Australian Health as a central point of coordinating research activity within the workforce. Clear accountability is likely to enhance sustainable research development.

The NT DoH could run a research development workshop with CDU, or subsidise the enrolment in single-stand-alone research subjects or full research degrees. The study identified varying levels of confidence among nurses, midwives and managers
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towards their ability to engage in research. Research skill development was requested particularly for nurses and midwives trained under a hospital-based system. Refresher courses are also required for those nurses and midwives with tertiary education backgrounds.

Attention could be paid to establishing a comprehensive research register or database, including previously conducted research projects, available funding opportunities, research policies and guidelines. The research identified a strong need to centralise research efforts and to provide consistent guidelines, policies and procedures across the NT nursing and midwifery sectors. This might be undertaken from a central point (nurse researcher position) to enable the development of a Territory-wide, open-access nursing and midwifery research database, to inform practice and policy approaches.

Equally important, outcome measures for the engagement of staff in research (particularly short courses or the single-stand-alone enrolment in research subjects) must be developed. Comments from the research indicated that investment in skill development, particularly workshops or short courses, must bring quantifiable return on investment for the organisation. Strategies for outcome measurement might include the number of peer-reviewed publications generated per funded research project; the presentation of outcomes to peers within the workplace; the extent of change in clinical guidelines or workforce policies as measured by conducting before and after short surveys within workplaces; and providing written outcome and recommendation reports for other clinicians, to be included in a Territory-wide research database.

7.4 Concluding Remarks and Future Research

This research contributes to the knowledge creation, organisational learning and research capacity building literature by providing a better understanding of how these concepts might assist in introducing capacity for the engagement of clinicians in workforce-related research.

This study has contributed to a better understanding of the current research activity and capacity within the NT nursing and midwifery workforce. The research
identified a lack of strategic commitment to developing research capacity and collaboration. It suggests re-thinking the role of the organisation in building capacity, and implementing system-wide capacity-building models to facilitate the establishment of clinician-led workforce research from an institutional perspective. Understanding that ‘ad-hoc approaches to research’ might be insufficient can lead to a better insight into the necessary support structures required to foster clinician-led research. The theories of organisational knowledge creation and organisational learning might assist the NT DoH in gaining a better understanding for the need to implement research capacity-building models in a centralised manner.

While the remote nature of the NT has lead to a range of workforce-related challenges that might inform a research agenda, it, at the same time, presents challenges to the engagement of clinicians in research. Most prominent being the ongoing need for ‘on-the-floor’ personnel in the context of short-staffed, highly diverse and transient workplaces. However, the call for evidence to justify workforce policy is becoming a key factor for health care organisations globally, and remote jurisdictions are no exception. In the NT, the continuing struggle to deal with staffing shortages and high rates of workforce turnover have largely hindered a focus on clinician-led research. In particular, the relationship between imposed and generated knowledge needs to be re-assessed and shifted towards the engagement of staff in direction setting for the organisation.

Future research could explore how intrinsic motivation and commitment to research is enhanced among a larger sample of clinicians in the NT. Further research might also be useful to gain a better understanding of how the establishment of clinician-led research might occur within related fields (such as in Allied Health). Further research might assist in studying the differences, or similarities, in context between the nursing and midwifery professions and related health care areas administered by the NT DoH. As the engagement of clinicians in research has been argued to be aggravated by high rates of staffing turnover and ongoing staffing shortages, interesting insights might be gained by studying how the investment in professional research development affects staff retention within the NT. Future research also could explore options for reducing workforce instability by investing in professional
research development and knowledge creation as a strategy to value, and invest in, existing staff.

This research has provided a promising insight into the establishment of clinician-led workforce research. The study has revealed a number of constraint factors to research and innovation development, and has suggested a range of capacity-building models that might assist in overcoming these constraints. With interest identified among a sample of 45 nursing and midwifery clinicians and managers, this research has the potential to act as a starting point in facilitating a culture of clinician-led workforce research.
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Appendices

Appendix A: Organisational Structure, NT Department of Health

Organisational Chart
Reviewed and updated: 2 February 2012

www.nt.gov.au/health
Appendix B: Ethical Clearance

HUMAN RESEARCH ETHICS COMMITTEE CLEARANCE

NEW PROPOSAL

HREC REFERENCE: H10068

PROJECT TITLE: The introduction of a research culture to improve nursing and midwifery
workforce outcomes

CHIEF INVESTIGATOR(S): Ms Katharina Voit

The Charles Darwin University Human Research Ethics Committee has considered your project.

The Committee is satisfied that the research proposed in this project conforms with the general
principles set out in the current National Health and Medical Research Council regulations, and with the
policy of the Charles Darwin University.

It should be noted that data must be stored securely on campus. Storage in a central facility (with
limited access if necessary) is available. Researchers should address any queries concerning data
storage to their relevant faculty.

Expiry date: 4 November 2011

Please Note: A Final Report is due on completion of this project, or if the project extends beyond the
expiry date a progress report is due before the date of expiry.

APPROVED

[Signature]
Chair,
CDU Human Research Ethics Committee

Dated [12/11/11]

cc. Supervisor, A/Prof Dean Carson; Dr Greg Rickard
HUMAN RESEARCH ETHICS COMMITTEE REPORT

RENEWAL OF CLEARANCE

PROJECT REFERENCE: H11112

PROJECT TITLE: Workforce Challenges for the Rural and Remote Northern Territory Nursing and Midwifery Workforce: Establishing an action-oriented research culture to improve workforce outcomes

CHIEF INVESTIGATOR(S): Katharina Volz

The Charles Darwin University Human Research Ethics Committee has considered the above mentioned renewal application.

The Committee is satisfied that the research proposed in this project conforms with the general principles set out in the current National Health and Medical Research Council regulations, and with the policy of the Charles Darwin University.

The Charles Darwin University Human Research Ethics Committee has therefore approved renewal of clearance for your project for a further twelve months.

It should be noted that data may be stored (with limited access if necessary) at a central facility at the University. Researchers should address any queries concerning data storage to their relevant faculty.

EXPIRY DATE: 29 November 2012

Chair, CDU Human Research Ethics Committee

Dated: 20.12.2011

cc: A/Prof Dean Carson; Dr Greg Rickard - for information.
Appendix C: Plain Language Statement, Nurse Managers

Project: The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes

Chief Investigator: Katharina Voit, Charles Darwin University

Supervisors: Dr. Dean Carson, Charles Darwin University
Dr. Greg Rickard, Department of Health and Families

Partner Agency: Northern Territory Department of Health and Families

Purpose of the Study: The purpose of this research is to develop a framework for the implementation of an action-oriented workforce research culture within the Northern Territory (NT) nursing and midwifery workforce. The specific research questions are:

1. Experiences of similar jurisdictions around the World in implementing a culture for nursing workforce research
2. NT nurses and midwives levels of confidence and enthusiasm towards workforce-related research
3. NT nurses and midwives articulation of workforce-related research questions
4. Requirements and needs for the establishment of an action-oriented workforce research culture within the NT nursing workforce
5. Professional development strategies needed
6. Emerging strategies for creating an action-oriented research culture

Benefits of the Study: The aim of this project is to engage nurses themselves in action-oriented workforce research. Such an approach may provide new insights into old challenges and assist with the better identification of workforce issues and strategies to address them.

How have you been Selected? The NT Department of Health and Families has recommended that we talk to you because of your role in the recruitment, retention and/or professional development of nurses in the Territory.

What would be expected of you? We would like you to participate in an interview with the chief investigator. The interview will take place at a time and location that is convenient for you. The interview will go for about one hour. The interview will discuss what the management and administrative
challenges might be in fostering a research culture within the NT nursing and midwifery workforce.

**Discomfort/Risks:** There are no specific risks associated with this study. We simply want to hear about your experiences and opinions. We understand that your time is valuable, and we will stop the interview after one hour and check that it is OK to continue.

**Confidentiality:**

The interview will be audio-taped. However, these tapes will be used only by the chief investigator to help in data analysis. You will not be referred to by name in any publications about the study, or in any transcripts of the tapes, UNLESS YOU ASK TO BE IDENTIFIED. If we use particular quotations, for example, we may refer to you as ‘Manager1’ or some other pseudonym. We will not be using information that will allow people to identify your practice or the community in which you work. If you do want to be identified alongside direct quotations, we will send you the quotations that we plan to use for your approval.

**Your Participation:** We would be grateful if you did participate in this study. However, you are free to refuse to do so. Even if you do decide to participate, you can withdraw at any time by notifying the researcher and terminating the interview. If you withdraw, your interview will not be used in the study.

**Results of the Study:** The results of the study will be made public via our website (www.cdu.edu.au/population). We will produce a report for the NT Department of Health and Family Services. All research participants will receive a copy of this report. We also aim to publish the findings in academic journals.

**Persons to Contact:** If you have any questions about the interview or what is expected of you, please contact the researcher, Katharina Voit on 8922 7454 or 0432 970 966 or katharina.voit@students.cdu.edu.au. This research is conducted following approval by the Charles Darwin University Human Research Ethics Committee. If you have any questions or concerns that you do not want to direct to the researcher, please contact cdu-ethics@cdu.edu.au.

This sheet is yours to keep.
Consent Form: The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes

I, ________________________________________________________

Hereby consent to take part in the ‘The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes’ study being conducted by Katharina Voit, from Charles Darwin University. I understand that the purpose of the study is to find out my attitudes towards research and what the requirements are to establish a research culture within the Northern Territory nursing workforce. I understand the results of the research will be published and that I will receive a copy of the main report.

The aims of the study and the anticipated benefits have been explained to me by

________________________________________________________

I understand that

☐ I will take part in an interview with a researcher at a time and location that is convenient to me.

☐ The interview will be audio-taped to help data analysis.

☐ My name will not be recorded in any transcripts or publications from the study.

OR

☐ I would like any quotations used from my interview to be attributed to me. I understand that I will be able to approve any quotations that are used and attributed to me.

☐ I am free to withdraw from the study at any time and my interview will be excluded from the data analysis.

Signature: ____________________________   Date: ____________________

This form will be kept by the researcher.

Created September 2010
Appendix D: Plain Language Statement, Nurses and Midwives

Project: The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes

Chief Investigator: Katharina Voit, Charles Darwin University

Supervisors: Dr. Dean Carson, Charles Darwin University
             Dr. Greg Rickard, Department of Health and Families

Partner Agency: Northern Territory Department of Health and Families

Purpose of the Study: The purpose of this research is to develop a framework for the implementation of an action-oriented workforce research culture within the Northern Territory (NT) nursing and midwifery workforce. The specific research questions are:

1. Experiences of similar jurisdictions around the World in implementing a culture for nursing workforce research
2. NT nurses and midwives levels of confidence and enthusiasm towards workforce-related research
3. NT nurses and midwives articulation of workforce-related research questions
4. Requirements and needs for the establishment of an action-oriented workforce research culture within the NT nursing workforce
5. Professional development strategies needed
6. Emerging strategies for creating an action-oriented research culture

Benefits of the Study: The aim of this project is to engage nurses themselves in action-oriented workforce research. Such an approach may provide new insights into old challenges and assist with the better identification of workforce issues and strategies to address them.

How have you been Selected? The NT Department of Health and Families has emailed nurses across the Northern Territory asking them if they would be interested in participating in the research. You have been selected because you responded to that request.
What would be expected of you?

We would like you to participate in an interview with the chief investigator. The interview will take place at a time and location that is convenient for you. The interview will go for about one hour. The interview will focus on your attitudes towards research and what you think might be needed to establish an action-oriented workforce research culture within the Northern Territory Nursing and Midwifery Workforce.

Discomfort/Risks:

There are no specific risks associated with this study. We simply want to hear about your opinions. We understand that your time is valuable, and we will stop the interview after one hour and check that it is OK to continue.

Confidentiality:

The interview will be audio-taped, however these tapes will be used only by the chief investigator to help in data analysis. You will not be referred to by name in any publications about the study, or in any transcripts of the tapes, UNLESS YOU ASK TO BE IDENTIFIED. If we use particular quotations, for example, we may refer to you as ‘Nurse1’ or some other pseudonym. We will not be using information that will allow people to identify your practice or the community in which you work. If you do want to be identified alongside direct quotations, we will send you the quotations that we plan to use for your approval.

Your Participation:

We would be grateful if you did participate in this study, however you are free to refuse to do so. Even if you do decide to participate, you can withdraw at any time by notifying the researcher and terminating the interview. If you withdraw, your interview not be used in the study.

Results of the Study:

The results of the study will be made public via our website (www.cdu.edu.au/population). We will produce a report for the NT Department of Health and Family Services. All research participants will receive a copy of this report. We also aim to publish the findings in academic journals.

Persons to Contact:

If you have any questions about the interview or what is expected of you, please contact the researcher, Katharina Voit on 8922 7454 or 0432 970 966 or katharina.voit@students.cdu.edu.au. This research is conducted following approval by the Charles Darwin University Human Research Ethics Committee. If you have any questions or
concerns that you do not want to direct to the researcher, please contact cdu-ethics@cdu.edu.au.

This sheet is yours to keep.
Consent Form: The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes

I, ______________________________________________________

Hereby consent to take part in the ‘The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes’ study being conducted by Katharina Voit, from Charles Darwin University. I understand that the purpose of the study is to find out my attitudes towards research and what the requirements are to establish a research culture within the Northern Territory nursing workforce. I understand the results of the research will be published and that I will receive a copy of the main report.

The aims of the study and the anticipated benefits have been explained to me by

________________________________________________________

I understand that

☐ I will take part in an interview with a researcher at a time and location that is convenient to me

☐ The interview will be audio-taped to help data analysis

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☐ I am free to withdraw from the study at any time, and my interview will be excluded from the data analysis

Signature: ____________________________   Date: ____________________

This form will be kept by the researcher.

Created: September 2010
Appendix E: Interview Guideline, Nurse Managers

Project: The introduction of an action-oriented research culture to improve Nursing and Midwifery workforce outcomes

Chief Investigator: Katharina Voit, Charles Darwin University

Supervisors: Dr. Dean Carson, Charles Darwin University
Dr. Greg Rickard, Department of Health

Partner Agency: Northern Territory Department of Health

Interviews with Nursing and Midwifery Managers:

1. Attitudes towards research
e. Have you had any previous experience with research?
f. Have you used research to inform staff?
g. What do you think about engaging nurses in research?
h. Do you have any personal research interests?

2. How might the establishment of an action-oriented research culture within the nursing workforce assist in getting nurses to address workforce issues?

3. Which professional development strategies are needed?

4. What concrete strategies for creating an action-oriented research culture need to be developed?

5. What further/ongoing research is required to address continuing gaps in workforce efficiency?

Created: October 2010
Appendix F: Interview Guideline, Nurses and Midwives

Project: The introduction of an action-oriented workforce research culture to improve Nursing and Midwifery workforce outcomes

Chief Investigator: Katharina Voit, Charles Darwin University

Supervisors: Dr. Dean Carson, Charles Darwin University
Dr. Greg Rickard, Department of Health

Partner Agency: Northern Territory Department of Health

Interviews with Nurses and Midwives:

1. What are the major workforce issues confronting (remote) NT?
2. Have you had any experience with research done into these sorts of issues?
3. Do you have any previous experience with other research?
4. What do you think about the conduct and use of (workforce) research in your workplace?
5. Do you have any personal research interests?
6. Which support would be necessary when conducting research while working in (remote) NT?
7. How do you think challenges that may arise in engaging in workforce research can be overcome?
8. Do you have any ideas on the development of research within the NT nursing and midwifery workforce?

Created: October 2010