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THE IMPACT OF COMPUTER TECHNOLOGY
IN THE CLINICAL SETTING:
A NURSING PERSPECTIVE

A Dissertation Submitted By

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CERTIFICATION OF DISSERTATION

I certify that the ideas, work, results, analyses, interpretations and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

Signature of Candidate		Date
ENDORSEMENT		
Signature of Supervisors		Date

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Definition List (NIA 2004 p.51)

ACHI	Australian College of Health Informatics
AHIC	Australian Health Information Council
ANF	Australian Nursing Federation
CIAP	Clinical Information Access Program
Conceptual framework	A set of basic beliefs, values, attitudes, and assumptions that shape and reflect how one views oneself and others. Warren (1996) p20.
DoH	NSW Health
DoHA	Department of Health & Ageing Commonwealth
EHR	Electronic Health Record
N³ET	National Nursing & Nursing Education Taskforce
NaMO	Nursing and Midwifery Office NSW
HI	Health Informatics. An evolving socio-technical and scientific discipline that deals with the collection, storage, retrieval, communication and optimal use of health-related data, information and knowledge.
HISA	(HISA 1998) Health Informatics Society of Australia
ICNP	International Council of Nursing Practice
ICT	Information & Communication Technologies
IMIA	International Medical Informatics Association
IM&T	Information Management & Technology.
IT	Information Technology
NeHTA	National Electronic Health Transition Authority
NIA	Nursing Informatics Australia. The national nursing special interest group of HISA.
NISA	Nursing Informatics Society of Australia
RCNA	Royal College Nursing Australia

CHAPTER 1 ABSTRACT

Advances in computer technology and communication technology have been revolutionary during the latter half of the last century. During which, computer technology has transformed the world from the industrial age to the information age.

Computer technology by its very nature is a new and intriguing phenomenon to work with. In contrast, nursing by its very nature is an older and most trusted profession to be part of. Uncovering the secrets of combining this media and that profession then became the challenge for the study.

The foundations for the study are set within the qualitative model of phenomenology, where the methods are based on the work of van Manen (1997). This framework was used to explore a deeper understanding of the nursing experience with computer technology in the hospital ward.

The objectives of the study were primarily to understand computer technology within the social context of nursing and secondly, other objectives were to explore the dynamics, between computer technology and the culture of nursing. Discussion was invited on the positive and negative influences of computer technology as experienced by these nurses.

This was achieved by working with nurses in a variety of ward settings including a rural base hospital, as they participated in a series of in-depth, unstructured interviews. The data they provided reflects that computer technology has the potential to impact on the structure and delivery of

healthcare, challenge the traditional roles and scope of practice, alter the existing boundaries and relationships and reinvent the clinical environment of nursing.

1.1 INTRODUCTION

The introductory chapter of the dissertation has firstly offered a view of the nursing profession at one given point in time. Next, it has approached the phenomenon of computer technology by providing background to its progress in the field of healthcare. However it is the methodology that has imposed order to the research process and becomes the glue that holds it together. Definitions relating to the various concepts of computer technology have been included in this section. Forming those definitions is aimed at introducing the reader to a clearer understanding about current concepts and ideas that relate to both computer technology and nursing. The study overview follows the definitions and begins by introducing and outlining the various chapters assembled to meet the aims and objectives of the study. In closing, the overview ends by outlining the dissertation, chapter by chapter.

Computer technology has invaded our lives both at work and play, with much of its use still outside the health environment. Yet in the field of health, there is great potential to use computer technology to advance health technologies, particularly where there is a relationship to patient care. Despite this, health research about computer technology in the clinical setting remains largely from a non-nursing focus. There continues to be limited reference to the character of the nursing experience to the phenomenon of computer technology in the clinical setting.

1.1.1 Change Concerns

Many nurses are unaware and unprepared for the health reforms going on around them (N³ET 2004). Current health reforms will change government policy and redesign organisations and nurses must be ready to ensure their role is reflected in the reform process. To participate in these reforms nurses need a firm understanding of the background and purpose of health reform and how the future of nursing service might look in Australia. They will need the skills of strategic planning, the attributes of change managers and the strength and confidence to carry on in a challenging and changing workplace Borthwick and Galbally (2001, p.76). To achieve this, the nursing profession will need to develop nurse managers, nurse leaders and nurses skilled in computer technology for the future (Shaw 1999).

Many of these forces of change have been derived from the rapid growth of computer technology in health care (Kolter, Chandler et al. 1989). Much of this change is self-evident, as the technology has been developed to fit the workplace. However, Detmer (2000, p.182) argues, nurses need to be warned that by implementing computer technology in the health care environment, it has the potential for the environment to be radically reinvented.

Introducing computer technology into the ward settings of metropolitan, community, rural and remote hospitals, stands out as an event that has lead the nursing profession to a crossroad. In recent times, all nursing professionals who are regular users of patient medical records will be

affected by such concepts as the introduction of the electronic health record (Conrick 2006).

The scale of this event has impacted in such a way, that the experience has challenged many of nursing's long held views (Barnard 2002). This has become a cause for nurses to examine their existing values and perceptions.

For the participants in this study, the experience of living with computer technology can be characterised by the statement: "Is this really nursing work?"

This dissertation has created a focus on that statement allowing it to be expanded to present a more comprehensive picture of nursing. The nurse; the history and circumstances characterises [corporeality]. The work; the skills and attributes stand for [temporality]. The social system; signifies the healthcare community [relationally] and the environment represents the hospital ward [spatiality] van Manen (1997). This has become the heart of the research. Hence, this focus has pushed for the emergence of a better understanding of the impact of computer technology on the nurse in the clinical setting.

1.2 NURSING BACKGROUND

Defined by their background and profession, the impact of computer technology on nursing refers to the interaction between the professional values, the environment, the times and the people with whom they work. What this means is that four themes have emerged that give perspective to explain the experience. The first theme relates to the clinical space, the second to the times in which nurses live and work, the third theme

explores the image and body of nursing, while the fourth looks at the relationships of nursing van Manen (1997).

Nursing has survived despite its fortunes having waxed and waned over the ages. However, the point in time that nursing finds itself in the research study is one of uncertainty. There is challenge and change to the way health care is delivered to patient's world wide (Saba and McCormick 2001). This is taken to mean that health care is in crisis and while the reasons are complex and multifaceted, they do have the power to seriously affect the nursing profession. Nevertheless, features of the survival of nursing have been attributed to the ability of nurses to adapt and embrace change (Saba and McCormick 2001). Thus looking at the risks created by these challenges has caused a shift, to view computer technology as an option in the nursing process (Detmer 2000).

Understanding the essential nature of the experiences of nurses has implications for nursing practice. The work of nursing, based solely on traditional ways of providing care, may now be inadequate as a response to patients needs. Instead, by undertaking nursing work that includes computer technology, there is the potential to control and benefit from change (Borthwick and Galbally 2001). Nursing can achieve this by maintaining what is good about nursing and enhancing its professional knowledge. Beyond this, they can discover new ways to work so as to retain important ideals, such as their sense of advocacy. By extending nursing environments, nurses can find ways to balance the competing needs of modern healthcare settings.

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Today, one overriding aspect affecting the future of nursing rests with the ability to recruit and retain nurses within the healthcare field (AHWAC 2004). The highly topical issue of recruitment and retention of nurses has a worldwide focus. Serious attempts are being made to influence recruitment at government levels. Nonetheless strategies to retain the existing workforce need careful consideration. Impediments to recruitment and retention suggest image, environment, education and culture rank highly amongst the barriers to attracting nurses to the nursing profession (Hegney, Plank et al. 2003). In conjunction with the decreasing entry of students into nursing courses, many of the registered nurses who work in health related fields encompass part of an aging workforce in Australia (AHWAC 2004), (NaMO 2002). The ability to support older nurses and attracted new ones then becomes critical to achieving a skilled nursing workforce.

Consequently, nursing professionals need to clarify what form legitimate nursing knowledge and practice will take in the future (Borthwick and Galbally 2001). Hence nurses will need to extract the positive and affirming benefits of computer technology as an option of support to nursing care. Through turning computer technology to the service of nursing, they will have access to information that can be converted into nursing knowledge. Consequently, computer technology has a great potential to support nursing in an environment of translating knowledge into practice (Saba and McCormick 2001).

The movement of nursing into the information age has the promise of increasing its knowledge and status, thus empowering the profession.

Nonetheless in recent times the pressure of change has challenged the spirit of nursing and none more so than the introduction of computer technology into the clinical setting. Where nurses are required to make significant change to their professional learning, culture and values and work role, there are going to be obvious physical and emotional challenges (Forum/N3ET 2005). Presenting these experiences from the perspective of age shows that the passage the new entrant and the beginning nurse will be different to that of the expert or senior nurse. To this end most nurses throughout their career will carry on working with or around change to their profession and practice (Forum/N3ET 2005). However, the significance of working with computer technology is that it challenges the professional image of nursing. Many nurses who have not used computer technology may see its influence as a crisis of professional confidence. This crisis involves how they view themselves as they move from a nursing expert to a computer novice. Consequently, there will be a range of responses to the challenges of computer technology (Charmaz 1991). Some nurses will move to embrace the change; others will deny the need for change and a number will leave the nursing workforce as a result of the change.

However, information technology is a relatively new phenomenon, despite its fast becoming an integral part of the clinical setting within the rural Australian healthcare system (Saba and McCormick 2001). In contrast the roots of the nursing profession are older and respond well to challenges. This means that much of the computer technology that has been open to nurses has not been developed to fit their needs. Hence,

when they were unable to adapt the computer technology and use it as their own, many of the computer systems remained under utilised or unused (Barnard 1997). To date the nursing profession in Australia has not been exposed to the extensive resources of computer technology (Conrick 2006). Nor is there sufficient research of the topic to demonstrate what effect nursing might have on the use of computer technology. In this light nurses might be viewed as resisting change, where they have not been able to comprehensively evaluate and realise the impact of computer technology in the clinical setting (Timmins 2003).

As a nurse working with healthcare workers without a nursing or clinical background, a comment I commonly overheard is "**What's so different about nurses working with computers**?" Then similarly, from the nurses I work with who come from a variety of settings; I hear the voices of difference and mystification about how computer technology is affecting their working lives. Contained within the writing of the dissertation is my response to these comments. The dissertation is an account of the experiences and influences of computer technology that have impacted on the nursing profession as it moves into the future.

1.3 COMPUTER TECHNOLOGY BACKGROUND

Adapting to change has become necessary as a response to the rapid and frequent changes being experienced in the workplace. These changes have surfaced from external forces, such as those introduced by government to reduce labour costs. Internally, forces have also bought change from the rapid growth of computer technology in health care

(Barnard 2002). Nonetheless most healthcare workers would agree that computer technology could help aspects of their work.

In recent times, there is much in the public domain that is seen and heard through the media of newspaper, radio, television and internet, to support moves for change in the healthcare arena (Barnard 1997). In the new millennium the phenomenon of computer technology has great potential to advance the cause of patient care in the clinically related fields of health (Saba and McCormick 2001). However most of this progress would not be possible without the recent development of computers and the ongoing advancements in computer technology.

As the computer industry grew in the middle of last century so did the use of computers in healthcare. Initially they were essentially large calculators linked together with ticker tape type printouts of their information (Conrick 2006). In the nineteen sixties computers progressed to real-time, on-line communication systems, adding extra dimensions to the accessibility and use. In health care they were primarily used in the support of the financial services arena. A decade on bought about the potential to improve documentation and thus the quality of patient care. The reducing cost of computer equipment saw the rapid growth of the use of computers in both the clinical and non-clinical areas. More computers were located in clinical areas as a reduction in production costs continued and resulted in the availability of increasing amounts of low cost computers and equipment onto the market and subsequently into the health workplace (Conrick 2006). Informatics was greatly advanced in the nineteen eighties with the recognition of this [nursing informatics] as a nursing specialty.

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The introduction of the micro and personal computer bought about the digital documentation of clinical aspects of patient care and moved health into the nineteen nineties, where the rapid expansion of computer technology took place. The internet, database management and clinical information systems developed to become an integral part of the face of the clinical setting (Conrick 2006).

1.4 DEFINITIONS AND TERMINOLOGY

1.4.0 Introduction

In an effort to better understand the phenomenon of computer technology, it is essential to acknowledge the definitions included in the study (Minichiello V, Sullivan G et al. 1999). Definitions are an important factor in providing explanations of the various aspects and concepts outlined in the dissertation. In the first instance, a definition provides a platform of context where the participants are able to launch their individual voice. Secondly, it exercises a power of inclusion and exclusion. For example, definitions of health informatics do not necessarily include or exclude nurses as a health specific group. This means that questions can be raised around the development of a process for defining computer technology practice. However the nomination of a definition for nursing informatics creates a specific category of inquiry that adds to inform the aims of the study. Consequently, lines can be established defining the purpose of nursing informatics, and what happens for those who fit or don't fit the definitions. Thirdly, definitions are subject to change. Essentially definitions encompass hopes, ideals and vision and this means society can influence a change to the meanings of definitions. This comes about as further research is conducted and knowledge of the subject is expanded. To this end (Minichiello V, Sullivan G et al. 1999) ascribes that definitions attracts a power of both purpose and influence. So, in using definitions of computer technology; nursing informatics is not excluded but rather its recognition has so far been understated.

It is not the intention of the study to develop new definitions of nursing or computer technology. Instead, nursing and computer technology will be described through the various experiences of the participants and as it relates to the interpretation of the data. It is the objective of this study to better understand the meanings of nursing and computer technology, not by redefining it, but by understanding the experience of it through the lives of those who use it. Nonetheless, it is essential to provide some broad definitions to support the reader in gaining a greater understanding of the themes of the study.

1.4.1 Nursing Technology

In the action of collecting data and information nurses have always enlisted the use of tools to help them with these processes (Barnard 1997). The tools they use include forms to chart their observations, equipment such as thermometers to take temperature and technologies such as wound dressing to promote healing (Barnard and Sandelowski 2001). That they use these devices as adjuncts to the care they provide and perform is not in dispute. However, (Barnard 1997), (Alexander and Mark 1990), foresaw that the nursing profession would need a clear definition of nursing technology to make decisions to improve patient outcomes. The authors (Alexander and Kroposki 2001) continued to argue that in acknowledging the role of nursing tools, nurses do not have a useful definition to explain the concept of these nursing technologies. They (Alexander and Kroposki 2001) have drawn on these works from the fields of medical technology, nursing theorists, researchers and management perspectives to derive their definition of nursing technology.

I have chosen the definition of nursing technology whereby the authors propose that,

> "*Nursing technology is the total of all the work accomplished by a group of nurses to achieve the goals of the nursing unit. In an acute care unit, nursing technology can be defined as all the nursing knowledge and nursing care processes used to change the status of a hospitalised patient to a discharged person and in a community setting, nursing technology is the nursing knowledge and care processes needed to help the client attain a state of well-being"* Alexander and Kroposki (2001, p.779)

This definition provided the participants with a comprehensive meaning of nursing technology. This was needed, so the participants could include computer technology as a legitimate tool they might use in undertaking patient care. Once computer technology was moved into the realm of the nursing profession, the participants were able to freely and openly discuss its impact.

1.4.2 Nursing Informatics

The use of computers or information technology in the healthcare arena is generally called "*health informatics*" NIA (2004). However, extending from the concept of health informatics is nursing informatics. The Australian Nursing informatics Society (2004) has defined nursing informatics as the;

> '*integration of nursing, its information and information management with information process and communication technology to support the health of people world wide*' NIA (2004, p.1).

This definition was included to provide a specific focus for the reasons nurses might use computer technology in the clinical setting. The aim

was to provoke a more comprehensive perspective from the participants about computer technology to launch the portrayal of their experience. With this definition in mind, they were able to express their values, attitudes beliefs and experiences about computer technology in order to answer the underlying conscious questions of the study.

1.4.3 Computer Technology

There are few texts that provide clear definitions for computer technology. Whetton (2005) describes information technology as computer hardware, software and computer technology used for the input, storage, processing and communication of information. However this definition does not include people or processes. Alternatively a search through computer technology dictionaries builds up a range of definitions by breaking down its parts.

Britannica (2006) describes computers or information technology as the development, installation, and implementation of computer systems and its applications. FOLD (1993) provides expansion on this theme and builds on the picture of the entity by adding layers that show computer systems also include both "*hardware*" and "*software*", and often include "*networking*" and "*telecommunications*". FOLD (1993) outlines that "*Telecommunications*" in this context is usually seen in the light of a business. Further to this, then divides information technology into the alternatives of "*computer science*" and "*information systems*" (IS) or "*information services*" (*FOLD 1993*).

FOLD (1993) is says the term *"computer science*" is usually reserved for the more theoretical or academic aspects of computing. This means the

research and the architecture and design of computer technologies. In contrast, FOLD (1993) terms "*information systems*" or "*information services*" as being less concise, but is more likely to be about aspects of the human activities and non-computerised business processes like those of "*knowledge management*".

FOLD (1993), generically terms a computer as a device that computes. It adds that it is specifically a programmable electronic machine that performs high-speed mathematical or logical operations or is one that assembles, stores, correlates, or otherwise processes information. Alternatively, Britannica (2006) outlines terminology whereby computers might be known. These names include: "*computing machine*", "*computing device*", "*data processor*", "*electronic computer*", "*information processing system*", "*personal computer*" and the abbreviation of "*IT*" and "*T_2 T_2*" has been commonly seen in writings from within the industry, academia and by the general public. The terminology used for the dissertation is "*computer technology*". This term has been used to describe the generic phenomenon of computers, the systems and notions that support them. FOLD (1993) adds, to these definitions and the computer becomes a machine that can be programmed to manipulate symbols. In this context computers can perform complex and repetitive procedures quickly, precisely and reliably and can quickly store and retrieve large amounts of data.

In addition the physical components of a computer are known as "*hardware*" FOLD (1993). These include the monitor, and central processing unit (CPU) and the memory function. Most computers have

four types of hardware components. The CPU (*central processing unit)* executes the computer programs *(software)* and tells the computer what to do. The memory function controls the accessing and storage functions (FOLD 1993). Their first type of memory is called random access memory (RAM) and is short term to hold the intermediate results. This type of memory is generally fast, but expensive and is usually engaged when the computer is started (FOLD 1993). By contrast, longer-term memory is cheaper and slower and can be accessed from a range of devices, both internal and external to the computer. This type of memory is the long-term memory. Examples of this include; magnetic disk and magnetic tape that are used to hold programs and data between jobs (FOLD 1993). The computer has the capacity to attach input and output devices. This allows the computer to communicate with the user and the outside world. The devices connected to computer technology are broadly of two types. The first is the memory devices such as network servers and large portable external memory down to flash drives and pod devices, floppy disks, computer disk and secure digital card to name a few (Britannica 2006). The second type of device provides an interface between the user and the software applications. The most common of these are the keyboard, mouse and monitor, however this list has grown to include visual and sound devices, in fact almost any domestic device can be computer enabled (Britannica 2006).

Nonetheless for the purpose of the study, the keyboard and screen is still the most popular communication vehicle between us and the computer (Britannica 2006). The problem with the keyboard is that the user needs

to be able to type and the ability to do this well usually lies with those who have learned to type. These skills are not generally part of the nursing curriculum; hence many nurses hunt and peck when using the keyboard. Nonetheless, as computer technology becomes more sophisticated, there is growth away from the popularity of the mouse, in favour of the touch screen, as an access system for use within the clinical setting (Britannica 2006).

1.4.4 The Internet

The Internet began in the 1970s as a scientific computer experiment funded by the U.S. Department of Defence. It proved so valuable to researchers it was recognised even by research funding agencies, which support it until well into the 1990s. Use of the Internet came to extend well beyond the scientific academic world and in Australia and became a fully professional service in late 1989 (Clarke 1998).

Uptake was gradual, initially by a few in the wider academic world. Later government, industry and the general public expanded its use for a vast range of constructive and destructive uses and services. There has been huge growth in connection and use of the internet, which has been sustained for more than two decades (Clarke 1998).

1.5 STUDY OVERVIEW

This section introduces a general overview of the study. The works of van Manen (1997) provided the framework, for the research process of exploring the phenomenon of computer technology in the nursing world. This became the topic, which gave momentum to the study. The nurse participants told stories of their experiences, to provide data for the study.

In order to produce a logical flow to the progression of the study, the dissertation became an arrangement of sections, framed at reaching the conclusions. The results outlined in the findings and recommendations are now available to the reader in the form of this text.

Following the abstract in chapter one is the introduction of the study. The first phase, of the introduction provides a background or broad-brush chronology of the phenomenon of information technology into the health arena. Subsequently, topics are incorporated that relate to the study and lead the reader towards an understanding of the terminology and definitions which are used throughout the dissertation. The purpose of this segment is to provide the reader with a detailed explanation surrounding the key elements essential to the appreciation of the core themes of the study. Hence the phenomenon of computer technology is introduced and the significance of defining information technology is discussed.

1.5.1 Chapter Two

Encompassed within the literature review or chapter two (2) is a selection of current and relevant papers and studies examined within the realm of nursing and computer technology. Activity and movement between the literature and the participants have been included and as the various data were analysed, knowledge was uncovered and emerged. The literature review is presented in keeping with the four categories of inquiry outlined by van Manen (1997, p.103-104). The current state of knowledge from the political aspect looks at the national and state concerns. Following on from this, issues about computer technology were examined from the

viewpoint of the organisation. Subsequently this has been followed with coverage of nursing concerns. Issues such as nursing education, language and future applications have been reviewed. This coverage looked at the state of nursing involvement with computer technology and where funding and research on this topic is being directed.

The studies examine the experiences of nurses from a variety of perspectives and settings, using a range of methodologies. Nonetheless the investigation of the literature aims to uncover more about nursing and the more unfamiliar world of computer technology in nursing. Important elements disclosed will include those of concern from the political, organisational and nursing perspectives as issues for nurses relating to computer technology. The literature review examines the research already conducted and provides a synopsis of these works as they relate to this study. However, the studies examined and included within this literature review, are not confined exclusively to the field of nursing.

1.5.2 Chapter Three

Chapter Three outlines the research design and the methods chosen in undertaking this study. This is explained by detailing the theoretical and practical procedures that were used in conducting this study. Describing the data collection techniques of in-depth interviewing, journaling, reflective practice, and outlining the six-stage process of thematic analysis van Manen (1990, p.30-31), is central to understanding the study design. Chapter three also provides an overview of the data analysis and interpretation processes. In addition, it presents a brief introduction of the bodily, spatial, temporal and societal themes underpinning the experience

of nursing with computer technology in the clinical setting. In summary, it becomes apparent that the participants view computer technology as part of an experience, connected to these four related interactive themes.

1.5.3 Chapter Four

Chapter Four contains in detail, how phenomenology fits this study when seeking a deeper meaning of computer technology in the places where nurses work. There is an outline of the theory behind the method in a discussion on the philosophical framework and the fundamental assumptions of phenomenology. The central point of this dissertation is the "*everyday lived experience*" van Manen (1997, p.35) of the participants as human beings. This means how they find themselves in the world, and how they give meaning to their world. Through his work van Manen (1997), has demonstrated that by employing the use of phenomenological thinking it is possible to understand such experiences. Understanding how these participants experience computer technology can provide information for nurses' to act more effectively in their every day nursing practice. Hence, there will be detail on the manner in which the methodology was positioned to draw out the intricacies and intimacies of the nursing experience with computer technology. There is little debate that lead agencies of nursing need to be aware of how nurses think, feel, see, or experience computer technology. To this end, issues have been uncovered in a material form of what nursing knows and understands about computer technology. The information provided by the participants can be used to inform those agencies. More specifically, I argue that, if health lead agencies are to assist and support nurses in this field, they

must have accurate and detailed knowledge of the values, daily concerns, and habits of the nurses they are representing.

1.5.4 Chapter Five

Introducing the participants or chapter five (5), has been designed to provide an insight into the lives of the nurse participants by outlining their professional background and work environment. This chapter introduces the participants whose experiences are central to this study. The generosity of their shared experiences, of computer technology in the clinical setting, provided the foundation for this study. Comparisons have been made between the experiences of the participants. Where there are similarities and differences, they have been highlighted to connect their stories as data provided for analysis. This chapter continues by providing a short story of each person, focusing particularly on the unique nursing background of their individual clinical setting. The reference to a floral persona alludes to characteristics that define them as a person, whilst maintaining individual anonymity for them as a nurse participant of this study.

To link the rural connection to the study, a word map outlining the geography and community of the study setting is included. Detailed in this section is regional health information to expand the backdrop and set the scene for the study. A description of the rural referral hospital that provides a nexus for the different clinical settings and clinical services is profiled. This is to place the reader in touch with the nursing environments of these participants.

1.5.5 Chapter Six

The shape of nursing space discusses the arrangement of information technology in the clinical setting. Encompassed within this chapter are the objectives of the nursing experience as to how information technology is accommodated in the clinical setting. There is a specific focus on the spatial themes of the clinical setting that are present when computer technology is introduced into the lives of nurses.

1.5.6 Chapter Seven

The vision of the nursing body (corporeality) gives sight to the professional body of nursing with the assimilation of computer technology. It deals with aspects of how nurses see themselves and reveals how the participants defined, characterised and recognise themselves as nurses when they work with computer technology.

1.5.7 Chapter Eight

The touch of nursing time gives sensation and detail to the evolution and progress of computer technology into the nursing realm. It encompasses the objective of the temporal nursing experience from the past without computer technology through to a future vision. It specifically explores the concepts of nursing time from the focus of seconds, minutes and hours then gives reference to the personal and professional time of nurses.

1.5.8 Chapter Nine

The fourth theme, the sound of nursing society signals a focus on the relationships present in the everyday life of nurses when computer technology is introduced into the clinical workplace. In the context of this

study, this refers to the professional relationships that nurses maintain with others in the shared interpersonal space of the clinical setting.

1.5.9 Chapter Ten

Chapter Ten outlines the conclusions in greater detail and discussion around the four existentials of time, space, body and relationships. There is a more intimate and personalised view included, on the impact on nursing of computer technology in the clinical setting experience. The conclusions indicate that the impact of nursing informatics is from a range of incidents that have taken place over time. The accumulation of these incidents have influenced the participant's perceptions and determined their opinions, rather than a disconnected event that occurred to alter and change the status of their experience. Chapter Ten also summarises the research findings, draws conclusions from those findings and indicates the implications of the findings. Limitations of the study and suggestions for further research in this field are considered.

1.6. CONCLUSION

Chapter one has provided an introduction to the dissertation. It contains an abstract, an outline of the topic and definitions common to the phenomenon of computer technology. This has been included to invite the reader to a broader understanding of aspects computer technology. In addition this chapter has outlined the subsequent nine chapters to entice the reader with a glimpse of the progress of the study.

CHAPTER 2 LITERATURE REVIEW

2.0 INTRODUCTION

The confusion expressed by nurses around the purpose, use and benefits of computer technology being introduced into clinical settings where they work, is not new. Nurses have raised these concerns since the first computer was introduced into the nursing world. It can be argued that the mixed perceptions of nurses to computer technology and how this will affect the nursing profession can be related to those agencies that hold responsibility for the direction, planning and policy of computer technology in Australia. Additionally, the confusion can possibly be directed at the level of power and control of the nursing profession within the Australian healthcare system. Alternatively, the root cause could also be attributed to the concept that computer technology is still relatively new to the nursing world. A combination of hearing the calls of nurses, uncovering the work and the research already undertaken in this area, along with my interest for a clearer understanding of the vision for computer technology in the nursing profession has motivated this research.

Over the last five years, I have heard the concerns of nurses about the increase amounts of computer technology being introduced into the nursing world. My interest was aroused and I began to look for answers to questions by going to the Australian and international nursing literature. This commenced with literature from the late 1980s to the present, then expanding into the history of computer technology in the Australian and international health care environments. The pattern of these works

revealed limited research about the nursing profession and computer technology outside the areas of skills and competence. Thus, the literature review has provided an insight into the history and background of computer technology and its impact as currently expressed by Australian and international nurses.

The literature has been taken from further a field than that of nursing; hence in this chapter a summary of the literature relevant to both computer technology and nursing is presented. The literature review is presented in keeping within the framework of the four existentials described by van Manen (1997, p.103-104). This allows for the coverage of the current state of knowledge about the political concerns, organisational concerns, nursing concerns and rural concerns. The literature review also examines the state of nursing informatics, rural nursing, nursing education and subsequently the social and personal experiences of nurses with computer technology.

2.1 POLITICAL CONCERNS

Computer technology was a radical change for health care workers worldwide. There was gradual acknowledgment, however the first major change relating to health with computer technology in Australia was in 2000, when the Australian Government agreed with the need to implement computer technology to health care in Australia (HealthConnect 2005). In an undertaking by the Commonwealth Department of Health and Aging a program called Health*Connect* was established to investigate the benefits of computer technology for health in Australia. Health*Connect* is the overarching concept used in Australia

as a comprehensive term to describe most aspects of healthcare delivery or management that is enabled by computer or communications technology HealthConnect (2005).

These computer or communications capabilities were said HealthConnect (2005) to offer great promise for making health care more patient-centred. Writing by (Hovenga, Hovel et al. 1998; Lawton 2001) state at the time that most of the computer technology projects undertaken by health were ad hoc rather than strategic and were likely to have only a limited impact. Whereas (Conrick 2006) and (Herdman 2001) comment, that there continues to be support and widespread optimism about the benefits of computer technology world wide, particularly the view that it can solve many of the problems afflicting the healthcare system.

Health*Connect,* the network of electronic health records held nationally aims to improve the flow of information across the Australian health sector. The process involves the electronic collection, storage and warehousing of health information. The concept also involves the exchange of consumer health information by means of a secure electronic network to transfer the information using strict privacy safeguards (HealthConnect 2005). Disputing the capacity to maintain privacy, (Clarke 1998) explains that with new technologies come new risks and in the current environment personal information is completely and inadequately protected. However, there are expectations that health-related information managed by Health*Connect*, will be collected at the point of care, for example at a hospital or a doctor's surgery. It will then be documented electronically and then stored. Online retrieval will be

granted as needed or by exchange between authorised healthcare providers; but only with the consent of the consumer (HealthConnect 2005). However (Clarke 1998) remains sceptical of this and states "*Australia has an utterly inadequate privacy-protection regime*" (Clarke 1998). Support from (Sleutel and Guinn 1999) points out the main reasons nurses were less favourable to the use of computer technology was confidentiality of the records, and additionally they could see no future applications that would protect consumer information.

Nonetheless the aims of Health*Connect* are to give doctors, and other health professionals, quick and secure access to important health information (HealthConnect 2005). The objectives of Health*Connect* continue to be outlined, firstly to provide a more comprehensive picture of Australians' health (HealthConnect 2005). Secondly, to promote advances in the diagnosis and treatment of illnesses and better targeted decisions about healthcare and thirdly, to reduce the duplication of service provision leading to more available time for direct patient care (HealthConnect 2005). However (Detmer 2000), found that while there were examples of both bad and good quality information from computer technology systems, there were significant gaps in the available information. These gaps were more likely to seriously affect achieving these aims.

According to (HealthConnect 2005), health professionals are likely to be able to improve healthcare by having rapid access to vital and accurate health information. Access and exchange of better quality information between healthcare providers would lead to improved diagnoses and

better quality care. Achieving the introduction of computer technology into a culture that relies heavily on print and paper, Walker (1993), cautions that computers will need to be simply irresistible to their users for them to make the change.

Ultimately, HealthConnect (2005) expects consumers to gain more control over who can access their health information; become more actively involved in decisions about their healthcare and have greater portability of individual health records. Bevis and Callen (2004) sought patients' opinions on whether such computer use was beneficial to the consultation process and found patients thought there were clear-cut benefits. In addition, computer technology in provision of care was well accepted in the wider community.

The Australian Government, in partnership with the states and territories, has already completed considerable groundwork. This includes having conducted an extensive program of investigation, evaluation and trials of models for the health information network. This groundwork has been done with the involvement and consultation with stakeholder groups and members of the community (HealthConnect 2005). However nurses continue not to be seen as key stakeholder by governments. Parliamentary Secretary for Health, Trish Worth, in July 2003 officially opened the Nursing in a Technological World Conference. In her opening address reference was given that at this time government support of computer technology for nursing is likely to be provided through medical initiatives such as the Nursing in General Practice Program Initiative (TBH &HS 2004). NIA (2004), argues that nurses are key stakeholder

and while there has been little consultation with them there is much that nurses have to offer to Health*Connect*. Work on a staged national implementation of Health*Connect,* is currently being conducted in conjunction with the states and territories along with consumer and healthcare provider groups. Tasmania, South Australia and the Northern Territory were the first states to be involved in the implementation project (HealthConnect 2005). It is planned that Health*Connect* will be implemented nationally on a state-by-state basis with the expectation of improving the quality and safety of health within Australia. Testing has already been undertaken in New South Wales at Newcastle and in Sydney at Westmead Children's Hospital. However to date state participation in HealthConnect is not compulsory (HealthConnect 2005). Despite this investment it is only as recently as 2004 that nurses have been able to get in touch with Health*Connect.* A request has gone to the Australian Government for the establishment of an Informatics Management Centre for Nursing in Australia under the direction of Australia's Peak Nursing bodies (RCNA 2002).

The program developers of HealthConnect (2005) recommended that the appointment of strong leadership was one way to direct the changes in health care policy determined from the program (HealthConnect 2005). The appointment of a board made up of medical doctors and bureaucrats was given the task of lead agency. This type of leadership was responsible for the progress of HealthConnect, by engaging key stakeholders into work groups to plan and prepare the various aspects of the program. According to the Australia Nursing Federation ANF (2002,

p1) nursing leadership at that time was excluded at board level and had only one stakeholder representative. However, Australian nurse leaders took a more positive view much earlier on. The minutes of the International Medical Informatics Association – Nursing Informatics Meeting 1998 cited Evelyn Hovenga as an example of a leading Australian academic, who was working at an international level to advance nursing informatics (IMIA 2006). Writings in the strategic nursing paper developed in December 2004 Conrick (2006) have made some prophetic statements about Health*Connect.* There are predictions that without the inclusion of the nursing profession the health sector will not receive the potential benefits and a huge amount of financial and human resources will be wasted because the implementation will fail.

2.2 ORGANISATIONAL CONCERNS

In the view of Sinclair (2005) organisations regardless of their size have their own defined relationships and culture leading to three levels of organisational culture. The first level is the artefacts and creations and includes the physical layout of the space, the signs symbols and stories. The second consists of what the organisations should be rather than what it is or the cultural values. The third level reflects the basic underlying assumptions that become values or taken for granted beliefs over time. Given this background, the delivery of healthcare in today's environment is from a cumbersome, complex and complicated system. The system provides care to patients from a bewildering array of health professional located in a number of different settings spread out across the country. Views expressed by Whetton (2005, p15) hold that the development of

this system has been bought about by the dominance of scientific knowledge in the form of the biomedical model of health. This model gained favour in the early nineteenth century and allowed the growth of specialties within a clearly identified hierarchical professional structure. Whetton (2005) comments further, that features of the current system are that it is able contain and isolate these specialties and relegate the patient to the bottom of the ladder. Chew and Van Der Weyden (2002, p.20) expressed concern that this type of structure has allowed the system to develop supporting bureaucracies that have their own workers, and drive their own agendas. Whetton (2005, p.3) agrees that many of these services and systems are inappropriate in the contemporary healthcare environments of today. These systems fail to address the changing patient demographic, the complexity of patient ailments and the individual needs of patients. Authors such as Berwick (2002) and Smith (2004) have identified from the patients viewpoint that we need to find alternatives to providing and accessing healthcare that better meet their needs in the world today. This view is also supported by Smith (2004; Westbrook, Gosling et al. (2004) in understanding the that there are strains currently placed on healthcare systems world wide that will force it to be transformed and reinvented as the current structures fail to manage. Consequently what is clear from the organisational arena is that inadequate funding, staff shortages, outdated facilities and increasing costs are major problems facing the provision of healthcare. The view from Whetton (2005, p.10) is, we can no longer afford the current system and must invest in change.

2.3 NURSING CONCERNS

A paper by the Australian Nursing Federation (ANF) in June 2002 titled Draft HealthConnect Business Architecture Consultation ANF (2002) points out the position of the Australian Nursing Federation. The ANF stresses, that Health*Connect* systems must be developed to meet the needs of all users. Consequently nurses must be involved at all levels in the development of electronic health records. The position of the ANF is that nurses will be key users of the system and they will be an important interface between consumers and the health system.

Developed by leaders in the field of nursing informatics in Australia, another document that has major significance to nursing is entitled a Framework for Nursing Informatics in Australia. This is a strategic nursing paper, developed in December 2004 by Nursing Informatics Australia (NIA), supported by the Royal College of Nursing Australia (RCNA) and funded by the Commonwealth Department of Health and Aging. This document outlines the future directions of nursing informatics in Australia. The authors Conrick, Hovenga, Cook, Laracuente & Morgan cited (Conrick 2006) highlighted that future planning of Health*Connect* needed to include the nursing profession as a key stakeholder. Without their inclusion, Conrick (2006) explains Health*Connect* would not have a clearly articulated vision of nursing needs.

The paper presents a view of nursing as the one continuous presence that supports continuity of care. Describing nurses, the authors refer to them as "*transition managers*" Conrick (2006, p.8) in that they plan, implement, deliver, monitor and evaluate care delivery. Transition

management means moving the individual from illness to wellness from hospital to home and by identifying the gaps and coordinating the appropriate care. In addition Conrick (2006) propose that given adequate resources nurses are best placed to manage many aspects of the implementation and evaluation of Health*Connect.*

The largest single group of health professional in Australia is nursing with approximately 250,000 nurses within the health system (Conrick 2006). Nurses are almost double the number of medical and paramedical staff. This means nurses are a major stakeholder group within the health industry professional workforce. Despite this Conrick (2006), found the Health*Connect* program requires greater nursing participation and it has not involved nursing to the extent that it should.

Professionally nurses directly influence the quality and outcomes of patient care and are usually the first to observe and report changes in the patient's condition. Nurses are the patient case managers, they are alert to changes and provide first line and continuous patient care and communicate with all members of the health care team (Conrick 2006). They have the professional responsibility, authority and capacity to contract care on behalf of patients and the accountability of reporting through the health care system (NRB 1991). The basis for much nursing work [clinical practice] is about information processing. Out of this work nurses are able to directly influence the health outcomes and quality of healthcare services provided. Conrick (2006) declare that with these attributes nurses are the only ones in a strong enough position to guide

the evaluation of their contribution to the changes in health outcomes expected in the long term from Health*Connect.*

However Conrick (2006), argues that while nursing has had some peripheral involvement and some nurses have worked as coordinators or project managers, Health*Connect* has not targeted or involved the nursing profession in research and development activity.

Beyond this, a core component of nursing is that they have always been involved in the processing of information. As early as 1857, Florence Nightingale recommended the establishment of a statistical department in the army (Saba and McCormick 2001). Miss Nightingale compiled and processed data to complement her reports, justifying the need for health specific reforms (Saba 2001). Now more than one hundred years and fifty years into the future, information technology has become well developed enough to be introduced into the healthcare industry to support more healthcare reform. However it is only relatively recently since the late nineteen nineties (1990's) and early two thousand (2000's) that computer technology has become generally available for use by the nursing profession (Saba and McCormick 2001). In addition, Sandelowski (2002) found it is only of late that computer technology has been regarded by nurses as a series of tools for enhancing the quality of patient care.

However there has been an increase in the use of computer technology for nursing and all other healthcare professionals. This increasing use was noted by Nielsen (1997), who found that a general steady increase in use of computer technology was experience by all health care staff. Western, Dwan et al. (2001) also reported a further increase. De Groote,

Doranski et al. (2004) identified that physician's offices have at least one desktop or laptop computer. Although these studies do not specifically relate to nurses alone, arguably they are able to support the experience of nurses as part of the healthcare professional staff. In addition these authors Nielsen (1997); Western, Dwan et al. (2001), found that while the number of healthcare workers using computers had risen the computers were mostly used by health professionals for administrative purposes. Nonetheless, in their work Nielsen (1997); Western, Dwan et al. (2001) did find an increasing use for clinical work which includes prescribing, medication cross-referencing, and the recording of patient health data in the electronic health record.

Nurses are gradually using computer technology to a greater extent than first thought. Marasovic, Kenney et al. (1997), Darbyshire (2000) and Pritchard, de Lusignan et al. (2002) conclude that nurses are more accepting of computerisation and they recognise the value of computer technology. In a more recent study, Chan, de Lusignan et al. (2004b) describe that nurses have made enormous strides in acquiring computer technology skills and access to computers. Nonetheless while there have been advances by individuals and some organisations, at a strategic level nursing still has along way to go.

2.3.1 Nursing Language

The International Medical Informatics Association (IMIA) has links with Nursing Informatics; a Special Interest Group on Nursing Informatics. IMIA has in its charter of goals, to foster the collaboration of nurses and others and to advance the cause of nursing informatics activities world

wide (IMIA 2006). The actions of the International Medical Informatics Association – Nursing Informatics have provided an opportunity for nurses from many countries to show leadership and direction by being active participants in the planning of nursing informatics. In Australia, Professor Evelyn Hovenga, has played a lead role in maintaining these collaborations (IMIA 2006). These links have supported the development of a forum to pursue the activities related to nursing informatics and provided support to progress the interests of nursing informatics within Australia (NIA 2004).

The nursing informatics movement began in the early 1970s in different countries, albeit from different nursing care settings and areas of the healthcare field (Saba and McCormick 2001). However, Saba and McCormick (2001, p.178) cites the first evidence of nursing involvement with computer technology was in the 1960s when a nurse in the United States developed an obstetrical computer-assisted nursing instruction simulation exercise to teach obstetrical nursing.

According to Saba and McCormick (2001, p.178) the phrase **"informatics"** was coined in the late nineteen sixties (1960s) from the French term, *informatique*, to refer to the technology of computers. In naming the branches of informatics the specialty is generally described prior to adding the word informatics. Consequently "*health informatics*" becomes the overarching term with sub specialties such as "*medical informatics*" being developed. Nurses used more recently nursing informatics to emphasise the computer processing of data and information. The term "*nursing informatics*", was said to have originated in

work conducted by Scholes & Barber 1980 cited in Saba and McCormick (2001, p178) and refers to computer technology as well as a computer system used to process or enter data and transform it into information.

The origins of nursing informatics came about largely from computers in nursing groups in both the United States of America (USA) and Australia (Conrick 2006). Since then, the nursing informatics movement, including computer technology, has been gradually directed into areas of nursing practice, nurse management, nurse education and nursing research (Conrick 2006).

Conrick (2006), points out nurses routinely process information to guide their practice through a cycle of care; from observation, to monitoring, to reporting, to action and outcome. In addition, Conrick (2006) advises nurses' assimilate data, information and previously gained knowledge, plus additional knowledge from colleagues or literature, as a basis for problem solving and for decision making. Hence they essentially become information managers. However the growth of technology has been so rapid it has outstripped the ability of the decision makers to keep up. This had resulted in the emergence of problems for nurses related to computer technology that needs urgent action. Conrick (2006) observes, one of the greater problems identified for nursing is the need for a standardised clinical language that is required for data collection using computer technology. The consistency and accuracy of the information collected and recorded affects the quality of care given to patients. Currell, Wainright et al. (2002) considers that nurses have long been recognised as key collectors, generators and users of patient information. However

problems exist for nurses where they communicate across locations and geographical settings. Yet, Currell, Wainright et al. (2002) express concerns that there are vast differences in the language used by nurses. The Australian Nursing Federation ANF (2002, p3), draws attention to the nursing vocabulary. It outlines that the development of standardised nursing terminology is necessary for use with Health*Connect*. The ANF suggests that existing nursing informatics groups examines the use of information technology in nursing. Beyond this, involvement should be sought from the International Council of Nurses (INC) and International Classification of Nursing Practice (ICNP 2006), responsible for an area of nursing informatics that is involved in the creation of an international standard for the classification of nursing terminology.

Curran (2003) is concerned that without a consensus for the development of a consistency to nursing language it will be impossible to collect and interpret quality data. As part of the initiative for the adoption of a successful electronic health record (EHR) system is the recommendation that a comprehensive standard nursing language must be adopted to underpin the electronic communications of nursing work (Curran 2003).

2.3.2 Nursing Education

The nursing workforce is essential to the health care system. Their acceptance and use of computer technology is the key element to the success of government-sponsored programs that have come out of Health*Connect*. In computer technology today Saba and McCormick (2001, p.182), writes that the applications and uses are so many and varied that few nurses are expert in any one field of it. This means nurses

must be educated and skilled in the ways of basic computer technology. Another study, Morris-Docker, Tod et al. (2004) confirms that the use computer technology was appropriately integrated into clinical activity. Whereas Lawton (2001) argues that while there was interest in the benefits of computer technology there was little actual use made due to limited access to computer equipment. However Griffiths and Riddington (2001) found that providing access is not sufficient unless training is undertaken.

Nursing informatics in Australia began around 1984 and since then, it has played a significant role for nurses and other health professionals in the use of health information (RCNA 2002). Nurses within Australia have bought about a strong health informatics focus. Although nursing informatics has not achieved the recognition as a discipline as is the case within the USA, there are a small number of universities in Australia that now offer informatics as a recognised course, along with a growing recognition of informatics becoming a nursing specialty (Saba and McCormick 2001).

In a paper funded by the Department of Health and Ageing and published in 2004 by the Nursing Informatics Australia, a special interest group of Health Informatics Society Australia (HISA) outlines the vision for informatics in Australian nursing. This group emphasises the need for the nursing profession to be engaged in all stages of planning for information technology in health (NIA 2004). The specific focus of the paper is on Health*Connect*, but included in the detail are the computer technology needs of nursing and the necessity to engage nurses across all the

practice settings. This report also counsels on ways to improve the computer technology capacity of the current nursing workforce and identifies strategies for developing long-term sustainability.

The development of an informatics Management Centre for Nurses has been proposed by NIA (2004) and is endorsed by the many nursing organisations. Furthermore, a comprehensive national education program has been recommended to provide for nurses in order for them to be competent in the use of computer technology. The clinical environments of the today require beginning practitioners to have base competencies in computer technology. The framework for this will provide for further development of nursing informatics knowledge and skills. It will ensure the integration and continued development of nursing practice with computer technology. For that reason NIA (2004) cautions,

> "*Nursing education and training at undergraduate and postgraduate level must include nursing informatics as a core component of the curriculum"* Conrick (2006, p.22).

Computer technologies competencies are seen as essential in nursing and that nurses understand the importance and use of clinical information systems. Mantas (1998), also made the point that world wide the focus on the nursing profession's needs for education in computer technology helped define the demand for these competencies. Staggers, Gassert et al. (2002) produced two hundred and eighty one (281) validated nursing competencies and Curran (2003) later refined these for nurse practitioners. More recently, Jiang, Chen et al. (2004) aimed at identifying those competencies required for the nursing profession in Taiwan and found ninety four (94). Beyond this, Saba, Skiba et al. (2004)

recommends that the use of nursing informatics competencies have advanced the field of education and credentialing in the field of computer technology.

The significance of this is the foundation for the further development of nursing informatics knowledge and skills to be integrated into the "*continued development of nursing practice"* NIA (2004, p.21).

Conrick (2006) and Saba (2001) authors of note in the field of nursing informatics have identified that some universities now show that computer technology concepts and learning are beginning to be introduced into schools of nursing with a range of post graduate nursing informatics courses on offer. In addition professional organisations now describe nursing informatics in presentations at national and international nursing conferences.

Other key recommendations about nurse education that are set out revolve around those of competence. The NIA argues that the development of a nationally agreed set of basic nursing informatics competencies that all nurses need to aspire too is essential. These competencies should be used as the basis for staff development programs including in all undergraduate curricula (Conrick 2006). There are suggestions that the international computer drivers license (ICDL), similar to that used within the United Kingdom (UK), could enhance the levels of the development of computer literacy and competency within the health workforce (Conrick 2006), (Nursix 2004a). This license is a series of computer literacy tests, which provide an internationally recognised computer accreditation in basic computer operations. In Australia, the

International Computer Drivers License is issued and endorsed by the Australian Computer Society. However, there is little documented about how extensively this has been implemented within Australia in relation to nursing. The work of *Yee (2002)* suggest, that competencies should be moved to improve the undergraduate and post graduate nursing programs curricula to meet the present workforce demands. Nonetheless NIA (2004) cautions that;

> "*if the nursing workforce continues to be uninformed and uneducated about informatics and its use in health care, best practice will not be attained and patients and patient care will suffer in the long term*" NIA (2004, p.21).

2.4 TELEHEALTH

The primary model of rural health care delivery has been structured around the local hospital. In the past these local hospitals have attempted to replicate the services provided by larger rural base hospitals and metropolitan hospitals. They have served their communities well in a time when medical care was far less complex and less technologically advanced. Clinical care today is both complex and expensive (Whetton 2005). Combined with vast improvements in transport options, rural and remote communities are faced with a decline in the services previously available locally. The challenges faced by people living in rural and remote communities where services are declining include; access to employment and educational opportunities, discrepancy in pay and an impact on social life (Whetton 2005). An additional challenge for these communities is in how to access health services when they are needed.

The Impact of Computer Technology in the Clinical Setting:
a nursing perspective

Monetary constraints have lead Governments at all levels to rationalise health spending as clinical care becomes more technologically advanced and expensive to provide. Budgetary pressure at health service level means that local hospitals are faced either with reducing services or cutting services all together (Menadue 2000). It is into rural and remote areas that computer technology is being favourably viewed by government's world wide as they attempt to reduce health care costs, improve access to clinical care and resolve issues of recruitment and retention. In reality computer technology to assist the communication of clinical information is well developed (Telehealth 2004). However in the delivery of clinical care it is limited due to the affordability of infrastructure, medico legal issues and remuneration for services.

Telehealth can be broadly defined as healthcare services delivered through the telecommunication networks (Telehealth 2004). The concept of using telecommunications to facilitate healthcare is probably as old as the use of the telephone itself; nonetheless, Telehealth is more sophisticated than talking over the telephone. Telehealth includes the transmission of voice, still images, video and other forms of medical data (Telehealth 2004). Additionally, Telehealth, as a sub category of health informatics, is capable of the delivery of health services (including clinical, educational and administrative services), at a distance. This is achieved using telecommunications for the transfer of information, including audio, video and graphical data and involving a range of health professionals, patients and other recipients (Telehealth 2004). Though Darbyshire (2000) cautions the limits on Telehealth are highlighted as technology

and management were not necessarily keeping pace. Alternatively in Australia, Jackson and Dewar (2004) found Vodafone and the Royal District Nursing Service (RDNS) have been using handsets via remote access to connect their palmtop devices into a server. Whilst costs were low for this solution, the initial handheld device screen was too small for data entry at the point of care, and the speed inefficiencies of the internet connections made email and internet impractical. Nonetheless, Vodafone and the Royal District Nursing Service (RDNS) selected an alternative handheld device with mobile connection cards. This enabled communication between the nurses in the field via email without having them return to their office. This also provided field access for the RDNS to their intranet site and the internet (Jackson and Dewar 2004). In addition a study conducted by Santamaria N, Carville K et al. (2004), palm pilots (PDA's) were used for point of care wound assessment and digital image capture. This is used to transfer digital images of wound and clinical details from remote sites in the Kimberly's Northern Territory for consultation at a larger centre.

Australia has been a provider of Telehealth for many years and is an identified leader in the field (Telehealth 2004). To this end there are plans to significantly increase expenditure from Commonwealth, State and Territory governments in the years 2005 to 2010 through the HealthConnect program (HealthConnect 2005). The aim of this investment has been to reduce national health costs and improve health safety. Additionally, the Health*Connect* program proposes that there are a

large number of projects being planned under the banner of Telenursing
and Telehealth (HealthConnect 2005).

The influence of information technology in the form of telehealth has
dramatically changed the traditional landscape of the clinical setting.
Sandelowski (2002) comments that telehealth holds within it the virtual
clinical environment as a vision of the future for western healthcare.
Sandelowski (2002) argues in this digital world the patient is no longer the
body (corporeal) or the person in the bed but a televised representation
via a video link. In this context the representation of the virtual clinical
environment primarily relates to the health informatics arena of telehealth.
Bevis and Callen (2004) suggest that there is generally a high level of
acceptance by patients to these digital environments. However in contrast
the clinicians do not easily or broadly accept the introduction of telehealth
to their practice. Potentially these virtual clinical settings have the ability
to overcome the tyranny of distance for rural community and provide
more timely, quality health not only in rural and remote environments but
also in the congested urban environments (Sandelowski 2002). Computer
technology is seen in this light as a way to reinvent the health system, yet
the question is, how much has been achieved by computer technology to
date.

2.5 INTERNATIONAL CONCERNS

An international perspective shows that Australia is in a similar position to
Canada, New Zealand (NZ), United Kingdom (UK) and United States of
America (USA). When compared to Australia, these countries have also
determined that benefits can be gained from moving computer technology

into the clinical areas of healthcare (Whetton 2005). To this extent, these governments have publicly committed funding to prioritise key aspects of computer technology and build the infrastructure to support it. Most countries have supported the concept of an electronic healthcare record. However Australia and NZ appear to be more advanced in achieving this process (NISA 2005). While indications are, that USA and Canada are still focused on the strategic directions, the UK progress has focused on access and competencies (Nursix 2004a), while the USA has a strong educational background with some of the first nursing informatics courses and positions being established there (Saba 2001). What these countries have in common is the goal to achieving degrees of an electronic health solution to some of their health related problems. What they are struggling with is how to achieve this with a high degree of privacy and confidentiality of health information (Whetton 2005).

The literature review has revealed that there are many challenges facing the nursing profession with the introduction of computer technology into the healthcare arena. These include strategic issues such as computer architecture and modelling, recognition of nursing informatics and educational requirements. These challenges are not unique to nursing within Australia and are being experienced at different levels worldwide. In addition the literature reflects that nursing organisations are struggling with a range of basic issues where computer technology is introduced into rural clinical settings. These issues range from access to computer technology equipment and its availability, and extends to the level of the basic computer skills of nurses and such critical and complex issues such

nursing   culture   and   language.

CHAPTER 3 RESEARCH DESIGN

3.0 INTRODUCTION

This chapter begins by outlining a framework for the study design where Minichiello V, Sullivan G et al. (1999) structure for documenting the research process and the use of a *"personal or methodological file"* Minichiello, Sullivan et al. (2004, p. 658) are discussed. The information contained within this methodological file is a record of the research process including aspects of the research study design. Alternatively it might also be called a research journal.

When incorporated into the dissertation the methodological file becomes the official record of the researcher's actions in undertaking the research processes. Outlined is an account of those actions taken to establish rigor in the outcome of the research study. In addition there is a brief account of the participants and their work settings. An expanded account of the background to the lives of the participants' is included in a separate chapter "*Introducing the Participants*" (Chapter Five).

Research methodology combines the philosophical stance, theoretical perspective, methodology and method on which the framework for this study has been built. This study is based on a qualitative research paradigm of Phenomenology. It is specifically centred on the research method of van Manen (1990) on Hermeneutic Phenomenology. The aspects of this research methodology are discussed in greater detail in chapter four. This chapter assists in positioning the research in the context of a rural setting.

3.1 THE ORIGIN OF INTEREST

My interest in the experience of living with computer technology in the clinical setting developed when I was new to the clinical support department where I currently work. In this department the previous experience of many of the clinical support staff did not extend from a health or clinical background. They were not always able to reflect the needs of the clinical customers that frequented our department. Much of the difference encountered was due to poor communication and misunderstanding of each other's needs; from both the clinical staff and support staff. The clinical staff customers would delay or divert their inquiries from the support staff. Consequently my workload increased as I acted as interpreter and facilitator for both these groups.

In addition to these differences, the clinical support unit had moved to a predominately computerised management system approximately eight years prior to this time. The support staffs were highly skilled and knowledgeable in the use and management of computer technology. In contrast, the clinical staff seemingly demonstrated a reluctance to make use of the computer technology that appeared to be readily available to them. Over time this situation focused my attention on the constant query "**Why don't nurses just use the computer**?"

Over time I conducted a small project to investigate ways for clinical staff to access information from the clinical support unit. One of the recommendations resulting from this project involved, identifying opportunities where computer technology could benefit this process. Upon investigation, individual clinical units were identified where a range

of frequently requested and readily available information was required on a regular basis.

This prompted me further. I was pressed to ask some of our nursing customers, how they perceived ways in which computer technology could impact on how they managed their day-to-day activities. I then went in search of nurses, to inform my understanding of what it was like for a nurse working in a clinical setting using computer technology.

In an effort to elicit some information from our customer base to inform the project, I identified key nursing contacts that used the clinical support unit services. These nursing staff worked in a range of specialty and clinical area related primarily to the medical and aged care facilities across the area health service. They were registered nurses, generally of middle age, and worked full time, predominately in middle level nursing and clinical management roles. Many had worked in high level nursing environments such as cardiac and surgical services and medical wards and had held nursing management roles in the past. Most had reached the stage in their career where they had a comfortable clinical skill level and confidence in their nursing and management abilities.

When they were informally asked how they would manage working with a computer to gain access to the clinical support unit information system, a litany of issues was put forward. Most of these issues could be condensed to revolving around lack of skills and knowledge of computers. An additional element identified was a lack of access to computers.

Although the project was not extended beyond the initial information gathering stage, this information could be utilised as a platform when

developing a research project for the award of Master of Health. Consequently, it is for nurses such as those in the initial information-gathering group and in the nursing profession at large, that I have undertaken this research study.

3.2 THE RESEARCH QUESTION

The research question evolved following the development of a broad concept entitled "The Logistics of Patient Care; the impact of computer technology in the clinical setting". This initial document contained the research design elements as a framework for the development of the study. Essentially this proposal provided information in the form of a methodological file. This information was then used to narrow down the research question. It is from this broad based document that the research question for this study was formalised.

The formal research question in this study is:

> ***What do rural nurses believe about the impact of computer technology in the clinical setting?***

In the context of this study, the research question is related to seeking an understanding of the impacts of computer technology in the clinical setting from the rural nursing experience.

3.3 AIM OF THE STUDY

The introduction and the subsequent presence of computer technology in the clinical setting, has the capacity to significantly alter a nurse's everyday professional life and give rise to change and uncertainty. Concerns arise along with comments such as: "What will I use this for?",

"How will I learn to do this?", "Will it change what I do" and "If I cannot use it, what happens?"

Despite my knowledge about computer technology, I became acutely aware of my limitations in addressing these concerns. I believed there was little I could offer, to facilitate the support staffs' understanding the nursing experience. Consequently, I also had questions: "How do nurses define and explain computer technology?", "How do they make sense of computer technology?", "How do they respond to the changes that computer technology brings to their world?" and "How do they find meaning in everyday life?" These questions and others underpinned the aim of the study that was to:

"***Explore with rural nurses their perceptions, attitudes and experience of computer technology in the clinical setting.***"

Firstly the research aim is related to seeking an understanding of the diversities of the lived experiences of rural nurses and subsequently the aim was to seek an understanding of the way computer technology influences the nurses' experience.

3.4 THE STUDY OBJECTIVES

Derived from the methodological file, four primary objectives were extracted from the study and are outlined as follows:

3.4.1 Objective No 1

Learn about the perceptions of rural nurses where computer technology has been introduced into their clinical settings. This objective is expected to reveal any transformation to the notion of the clinical workplace with the introduction of computer technology.

3.4.2 Objective No 2

Uncover the attitudes of nurses to the introduction of computer technology into the clinical setting. Contained within this objective is the anticipation that the participant will discuss issues relating to defining nursing technology, why they use it and what are their expectations of computer technology. Linked to this are the concerns of how nurses distinguish their image and value their association with information technology.

3.4.3 Objective No 3

Understand how nurses have prepared themselves for computer technology in the clinical setting. Incorporated within this objective it was anticipated that nurses would express both the positive and negative influences of computer technology and the role of computer technology in patient care, along with the broader clinical management routines and educational requirements.

3.4.4 Objective No 4

Appreciate the experiences of nurses within rural clinical settings to the phenomenon of computer technology. Expressed within this objective is possibly issues related to the expansion of the multidisciplinary approach to care, along with changes to boundaries of practice for nurses and their associates. In addition the translation of knowledge and clinical practice development has the potential to raise issues around redefining the relationships and associations within the clinical workplace.

3.5 SIGNIFICANCE TO NURSES

The opportunity to conduct this research project on one small aspect of rural nursing has allowed for a reflection on the nursing life experience. From this an understanding of the complexity in the Australian healthcare system has been derived. Aside from this, it is important to research the many changes that are currently facing the nursing profession within Australia. This journey has enabled me to link the significance of the study though relevant examples of contemporary nursing documentation and literature.

From a national and State perspective key healthcare delivery issues identified in the State Governments health forecast documents predict a small decrease in cardiovascular disease with a rise in cancer, diabetes, injury and poisoning being among the primary reason for hospitalisation in the coming years (DoHA 1999). These mechanisms of injury along with an aging population and an increase of 10% in the prevalence of mental illness make a significant rise in chronic illness (DoHA 1999). Australia, along with the rest of the developed world will face a priority of challenges to managing the healthcare needs of our communities (DoHA 1999).

3.5.1 Space

Nurses as individuals, work in major cities, inner and outer regional areas as well as rural, remote and isolated areas. While there is acknowledgement that there will be many unknowns to the shape of healthcare over the next twenty (20) years, there will remain an emphasis on obtaining better value for the health dollar (Menadue 2000). Through the means of reducing hospitalisation and readmission there is a strong suggestion that the focus of health care delivery will change. The

emphasis of care moving from the acute intervention to prevention and primary healthcare models is a common theme for the future of clinical service delivery (Herdman 2001). Subsequently through greater attention to the patient journey and the potential of patient centered care, nurses are already beginning to adapt and change the designs of clinical settings. They are involved in making the Australian health workplace meet the future needs of healthcare consumers.

Research into the development of new models of care is paramount to the success of future healthcare. The Sustainable Access Plan (DOH 2004) is a health strategic approach. It has as its aims, the freeing up of human and financial resources by redesigning work practices and work places. This concept supports the work already done by nurses and looks to work yet to be done to ensure this reflect the desired health environment. The most extreme examples of workplace redesign are demonstrated by research projects that involve computer technology. Telehealth projects using digital image capture and transfer to facilitate consultation and community nurses within rural New South Wales (NSW) now commonly use this method for treatment of wounds. Knowledge of the approach and acceptance of the systems and resources to support individual nurses with this model of care is critical to its success (Chiarella 2006), (Barnard 1997). By understanding the subjective human experience of computer technology, the research evidence can be expanded by bringing together the existing body of knowledge and perspectives of the individual nurses working with computer technology in clinical settings.

3.5.2 Body

The National Workforce Plan (AHWAC 2004) is one of a number of documents designed to address issues related to ensuring and sustaining a supply of nurses for the health workforce into the future. Nurses are mostly female (92 per cent) and have an average age of 42 years. They provide generalist and/or specialist nursing services at beginning, advanced and expert levels. A large number of nurses work on a part-time or casual basis, and the average nurse works 30 hours per week (AHWAC 2004).

Other programs such as the reasonable workloads project managed by the NSW Nurses Association relates to issues that impact on nursing workloads (NSWNA 2002-2005). Running side-by-side these programs reveal that there are a number of changes currently being faced in nursing. These changes include such concepts and requirements as knowledge translation, educational acquisition, skills maintenance, models of care, credentialing and work patterns (Forum/N3ET 2005) Accompanying these changes are advances in health technology that are supported by computer technology. Beyond this the diverse geography of clinical service delivery and alternative work practices has placed demands on nurses to re-evaluate and reinvent their image within the healthcare system

Given that nurses are more likely than any other health professional group to spend most of their time in the clinical setting, it is critical to note the significance of their relationship with computer technology (Conrick 2006). In its more recent history, nursing has very closely aligned itself

with the concept of the health technology nurse (Barnard 1997). Therefore if nursing were truly aligned to this technology nurse notion, surely it would make them [nurses] ideally placed to be leaders in the field of health informatics (Barnard and Sandelowski 2001). Research in nursing technology suggests that there is evidence of limited recognition and support of computer technology for nurses (Conrick 2006). Thus confusion and difference are likely to exist in the working lives of nurses.

To this end the justification of these changes will have significance for nurses at all levels in Australia. Their ability to adapt, embrace and manage change in the Australian healthcare arena will need to be reflected if nursing is to retain its core values and its current image. This study will describe the impact of computer technology in the rural nursing world as it relates to the barriers and enablers encountered within the rural nursing experience. This knowledge and understanding of the impact of computer technology in rural clinical settings may serve to influence health practice, and facilitate reflective nursing practice and advance the vision of rural nursing.

3.5.3 Time

Australia's nursing workforce consists of registered and enrolled nurses whose scope of practice will vary based on education, levels of competence and authorisations to perform specific duties and tasks. One major primary driver of nursing education and workforce reforms within Australia is the National Nursing and Nurse Education Taskforce (Forum/N3ET 2005). Some of the current recommendations from this taskforce revolve around issues such as national consistency in scopes

of practice for nurses and midwives, national standards for nurse practitioners and nurse specialisation and ensuring a national standardisation of nursing research training and nursing research. The aims of this approach are designed to achieve the development of an evidence-based culture in nursing, along with identifying nursing research priorities and options for future funding of nursing research.

Complementary to this is maximising education and career pathways for nurses, with assistance for specialty and re entry courses (Forum/N3ET 2005). The net results for nurses are aimed at ensuring that they maintain professional competency and skills along with the appropriate clinical education. It is within this context that many of the educational opportunities for nurses will be available online, requiring access to computer technology. Coupled with these changes to the delivery of nursing education, it seems inevitable that basic computing knowledge and skill requirements will be necessary to support a clinical regime inclusive of nursing informatics (Forum/N3ET 2005). While there is a growing body of literature surrounding health computer technology and its clinical implications, within Australia there is very little recognition surrounding the nursing informatics environment (NIA 2004). Additional work needs to be conducted to add to the current body of research, and develop new research in the realm of nursing and computer technology.

3.5.4 Relationships

Nurses as professionals, focus on the patients' responses to illness, injury, treatment and care within the context of their family, social structure and location. Consequently nurses are found in a diversity of

practice areas and geographical settings and serve an increasingly knowledgeable community. While computer technology in itself has not resulted in a world wide shortage of many professional groups, it has worldwide implications for the nursing profession as governments look at strategies to fill the gaps left by these shortages with cost effective solutions (Saba and McCormick 2001). Within the current context, the provision of healthcare is being directed toward a focus on a multidisciplinary workforce that will mean changes to the existing allocation and ownership of clinical work (AHWAC 2004). In addition, care delivery patterns with an emphasis on clinical streaming and outreach programs have the power to alter the nature and structure of the existing healthcare teams. Within this environment the use of computer technology to support team members with access to evidence-based practice databases, better practice protocols and guidelines, clinical practice review, policy and procedure development and research will be critical (AHWAC 2004). Nursing, as the only health profession working across this continuum of care, should be in a position to support patient care in this direction. Nonetheless nursing must have the skills, knowledge and attributes in conjunction with support and resources to effectively and efficiently engage in these changes (Forum/N3ET 2005). A more thoughtful approach with regard to nursing recruitment and retention may include acknowledging to nurses that computer technology and its inclusion in clinical settings is supported by health organisations. Undertaking research that highlights the experiences and perceptions of rural nurses working with computer technology may assist with alternative

approaches as to how nurses are recruited and retained within healthcare.

This study has separated one component of health technology; to explore the experiences of registered nurses with computer technology in the rural clinical setting. It is my intention to present these findings where possible to the nursing profession, to relevant governmental and non-governmental organisations, as well as to those working towards the development of nursing, that is, researchers, planners, practitioners, and policy makers. To this end, the aim of presenting these findings will be in favour of advancing the needs of nurses in general.

3.6 DIMINISHING ASSUMPTIONS, BIAS, EXPERIENCES, INTUITION AND PERCEPTIONS

My participation as a researcher in the research process for this study acknowledges that it is not possible for me to be completely removed (or be neutral) from the study. My position as an observer, an interviewer and an interpreter has recruited me as an active participant and thus capable of making assumptions and introducing bias to the body of the study. To minimise and prevent bias associated with preconceived ideas, a technique described as bracketing was used. Bracketing was used before data collection began, as well as during data analysis Minichiello V, Sullivan G et al. (1999). Essentially what this means is setting aside personal biases, prejudices, theories, philosophies, assumptions and understanding about nursing informatics.

This included, for example, perceptions of resistance, perceptions of the level of use of computer technology, assumption around lack of access

and presumptions of increasing workloads. One bias, that of computer technology being a beneficial phenomenon, has been difficult to bracket and hence I need to make these perceptions explicit and implement techniques to reduce the impact of the bias. I recorded a verbal interpretation of this bias on tape and played it back regularly, along with a transcript I could read in an attempt to keep a conscious awareness of any arising conflict. It is clearly most important for any researcher to identify their own theoretical assumptions and philosophies, to recognise them as an integral part of the research process, and to report them in order to evaluate the success of the bracketing technique when analysing and interpreting data.

3.7 THE STUDY SETTING

3.7.1 Rurality

Australia is unique in that it has a small population spread over vast distances. The reality of access to healthcare in Australian rural communities has been recognised as being governed largely by socio economics and geography (Menadue 2000). The rising cost of delivering health services along with recruitment and retention of clinical staff continues to contribute to the closure or scaling down of many clinical services in these rural areas (Menadue 2000). There are additional expenses incurred for referral and transfer of patients not only to the individual but to the health system in general. It is within this context that "*rurality*" becomes significant (Menadue 2000). The use of computer technology and its adjuncts such as telehealth may prove to be suitable

alternatives to the traditional referral service for accessing timely health interventions for rural patients.

It is for these reasons defining rurality has important implications for appropriate policy development, planning and resource allocation (Wakerman 2004). In addition for health service researchers, a concept or definition of "*rurality*" is then methodologically important (Hegney, McCarthy et al. 2002). As a consequence there is an established and increasing use of the term by professional groups, such as the Council of Remote Area Nurses of Australia, as well as academic agencies such as the Centre for Remote Health Wakerman (2004).

The notion of "*rurality*" Wakerman (2004, p.10) infers that people from rural areas should be treated as a unique group apart from their metropolitan cohort. In effect the notion of "*rurality*" Wakerman (2004, p.10) has been deliberately included to highlight any areas of difference the participants considered, compared with their metropolitan counterparts.

This study does not suggest that rural nurses hold alternate beliefs and attitudes to computer technology; nor does the study suggest that their experiences are distinctive, or that the participants are representative of nursing culture. Each person's experience is different from that of anyone else, their circumstances and situations may be similar, yet their experiences may not (van Manen 1997). Thus the overall aim is to explore the range of views held by rural nurses and uncover the unique meanings, not generalities, and to tease out common themes and patterns about computer technology in rural clinical settings. The crucial

principle, however, is to conduct research with nurses and invite them to participate in the development of knowledge about themselves.

The study sought to canvass the perspective of rural nurses, and the setting for the study required a rural Australian healthcare setting. The size of the facility was a factor when choosing a specific site. There needed to be a pool of nurses available to participate in the study, thus a rural tertiary referral facility was chosen. The Area Health Service chosen has 2300 employees with the clinician group of nursing having a population of 900 persons.

As a novice researcher I needed to have reasonable access to the participants and in my clinical role I was able to access a number of wards, units and departments within tertiary referral facilities on a regular basis. In chapter five a general description of the rural referral hospital is outlined. This is to assist the reader in visualising a mental picture of a typical rural setting where nurses such as the participants might live and work. To this end the ability to inform policy and funding decisions related to clinical service delivery, models of care, and educational requirements within the rural environment challenges the traditional culture of nursing. The significance of this study setting lies in the recognition of known challenges of rurality and how rural nurses they distinguish their practice from others.

3.8 THE INTERVIEW SETTING

A complex component of in depth interviewing was developing a rapport with the participants to engage them in open and frank conversations (Minichiello V, Sullivan G et al. 1999). Regular contact with a range of

nurses across the campus allowed me to establish a more intimate relationship with the nurse participants in their clinical role. This relationship was one based on collaboration, cooperation, and mutual respect to advance the dialogue between the practical concerns and lived experience. This enabled an examination of their experience, in the context of their clinical setting.

When conducting the interview, the setting was critical. Thus creating an environment conducive to maintaining privacy enabled the nurse participants to reflect, expose and talk on their experience (Minichiello, Aroni et al. 1990). When we want to know about the lived world of a person, according to van Manen (1990, p.102-103), we must understand the lived space or spatiality of the person. The nurse participants were given a number of available options, including on and off campus meeting rooms, along with the opportunity to nominate their own interview setting.

3.9 THE SAMPLE

In research terminology sampling becomes "*the process for the selection of participants for a research project*" Dane (1990, p.299). Research literature (Minichiello, Sullivan et al. 2004), (Patton 2002) and (Dane 1990) constantly refers to the importance of sampling methods in the construction of the research project. In an effort to seek out detail subtlety and understanding, phenomenological studies commonly uses sampling methods that select the individual, group or situation most appropriate to the phenomenon under study (Minichiello, Sullivan et al. 2004). These sampling methods are generally termed non probability purposive sampling, with the purpose of the participant to provide data that is

"*information rich*" Minichiello, Sullivan et al. (2004, p.211), (Patton 2002). The sampling method is intended to focus on the selection of people that will be able to provide information on the questions being studied and to this end the participants act as "*informants*" Minichiello, Sullivan et al. (2004, p.211) providing insider information of their experience (Agar (1980) cited (Minichiello, Sullivan et al. 2004). Hence the participants of the study best placed to inform it were nurses, whose clinical environment has been infiltrated by computer technology.

In the qualitative paradigm the aim is to provide an in-depth understanding of the phenomenon under study; conversely and also important the depth of understanding may be from different levels. At one end of the scale the research may be aimed at full theory development requiring a rigid theoretical framework to be developed. Nonetheless important, at the other end exploratory research used to develop key issues and themes can be achieved using a validated sampling method (Minichiello, Aroni et al. 1990). To this end the sampling method chosen for this study is random purposeful sampling whereby the phenomenon of interest is computer technology for rural nurses working in the inpatient hospital setting.

In developing the sampling criteria assistance from three individuals external to the study was sought to assist in this process. These individuals included a health planner, a health policy developer and a health researcher. In conjunction with the research supervisor this group supported the development of the sampling matrix with practical advice on methods to identify potential criteria. The group acted as an advisory

group. This group was similar to the reference group system used by Llewellyn (1995), (Llewellyn (1995) cited in (Minichiello, Sullivan et al. (2004 p. 225).

Contained within the chosen rural referral facility, there were fifteen possible inpatient clinical sites. Within each of the identified sites was an average nursing workforce of twenty nurses. Three hundred nurses represented the potential sample size. Thus for the study a matrix was developed outlining the sampling selection criteria. In developing the matrix assistance was sought from the advisory group. Suggestions from the advisory group resulted in an audit being conducted of the job descriptions of the various groups of nurses working within the clinical sites. In this context the audit was to identify the essential and desirable criteria contained within the job description of specific nursing groups pertaining to using computer technology. Results of the audit identified that the use of or qualification in computer technology could not be identified as either an essential or desirable criteria for any of the nursing groups. A more extensive review revealed that for the nurse unit manager group, one core functional duty was the use of an electronic staff rostering system. In contrast, for the clinical nurse consultant cohort, the use of online resources for clinical practice review and policy and procedure development was identified. Although there was a generic clinical nurse specialist job description there was no reference to computer technology contained within it. Despite these exclusions the advisory group recommended the inclusion of this nursing group. The rationale for inclusion was that a nursing project of consequence around

the clinical specialty was required in achieving this nursing classification. To maintain the classification an annual review and a project relevant to the specialty is undertaken by the individual nurse. Alternatively, clinical nurse specialist status provides an increased opportunity for career advancement. Nurses from this group regularly relieve in the higher-grade positions of nurse unit manager and clinical nurse consultants, in the absence of these individuals. At some point, it is expected that nurses within the clinical nurse specialists group will have had interaction or experience with computer technology. As a result of this they are attaining or maintaining their status and through the mechanism of undertaking higher-grade duties.

To provide balance and variety across the range of clinical settings, the sites were divided into two distinct patient service delivery streams. These were the acute care stream and the chronic care stream. In the acute care stream, the clinical settings of the emergency department, diagnostics, intensive care, the operating suite, day surgery unit and paediatrics are aligned. In contrast the chronic care stream encapsulates such clinical settings as renal, rehabilitation, respiratory, general medicine, orthopaedics and general surgery. The result revealed twelve discreet clinical settings in which nursing support was provided by a Nurse Unit Manager, a Clinical Nurse Consultant and at least one Clinical Nurse Specialist.

In the study, the matrix was developed to provide for variance within the criteria for clinical specialty experience, nursing role and clinical setting. In addition the matrix was used to promote balance to the cohort and act

as a culling mechanism for surplus participants. Alternatively, an eligibility list would be available, should additional participants be required.

In the context of research the purpose an informant is to serve as a source of information from which data can be extracted. It is crucial to the study that relevant data that will be received for analysis. Consequently once the reason for the study has been established then a search is made to find specific candidates. Random purposeful sampling, along with the assistance of an advisory group, achieved the mix of participants that was able to provide the depth of information required to accomplish the objectives of this study.

3.9.1 The Sampling Size

Regardless of the research paradigm fundamental principles frame the sampling methods. Qualitative research methods use inductive processes of specific instances to develop general themes from the study (Minichiello, Sullivan et al. 2004). This requires that sampling, data collection and analysis are an interactive process that informs and adds to each discrete element. Consequently, the inductive process helps to regulate the size of the study sample. It accomplishes this by determining the initial number of participants required and informs the study if additional participants are needed.

Qualitative inquiry requires different kinds of sampling needs and different sample sizes (Sandelowski 1997). Thus in the broader research context sample sizes of nine may seem small, nonetheless they reflect the purpose of the inquiry and provide a richness and depth of data. Using the sampling matrix the populations of nurse unit manager, clinical nurse

consultant and clinical nurse specialist were established as having twelve in each nursing group.

In purposeful sampling the size of the sample is determined by informational considerations. Lincoln and Guba (1985, p.202) recommends sample selection to the point of redundancy to meet informational considerations. Alternatively Morse (1995, p.223) advocates that by projecting the potential outcome of the study, the concept of the research design can be more accurately informed. As a common rule Morse (1995, p.223) also suggests that for a phenomenological study where the primary aim is to understand the essence and meaning of the participants experience approximately six participants would be the minimum sample size required to provide information rich data for analysis. A total of nine nurses participated in this study. This sample size represents the common sample size and model required to reasonably cover the phenomenon of computer technology. Consequently, the sample size is considered of the suitable for the purpose of this study and to meet the objectives.

3.10 THE PARTICIPANTS

The criteria for selection were developed and set out via the sampling matrix. Initially participants were considered if they currently worked within the inpatient clinical areas of the rural referral facility. In addition all the participants were registered nurses who currently held the position of Nurse Unit Manager (NUM), Clinical Nurse Consultant (CNC) and Clinical Nurse Specialist (CNS). While there is little evidence to support the use of computer technology within the job descriptions for these nursing groups,

within the functional capacity of these positions at this level of NSW industrial award classification, evidence was found of an expectation to have interacted with or had exposure to computer technology systems within the day to day work role (NSWNA 2002-2005). In chapter five introducing the participants; more detailed information of the participants is included to provide greater insight into their "lived experience" as it relates to this study. .

3.11 RECRUITMENT

Privacy issues remain of major concern to both the participant and the researcher during the recruitment phase of a research study (Minichiello, Sullivan et al. 2004). The individual potential participant worked within particular clinical settings that were confined to a specific location. Hence the need for a general advertising campaign or using a third party in the first instance was reduced (Minichiello, Sullivan et al. 2004). The recruitment strategy for the study was developed around directly targeting the individuals by means of their specific clinical groups within the rural referral facility. Initial advertising and recruitment was conducted using the professional groups that currently existed within the organisation. The Nurse Unit Manager Interest Group and the Clinical Nurse Consultants Support Group were approached to assist with promoting the study to their members. These groups promoted the study by conducting advertising for recruitment at their meetings and also through their various networks. A formal advertisement for participants was then drafted and emailed to a list of all Nurse Unit Managers and Clinical Nurse Consultants within the confines of the rural facility.

An alternative strategy for the recruitment of Clinical Nurse Specialists was required as there was no formal Clinical Nurse Specialist Group available, nor did many in the award classification have access to email. The nurse unit manager group assisted by posting advertising flyers within the units and providing information on the study to CNS's in their specific wards and units. An additional strategy was used where I was invited to address the ward meetings. At this forum I was able to discuss the study in an attempt to recruit participants from this group. This proved successful in recruiting the minimum number of participants for this group.

In my current role I know and work with many of the expected participants, and for the NUM and CNC groups, many more expressions of interest were received than there were places available. As a researcher I have an obligation to act in a fair and ethical manner towards those potential participants, thus the award classification, clinical specialty and clinical stream were designed into the matrix. The applications were coded by group and applied to the matrix by the reference group. Consequently a balance across the clinical settings and streams was achieved in determining the participants. This process had the added benefit of reducing the impact of any bias the researcher might bring to the selection of the participants.

Following selection by the reference group, the potential participants were contacted by phone with an offer being extended to participate in this research. A meeting arranged at their convenience to discuss their role as a participant in the study for those staff who accepted the invitation.

The aim of this meeting was to secure participation and acceptance by the participants, through the researcher developing a relationship with the participants (Minichiello, Sullivan et al. 2004).

During this time an appointment was arranged to conduct the interview process. Given that the nurse still wanted to participate in the study at this stage. At all times the nurse participants were informed that their participation was voluntary and that they could withdraw from the study up to the point when the data was integrated for analysis (Minichiello, Sullivan et al. 2004). The extraction of individual data, once integrated for analysis, might not be possible and continuation of the project would need to be considered should this occur.

3.12 DATA COLLECTION

3.12.1 Interviews

Interviewing, in hermeneutic phenomenological human science, serves a dual purpose. In the first instance it serves as a;

> "*means for exploring and gathering experiential narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon*" van Manen (1990, p.66).

In the second instance, interviewing serves as a,

> "*vehicle to develop a conversational relation with a partner (interviewee) about the meaning of an experience*" van Manen (1990, p.66).

Hence for the study in-depth interviewing was considered the technique for gathering data with respect to the research question. Considering this there were advantages to using an unstructured interview technique. In collaboration, the participants and the researcher produced data for

analysis rather than just collecting information for analysis (Minichiello, Sullivan et al. 2004).

Two interviews were conducted. The first, as potential participants were approached, conversations were conducted with them about the study and relationship building was established. The second was when the formal in-depth qualitative interview was undertaken. These interviews were conducted over a six-month period from April 2004 to September 2004. The scheduling of the interview was developed in union with the nurse participant and conducted at a venue, date and time of their choosing. The timeframe for the interviews allowed for listening to the previous interview and in most cases transcribing the interview prior to moving on to the next. In this way time constraints were reduced and any additional topics were able to be included within the next interview schedule (Minichiello, Sullivan et al. 2004).

The interviews were always conducted away from the clinical setting to minimise disruption and interruption to the interview process. Most interviews were conducted in a small meeting room on campus that I was able to hire. However I conducted one interview at my home and another at the home of the participant. Using Berg 's (1995) (Berg (1995) cited Minichiello, Sullivan et al. (2004, p.419), question classification scheme throw-away questions were initially used to elicit demographic and descriptive information including age, gender, nursing classification, length of time worked as a nurse and in current role. I set up the room to be as informal as possible with tea, coffee and water so we could start out with a friendly chat session to break the ice.

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As a novice researcher and nervous about conducting an interview, I developed an interview schedule, and practiced asking "*essential*" and "*probing*" questions Berg (1995) (Berg (1995) cited Minichiello, Sullivan et al. (2004 p.419) so that when I was conducting the interviews I felt that I would be able to work with the participants in order that they could openly tell their stories.

The interview schedule included topics related to computer technology and nursing previously identified within the literature. These topics included access, equipment, education and skills, computer technology experience, information management and privacy to name a few. They were more words on a page rather than structured questions. Thus these topics were only used to start off a discussion or refocus the participant to the context of the interview (Minichiello, Sullivan et al. 2004).

In developing the interview schedule I was mindful to include reintroducing myself and discuss the purpose of the study. The intention of this was to re-establish a rapport, as in some instances it may have been several weeks since we had first met to discuss the study. In appreciation, I also thanked the nurses for sharing their time and experiences and for providing me with this precious opportunity.

There were few questions ventured concerning the study at the time of the second interview. Mostly the participants expressed being nervous about being recorded on tape, hence **"what will I sound like"** was a common question they asked. In many instances it was easier to talk than to write about the lived experience van Manen (1990). I was able to reassure them and explain about the process where the sessions would

be recorded and only available for my ears. I explained how I would transcribe the tapes, and, once this was done, I would provide them with a copy of the transcript, as I needed their help in seeking clarification of the transcript and to determine if there was anything they would like to add.

In the interviews I used an open ended conversational style, asking the nurses about specific instances, situations or events to explore their experience van Manen (1990). The hermeneutic orientation of the conversation to "*sense making"* and "*interpretation"* van Manen (1990, p.98) lends itself to collaboration between the participant and the researcher. In this case, keeping the meaning of the phenomenon open and the participant oriented to the substance of the question. For example when the participant "Daffodil" talked about learning computer technology, I asked, **"Daffodil, how did you do this?"**

With the exception of two, the interviews took approximately an hour. We considered the interview complete when the participants felt they had no more to say or their story reached a conclusion for them. After the interview I would note in a journal my impressions of the non-verbal communication. The commentary of this study is derived from the interviews and the journal notes. As each interview was tape-recorded it was later transcribed into written form using a computer and a word processing program.

3.12.2 Transcripts

The transcript in this context is viewed as a tool to document the commentary of the participants. Transferring the interview from the verbal

narrative into a written transcript presented two options. The choice was between arranging for a word processing typist to undertake the transcription and alternatively transcribing the tapes as the researcher. Undertaking the word processing of all the transcripts as the researcher, I was given an insight that provided me with an opportunity to gain a sense of what was being conveyed (Patton 2002). Beyond this I was assisted with the transition between the data collection and analysis.

In addition, as I transcribed the interviews I incorporated the non-verbal communication I had noted in the journal. As I progressed to rereading the text; I was able to rerun it somewhat like videotape. In my minds eye I was able to view the interview as it unfolded.

Discussion with the participants at the first meeting and again at the beginning of the interview was undertaken. The issue of validating the transcript was it was transcribed and then was discussed. By agreement, I sent the participants a copy of the completed transcript and they would return it with their comments. Obtaining replies and comments from the nurse participants was time consuming. However, the participants provided valuable feedback to the study. Using this approach enabled the participants to verify the content of the interview in total and identify any areas that may be problematic to the individual if published to the wider community (Glense and Peshkin 1992). This approach values the participant feedback and provides recognition of their participation. There was also an opportunity for them to include any new ideas or areas they may not have covered in the formal interview.

The use of bracketing was in the forefront of my mind during the interview and transcription. As a researcher, I am capable of bringing barriers, limitations and bias to the interview; hence I used my tapes and journal as a reminder of these issues and raise my own self-awareness to limit their impact.

In the context of the interview both the researcher and the participant are in an "i*nterpretative conversation"* van Manen (1990, p.99) where they can orientate themselves to commentary that reflects the significance of the phenomenological question. In this situation we acted in partnership to describe what the experience was really like. It needs to be noted that there are limits as to how well a researcher is able to understand the experiences of others.

As the interview progressed through the interview guide, I felt each general theme was concluded when the participant's pauses extended and ultimately we sat in silence. The non-verbal communication ranged from relaxing arms and shoulder and bowing of the head, to sitting up and folding the arms or exhaling a breath to demonstrate "*I'm finished*". (Bollnow 1982) describes this as …

> "*when the conversation does finally sink into silence*
> *this is no empty silence, but a fulfilled silence*"
> (Bollnow 1982) cited van Manen (1990, p.111).

I was satisfied that on completion of each interview I had provided an opportunity for frank and open discussion for the participants. This path allowed us to reach the proposed goals of the interview. The interviews produced data for analysis to meet the intended objectives of the study. However at the close, there was a sense that we all learned a great deal.

3.12.3 Journaling

Although I did not call it a journal, I kept a methodological file based on the original research proposal to keep track of the progress of the study and what procedures still needed to be covered. To this file many notes were made surrounding comments the participants had told me off tape. I made notes of my impressions of the initial meeting with the participants, and what their clinical setting was like. I made tape recordings of thoughts, notions, questions and matters still to be attend to (van Manen 1990). As I developed this methodological file I did not really consider this to be true writing, although sometimes I would surprise myself and wonder **"did I write that*?*"** van Manen (1990), says that, *"much of real writing occurs that way"* van Manen (1990, p.114).

In broad terms this methodological file represents the formal framework for the study and is an attempt to keep myself orientated to the question at hand. It contains within the checklist of processes to keep me on track as a researcher. Sometimes there was the feeling that I had too much information, and at other times not enough. Moving from a clinical and procedural style of writing to an academic orientation I have found to be a very challenging task. Thus I have endeavoured to link the participants' experience, and the qualitative methodological processes, to produce a text that meets its objectives, and goes someway towards explaining the question of the study.

3.13 MAINTAINING A STRONG RELATIONSHIP TO RESEARCH THEORY

Phenomenological theory is described as "*theory of the unique*" by van Manen (1990, p.150). This theory has its beginnings with a single case, and then delves deeper, exploring for universal qualities before finally returning to the single case. In this sense it is not an attempt to generalise, so as a researcher there is a need to be careful and remain sensitive to the research question. In an attempt to remain orientated to the question, namely, "What do rural nurses believe about the impact of computer technology in the clinical setting*?*" the use of four evaluation criteria were employed as outlined by (van Manen 1990).

3.13.1 To be orientated

To be orientated in the case of this study means to understand the ways of the nursing world and not to separate the theory from life (van Manen 1990). I was conscious of the need to develop a text not only in the ways of being a researcher, but as that of a nurse. When the participants said **"do you know what that is like"**, it displayed that there was an accurate reflection of the uniqueness of the experience of the participants in combination with the subject of the phenomenon.

3.13.2 To be strong

To be strong means to use our direction to aim for the strongest interpretation of the phenomenon (van Manen 1990). As I worked through the process of examining themes, my orientation as a nurse, a researcher and a woman with experience, was able to provide some exclusivity of approach. In this context when the participants said to me **"do you know what I mean"** there was a connection to how we should be with and

interact with computer technology, and whether the data supported the notion.

3.13.3 To be rich

To be rich means to provide a thick and (rich) concrete description, and explore a phenomenon in all its experiential ramifications van Manen (1997). Rereading and re-examining the uniqueness of the commentary like **"I remember when…."** from the participants, added texture to the stories. Blended with the verbal and non-verbal expression recorded from my methodological file (journal), atmosphere and detail was added to the material available to be used in developing the text.

3.13.4 To be deep

To be deep is to give meaning to the phenomenon and reach not for the odd or extraordinary but for something beyond, something deeper van Manen (1997). In the context of this study there is a wish of reconciliation between the present experience of the participants and the hope of what it should be. My aim is to achieve this by adding some sparkle to the text so the reader might say **"I felt like that when…" or "I never thought about it like that."**

3.13.5 Summary

In completing the study, I am endeavouring to add to the body of nursing research, and to promote a better understanding of the nursing world as it evolves. Modern conceptions of theorising are often guided by things that are useful and I am hopeful that some influence may be sought to support nurses as they experience the computer technology revolution van Manen (1990). Computer technology is a complex multidimensional

phenomenon. My aim is to present this text as a robust and legitimate reference encompassing the experience of the nurses and influences computer technology.

3.14 BALANCING THE RESEARCH CONTEXT

The research text needed to be organised to represent a concept of wholeness or completeness, and incorporate a flow that generates a natural progression from one chapter to the next. To achieve this I have used the original proposal as a framework to provide consistency in keeping with the research question, the study aims and objectives, and the methodological justification for the study.

There is no compelling reason to use a particular way to structure the study. Therefore I have chosen to use in combination, four approaches: the analytical approach, an exemplificative approach, a thematic approach and an existential approach, as outlined by van Manen (1990, p.168) to provide this sense of wholeness.

3.14.1 The analytical approach

The analytical approach within the context of this study is used to describe how scientific literature currently presents computer technology van Manen (1997). Using the available literature and other material I will show that traditional science does not adequately represent this phenomenon from a range of health perspectives. There are many documents in the health arena where assumption and pre–understanding about the nature of computer technology for nursing are founded. These documents are largely based on thoughtful understanding. There is limited Australian research to uncover the current question about the

relationship of nursing in general and in particular, computer technology. Hence, what does it mean for nurses to work with computer technology?

3.14.2 The exemplificative approach

The exemplificative approach uses examples to broadening and thickening the description and makes the essential nature of the phenomenon visible van Manen (1997). The use of varying examples; for instance being a young nurse or an older nurse or working in an acute care setting or a chronic care setting. Each example is capable of enlightening the essential nature of computer technology and its connection to nursing.

3.14.3 The thematic approach

The thematic approach is used to guide the emerging themes from the data collection and analysis, and articulate what is being described van Manen (1997). Through these chapters elaboration occurs on essential aspects of the study question. Each chapter heading conveys the theme that is being described. A more detailed description of the analytical approach is provided in Chapter 4, Methodology.

3.14.4 The existential approach

The existential approach for this study is used as an interpretative guide and weaves the themes against the existentials of temporality (lived time), spatiality (lived space), corporeality (lived body) and sociality (lived relationship to others) van Manen (1997, p.172). This approach structures phenomenological description around the meaning of how computer technology influences the nurses' experience in contrast to the experience of those from non-nursing backgrounds. Essentially their

experience of computer technology and the relationship with other healthcare works is reflected.

3.15 RIGOR & QUALITY

3.15.0 Introduction

In collaboration with the nine participants, the researcher has made a serious attempt to produce a text rich in description, deep in meaning, strong in interpretation and orientated to the nature of the question. In providing an explicit understanding about what is understood as an answer to a real question van Manen (1997) heeds caution. van Manen (1997) warns that unsound work will result if there is not a desire to orientate to the topic of the study in a *"strong, original and thoughtful manner"* van Manen (1997, pp.150-153).

In support of van Manen (1997) warning, rigor and quality become important aspects of measure. Rigor and quality for this study uses four dimensions; rigor in documentation, rigor in procedure, rigor in audit, and rigor in ethics are outlined.

The lengthy recording, incorporating the many elements of this study, provides rigor in documentation. It is presented within the various chapters of the dissertation and has its foundations in orientating the study design to van Manen (1997) phenomenological methodology. Examples can be seen in the body of the dissertation chapters such as: Introduction, Literature Review and Methodology and Design chapters.

Rigor in procedure means providing a detailed account of information with regards to steps taken to ensure that data is accurately collected, recorded and analysed. Additionally, that the data obtained is

representative of the data as a whole. van Manen (1997), outlines a six step analysis for methodological structure of human science research, van Manen (1997, pp.30–31). This process has been applied to characterise the methodology used for the study. The elements of this process are outlined in detail in chapter four, Methodology.

Rigor in audit means to leave an audit trail, a recording of activities over time, which can be followed by another researcher (Lincoln and Guba 1985). Hence the subsequent text arising from the study design provides a process open for examination. As Burns (1989), indicated other researchers might not necessarily agree with conclusions developed by the original researcher, however transparency and rigor are essential to support the credibility of any study undertaken. In this study, the inclusion of an example of the relationships of codes, cluster, sub themes and themes outlined in Appendix C, has been added to enable the reader to reach his or her own conclusions and judgment.

3.15.1 Ethical Issues

The Area Health Service Clinical Research Ethics Committee approved this study. The assigned reference number for this study is DB 161. The University of Southern Queensland's Human Research Ethics Committee accepted and endorsed the approval of the Health Service Clinical Research Ethics Committee for this study.

An information package including an information sheet outlining the study was sent to all those who expressed an interest in participating in the study. A meeting was held with the individual potential participants to further discuss their decision to participate. This involved an open

disclosure about the intended process and answering of any questions they may have about the study or the potential processes.

3.15.3 Consent

Consent was discussed and a copy of the consent form reviewed along with the participant. The disclosure also surrounded issues of privacy and confidentiality as a participant, along with any perceived harm they may experience as a participant. Their right to withdraw from the study and a contact for a person independent of the study was provided in the name of the Director, of the Area Health Service Research Institute. The interview time, date and venue was arranged and I provided my phone number as a point of contact.

The information sheet outlining the purpose of the study, the natures of the research method, the time involved, along with the consent form, were left with the participants at the first meeting. Two identical consent forms were signed, one was a copy to be retained by the participant, and one was a copy for the project record. The consent form was signed prior to the interview, and by signing these forms the participants indicated they understood the nature of their participation, and that they had voluntarily agreed to participate.

3.15.4 Privacy

I am charged with both an ethical and moral responsibility to protect the privacy of the nurses who have participated in this study. I take this charge seriously and have used the National Health and Medical Research Council Guidelines (1997) (NHMRC (1997), in addition with the advice of the Area Health Service Research Institute. Privacy is

particularly important in this study as the community of a hospital is a relatively small and intimate place, and more so when combined within a rural setting. The substance of the individual experience must be representative of real and accurate description of their lived experience. However efforts must be made to protect the individuals' identities, and thus respect the privacy of all the participants and in doing so, create a system to change the names, places and details of the individual information, maintaining all records relating to the study with privacy in mind.

The National Health and Medical Research Council Guidelines (1997), further recommend that all the data relating to the tapes and the personal records for each participant to the study be held for a period of five years from the completion of the dissertation and then destroyed. The consent form, the transcriptions, records containing personal details, along with the coding information is kept in a locked filing cabinet at my home office when not in use. This information is only accessible to me as the researcher.

Finally, I needed to plan for the possibility that a breach of conduct relating to patient privacy and records management may arise. Both as a nurse and as a researcher, I am ethically bound to report such events. I had arranged for the Area Health Service Research Institute to provide an independent assessment should such a situation arise.

3.16 VIGOUR OF THE STUDY

Strengths and weaknesses are boundaries that are an inevitable part of any research method. At the beginning of this study there were some

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limitations identified that was a result of the study design. These included the a small sample of nine participants, with the quality of the data collected via the technique of in-depth interviewing being totally dependent on the relationship between the participant and the researcher. Nonetheless using the personal experience of the participants is strength of the study.

This data collected during this study was not intended for use to generalise across the subject of computer technology and nursing, however there may be other nurses whose views correspond with some of those contained within this study.

People who are part of an ethnic or racial minority were absent in this study as no participants volunteered.

The scope of the study was limited to the experience of nurses notwithstanding the viewpoint of the patient or data support staff.

Whilst a matrix of inclusion and exclusion criteria was devised, the study group only recruited one male and while gender differences were not within the scope of the study, the inclusion of at least one other male may have provided a more balanced cohort.

Clearly there is a need for further research to explore the different issues for nurses and explore how the experience of information technology is affected by variables such gender and age.

3.17 CONCLUSION

This chapter on research design has been developed as a framework to launch the methodological file or journal of this study. The framework is an amalgamation of the works of (van Manen 1997), (Minichiello V,

Sullivan G et al. 1999) and (Roberts and Taylor 1998) who provided essential elements from which to construct the study design. In constructing a research study there are elements from a variety of methodologies available to be chosen, some elements are traditional and some more controversial. One element that cannot always be eliminated is bias; however it may be mitigated to reduce the effect. Alternatively other investigators may audit the study and provide a different interpretation, nonetheless the study processes must be able to stand up to the rigor of human science and be "*soft, soulful, subtle and sensitive*" van Manen (1997, p.18). To this end the framework has created a design for gathering and analysing data to develop themes that reflect the uniqueness of the participants "*lived experience,*" van Manen (1997, p.18) relative to the research question.

CHAPTER 4 RESEARCH METHODOLOGY

4.0 INTRODUCTION

This chapter begins by outlining the philosophical stance, theoretical perspective, methodology and method, which provide the framework for this study. It commences by providing detail on the qualitative research paradigm of Phenomenology. It then describes the research method by van Manen (1990) of Hermeneutic Phenomenology; employed in undertaking this study. The chapter concludes with the enmeshing of the concepts of these methodologies and methods within the body of the study.

4.1 IDENTIFICATION OF A QUALITATIVE APPROACH

Research is often influenced by the philosophical orientation and theories that reflect the foundations of individual disciplines. To this end the investigations into the philosophies, paradigms, strategies and theory of research approaches lead me to ask the question, "*What is it I need to take from these perspectives that will help me answer the research question?*" Since my principle occupation comes from the discipline of nursing the philosophical orientation of the nursing discipline was used as a starting point. Nursing literature resonates with response to the notion of holistic nursing care from both from a theoretical and practice perspective as people interact with an ever-changing health environment (Sandelowski 2002). Upon investigation the focus of much of this unique body of knowledge can be found primarily within the qualitative paradigm.

In applying a research methodology, an examination of the differences between the various paradigms was undertaken; the study was directed

towards a qualitative approach being chosen. The qualitative also known as the naturalistic interpretative or critical paradigm, views truth as dynamic and embedded in the interactions between people and their social environment (van Manen 1990). Therefore, studies undertaken where attitudes, values and beliefs are explored is likely to benefit using the structure of this perspective. Consequently, an exploratory study investigating the impact on rural nurses of computer technology in the clinical setting makes it well placed to be conducted within the qualitative paradigm.

Natural science discipline has used the qualitative research paradigm over the centuries to uncover and credential subjective experience. Contained within this paradigm is variety in theoretical and philosophical perspectives. Common to this the major perspectives of social research where positivism, interpretive, critical inquiry, and post modernism have been described (Crotty 1996). Similarly, Creswell (1998), identified five (5) differing perspectives including phenomenology. Schwandt (2000) offered the use of three (3) perspectives one of which is Hermeneutics (cited (Patton 2002). Then again Denzin and Lincoln (2000a) have organised seven (7) perspectives, while Wolcott (1992) has created twenty (20) and Tesch (1990) identifies twenty seven (27) cited (Patton (2002, p.132–134).

The evolution and cross-pollination of the many qualitative theoretical perspectives has grown in use and relevance over time. This advancement has matured the qualitative paradigm. As a consequence, in modern times, there is confidence in the validation that the lived

experience of the individual has meaning and therefore forms valid data for investigation (Quin Patton 2002).

4.2 PHENOMENOLOGY

Qualitative methodology can be described as the theoretical framework [or fundamental assumptions and characteristics] of a human science perspective. Phenomenology is but one of a variety of approaches used to study the field of human science. As a research methodology it is a way of investigating certain kinds of questions. Philosophically, in the broad sense, phenomenology is interested in "*essentially what is not replaceable"* van Manen (1997, p.7). Hence it becomes the "*theory of the unique"* van Manen (1997, p.7). Using this premise the phenomenological perspective is to conduct research that questions the way we experience the world and to know the world in which we live our everyday lives (van Manen 1997).

In addition there are a number of phenomenological perspectives that contribute to this methodology; it can be referred to as a philosophy (Husserl 1967) as, an inquiry paradigm (Lincoln 1990), an interpretative theory, (Denzin and Lincoln 2000 b:14), a social science perspective (Harper 2000); (Schultz 1967, 1970) as and a major qualitative tradition Creswell (1998) cited in (Minichiello V, Sullivan G et al. 1999). Alternatively, as is used in this study a research methods framework as conceived by van Manen (1990). Nonetheless, what the various phenomenological approaches share is a:

> "*common focus on exploring how human beings make sense of experience and transform it into*

> *consciousness, both individually and as shared
> meaning"* (Patton (2002, p.104).

Digging deeper, a phenomenon is defined as a thing or entity. It can be an emotion, for example anger or loneliness, it can be a relationship or job, it can be an organisation or culture, or indeed a program such as the introduction of computer technology into a clinical setting (Patton 2002). Following on from this Phenomenology Patton (2002, p.104) writes, is the study of things within human existence and it acknowledges and values the meanings that people ascribe to their own existence (van Manen 1997).

Furthermore, the intention of phenomenology is to discover, explore and describe the things as they are given. Therefore when investigating the lived experiences the notion of core meanings or *"essence"* van Manen (1997, p.10) becomes the defining characteristic. To this end the aim is to construct an

> *"in-depth animated evocative description of human
> actions, behaviours, intentions and experiences"* van
> Manen (1997, p.10).

Within the study are the participant stories that form the genesis of an inquiry into computer technology in the rural clinical setting (Patton 2002). The construction of a phenomenological study is conducted with the same rigor as any other research project; and it becomes a creative attempt to capture a phenomenon of life van Manen (1990). Thus the philosophical methodology for this study embeds itself in the orientation of phenomenology where as the research design uses van Manen's (1990) hermeneutic phenomenology as its methods framework. To this

end phenomenology folds back the quilt to expose what makes a nurse a nurse and then goes one step further to look at why a nurse is not the same as other healthcare workers (Patton 2002). This is explained as the essence of;

> "*Phenomenology asks for the very nature of a phenomenon, for that which makes something, what it is- and without which what it could not be what it is*"
> van Manen (1990, p.10).

To address the research question, this study uses the conceptualisation of hermeneutic phenomenology as outlined by van Manen (1990). In the methodological premise of van Manen (1990) it is that the essence of the phenomenon that is revealed by gathering words from those living it and then interpreting it into text. Here we can relate this through the example of the experience of a rural nurse confronted with computer technology in their clinical setting. In this context we take account of the experience of being human and the meanings and understandings that people have about their world. Hence people are always centred in "*the world of the natural attitude of everyday life*" (van Manen (1990,p.7).

As van Manen (1990), writes:

> "*it is important that the method one chooses ought to maintain a certain harmony with the deep interest that makes one an educator [nurse] in the first place*" (van Manen (1990, p.2).

The reality is that, the research conducted was guided by the methodology chosen. Hence talking to rural nurses about their experience with computer technology has allowed a reference to examine the differences in context and circumstance. So, to some extent, this

dissertation may advance making sense of nursing society, using the revelations from the nursing voice.

Working with these participants meant developing an intimate relationship with them. Consequently, a research method that reflects the importance of intimacy was the one chosen. In addition, visits, in-depth conversations, and extensive journalising of notes and reflective practice were other central elements of the research method (van Manen 1990). This encouraged my development as a qualitative researcher (van Manen 1990). Thus it is a phenomenological study in which "*the lived experience*" van Manen (1990, p.182) of the world of everyday life is the central focus, an idea that will be displayed more extensively in the progression of this chapter (van Manen 1990).

4.3 HERMENEUTICS

Whereby van Manen (1997, p.7) asserts that Hermeneutics is fundamentally a writing activity; it has first been accredited to Schleiermacher (1768–1834) and was applied to human science research by Dilley (1833–1911) (van Manen 1997). Modern times have seen hermeneutics provide a perspective for interpreting texts by asserting; that a community of interpreters negotiates the meaning of a text. Hence hermeneutics as a human science approach has its tradition entrenched within the philosophies of the reflective disciplines (van Manen 1990). Its contrast with the logical empiricism approach where there is acceptance that interpretation is always absolutely correct or true; hermeneutics assert that interpretation can only ever be just that; an interpretation (van Manen 1990).

Within the research toolbox this is not just an additional theoretical approach that can inform qualitative inquiry and put the inquiry into perspective. It is not speculative or universally applicable. Nor does it provide solutions or results. What this seeks is entwined within questioning, talking and deriving meaning and essence. It follows on by informing us that meaning depends on the cultural context of both where it is created and interpreted (Patton 2002). In the course of this study this theoretical perspective is used to enlighten some specific concern; computer technology, in a particular context, that of rural nursing at a particular time; the early 21st century.

4.4 THE SIGNIFICANCE OF THE RESEARCH

Within the act of conducting research health researchers need to recognise and acknowledge the crucial importance of learning from people. The respect of people's personal, physical, and especially their social experience allows researchers to enhance the understanding of the topic being investigated. The participants of the study shared their experiences with computer technology to advance the cause of nursing.

Underpinning a phenomenological philosophy is a doctrine characterised by the belief that people create their own social world - rather than merely being shaped by external social processes (van Manen 1990). The purpose, then, is to transform their voice into a textual expression of essence. This serves to capture a true picture of the meaning and complexity of computer technology as understood within the context of the participants' lives. van Manen (1990), describes this effect of the text as:

> "… *at once a reflexive re-living and a reflective*
> *appropriation of something meaningful: a notion by*
> *which a reader is powerfully animated in his or her*
> *own lived experience"* van Manen (1990, p.36).

And so it is that the methodology and research methods framework of van Manen (1990) is fixed within the study and is underpinned by means of the orientation of phenomenology.

The research methods of van Manen (1990) have extended from German philosophy and describe a human science research approach. Van Manen's approach is extracted from phenomenological, hermeneutic and semiotic orientation. That is to say, that to make sense of the lived world and language requires sensitivity to the lived experience, whereby writing provides a reflection of the research process in textual form. Consequently the method of van Manen (1997) is recognised as an important approach in qualitative research in bridging the gap between practice and theory (Crotty 1996). van Manen (1990, p.30), has accredited his methodology with the interaction of six principles.

a)   Turning to a phenomenon, which seriously interests us and commits us to the world;

b)   Investigating the experience as we live it rather than as we conceptualise it;

c)   Reflecting on the essential themes, which characterise the phenomenon;

d)   Describing the phenomenon through the art of writing and rewriting;

e)   Maintaining a strong and orientated relation to the phenomenon; and

f)   Balancing the research context by considering parts and whole.

These six principles provide a framework aimed at gaining a deeper understanding of the nature and meaning of our every day life as we have experienced it van Manen (1990, p.30).

4.5 TURNING TO A PHENOMENON OF INTEREST THAT COMMITS US TO THE WORLD

As a nurse, I belong to one of the largest groups of workers within the healthcare disciplines employed in health related fields. As a novice researcher, being a nurse gained me entry to the profession and through this study I was granted an opportunity to become involved with nine specialist nurses. These nurses, in the context of their professional roles, were able to provide a sense of meaning to their experience of computer technology in the field of nursing within their clinical setting. To this end, as a nurse researcher: I strive to constantly question the way nurses experience the world, hence for research to become a caring act (van Manen 1990).

My initial interest was derived from a liaison between the clinical setting and clinical support units of an inpatient health organisation, located in rural northern New South Wales where I was working at the time of this study. As I worked in this clinical support role, I developed a sense that the clinical support unit staff found it difficult to engage the nursing staff in the clinical setting when the use of computer technology came into play. As an external observer this represented a discrepancy between the perception of the clinical support unit staff, and the lived experience of the nursing staff. Hence it was with this background in mind that the starting point for my study was formed. By directing the study of exploring with

rural nurses the impact of computer technology in the clinical setting it was in keeping with the commitment to remain true to the perspectives of phenomenology. Where van Manen (1990) says;

> "*we must refer questions of knowledge back to the life world, where knowledge speaks through our lived experiences"* van Manen (1990, p. 46).

Thus I have endeavoured to do so.

4.6 REFLECTING ON THE ESSENTIAL THEMES WHICH CHARACTERISE THE PHENOMENON

4.6.1 Thematic Analysis

Once the interviews were completed, I transcribed them from the audiotape as soon as possible, incorporating the non-verbal impressions I had noted. This usually occurred within the same week as the interview had taken place. The use of thematic analysis was employed to gather the meaning of the phenomenon. That is, gaining insight of the core or essence of computer technology in the rural clinical setting. Hence the structure of meaning of the "*lived experience*" van Manen (1990, p.6) involves taking the path of "*reflectively appropriating, of clarifying, and making explicit"* van Manen (1990, p.77), the words of the participants.

For example in the search for meaning of computer technology, I enquired of the participant, what the most significant aspect of computer technology was for them in their clinical setting. They used their experiences and related their stories. For some they were readily able to pinpoint an effect, whilst others found it difficult to find the word.

I have used thematic analysis as a basis for the analysis of the research data from the study. As a process, thematic analysis is concerned with

uncovering themes and in particular those drawn from the participant's voices. Themes may be patterns, designs, arrangements or features that make up the experience. This is described as the "*structures of experience*" van Manen (1990, p. 97), In determining the notion of theme, the words used are "*insightful, invention, discovery and disclosure"* van Manen (1990, p. 79)), to describe the process of unlocking phenomenological themes. Given that they have helped to organise this research and writing, in the same way I have used this approach to help unlock the text of the transcripts provided by the participants. Thus within the study there are four themes, identified and outlined within the subsequent chapters.

Through the act of word processing the transcript, the revelation of providing a textual explanation that reflected on the experiences of the participants at one point in time, evolved. Particular to phenomenological interviews in that they aim to represent the uniqueness of the experience rather than as a generalisation, there is significance to this one point in time (van Manen 1990). At another point in time the commentary offered may be entirely different as the participant moves along their continuum of life experience. In respect of this, rather than identifying causal links, thematic analysis is aimed at organising and describing themes from the interview data. To this end much of the qualitative inquiry stops short of explaining and is concentrated on enhancing understanding (Patton 2002). Hence in this journey there was an inquiry, and a coming to grips with the desire to understand meaning in contrast to identifying outcomes or solutions.

Via the stories of the participants a great deal of data was obtained from which to construct a thematic formulation. From his view of the use of theme, van Manen (1990) outlines, that its purpose is to;

> "*get at the notion, giving shape to the shapeless, describe the content of the notion and always is a reduction of the notion*" van Manen (1990, p.88).

In writing this going back and forth, being here then being there, this going over and over is called "*style*" by Sartre (1977), cited van Manen 1990, p. 132). However Minichiello, Sullivan et al. (2004) calls this effect a spiral. Whereby the technique is used to analyse themes by moving the data up and down a spiral shaped cone.   In the study an effort to achieve the analysis and relay the idea of theme to the notion, a reductionism process was conducted using both style and spiralling techniques.

In opening this door I have set out to create an opportunity to thoughtfully provide an insight, make sense of, and develop an understanding of the life experience of these participants in the realm of their work environment and computer technology.

4.6.2 Uncovering Thematic Aspects

As individuals there is a multitude of expressions or forms that we can use to provide commentary of our lived experience and in doing so are able to share with others a description of those experiences.   These expressions and forms are "*appropriate sources for uncovering thematic aspects of the phenomenon it describes*"; van Manen (1990, p. 92). Nonetheless van Manen (1997) concedes that some sources are richer than others and thus we have a greater capacity to learn more from some people than others. In conducting the interviews for those participants

with more exposure to computer technology, a detailed flow become apparent through their conversations in contrast to a saw toothed progression of conversation heard from those with less contact to it [computer technology].

As a novice researcher I found the situation disconcerting in the beginning as to how the data was to be analysed. Extending from this was the uncertainty of how the themes were to be developed for the study. In an effort to uncover or isolate thematic aspects I have used one of the three approaches outlined by van Manen (1990) that of the selective highlighting. In this approach the text is read and listened to several times and then questions how the "*statements or phrases seem particularly essentially revealing about the phenomenon or experience being described*" van Manen (1990, p.93). The statements are then circled, underlined or highlighted, and thus themes begin to emerge as commonalities are gathered. In reading the commentary I looked for any phases that stood out, and selected some sentences, or parts of sentences, that seemed to reflect a likeness between the nurses' experience.

These statements or phrases were extracted from the text and coded using an excel spreadsheet as a data management record. They were then grouped in "*like patterns*" van Manen (1990, p.93). The coding process continued until all like data were classified and entered onto the spreadsheet. Up to this point, cutting and colouring statements and phrases from a copy of the transcript and physically linking them to the code name of a participant achieved conducting the data extraction

manually. Lincoln and Guba (1985) tell us that the task of integrating the various textual components of a study into systematic categories is difficult and that no infallible procedure exists for performing it.

The process of coding continued until all data were classified and then were grouped into clusters of similar topics. The clusters and codes were grouped to reflect themes or a thematic statement, and as the analysis progressed, were captured in more phenomenologically sensitive paragraphs. This, (van Manen 1990) warns us, is not a mechanical procedure, rather it is a "*creative hermeneutic process*" van Manen (1990, p. 96)

The initial coding yielded 398 codes (e.g. skill and knowledge). During further analysis, codes were renamed and clusters were formed and relationships between codes were identified. For example, "skill" and "knowledge" were both marked under the cluster of 'education". The analysis continued and where associations between clusters were identified, sub-themes were formed. For example, "education" was merged across the sub themes of "*fashioning the nursing partnership*" and "*approaching an organisational connectio*n" and was then transferred to the main theme of the "*sound of nursing society"*. Each theme was fully described with attention to range and variation with a detailed account of these main themes presented in Chapters Six to Nine.

4.7 DESCRIBING THE PHENOMENON THROUGH THE ART OF WRITING & REWRITING

van Manen (1990) states that "*creating a phenomenological text is the object of the research process*" van Manen (1990, p. 111) and so I had to

create a text that served a dual purpose. This is because on the one hand, to explain what it is that I have done required committing this study to paper, whilst on the other aligning the study to the research question. I found there was no set formula to achieve this and as I reflected on the processes I had used. I realised that, up to that point, writing had already been an integral part of my purpose. As the interviews were being conducted they were then transcribed and written to hard copy. Accompanied by my notations of non-verbal language and impressions gained at the interview, the data was built up into a file that might loosely be called a journal.

Nonetheless the text needed to include a fair and honest representation of the rural nurse participants' experience, along with the ability to make sense to those who chose to read it. Beyond this the text needed to be robust in its research context and be able to further enrich the understanding of the nursing profession.

Although Phenomenology has been described as "*a method without techniques"* van Manen (1990, p. 131) has outlined a step like process to the methodology that is oriented to cultivate thoughtfulness. The steps are outlined in the following paragraphs.

4.7.1 Sensitive Understanding

This means that as writers we are orientated to the notions of the lived experience through "*a form of consciousness that provides a measure of depth of things"* van Manen (1990, p. 124). The aim is to embed the themes into the text so that, as a reader, one may recognise the features of the experience in one's own life. Writing gives sight and substance to

our thoughts and as an example, I relate the following explanation. When a nurse is exposed in a crisis event involving a patient, there is a sense of altered time in the lead up to it. There is a sense of being in slow motion with not enough time to fully prepare for the event. In the midst of the event, the perception of time can be slow, whereby minutes seem like hours. Then in review of the event, the comparison of real time as a measurement is reflected as much shorter than the "*felt time*" van Manen (1990, p. 104) of hours. This shrinking of time may make the nurse feel that time is flying by much faster than it should. Alternatively the elongation of time may make the nurse feel time is passing much slower than it should.

4.7.2 Measure Thoughtfulness

This addresses and acknowledges the lived experience and aims to extract it from the internal to the external so it can be phenomenologically reflected on van Manen (1990, p. 127). Writing gives a sense of not knowing what we know until we have written it down and this places us in a more universal sphere. For one participant this was measured when she remembered the very first day that she received her new computer. There was a sense of bewilderment as she remembers sitting on the chair, just looking at the computer and thinking: "**I don't know where to start with this.**" The textual emotion bought about an understanding that the essence of her surprise was in realising that until that moment, she had never seen a computer before that was not already turned on and working.

4.7.3 Ability to See

This confronts us with what we know and aims to deepen our understanding of everyday life. Not only does it confront us but it also shows us the limits and boundaries of what we see. Thus it mediates our knowledge to see the significance of textual events. Hence as a reader I may choose to ignore it, nonetheless it has the ability to empower me with knowledge (van Manen 1990). However for another participant when someone shows her how to do something on the computer, for example adding an attachment to an email, she writes it down and practices it. When she succeeds in mastering the task she then **"does a twirl in her head"** or a mental dance and "**smiles to herself"** as a reward for a job well done.

4.7.4 Showing Something

The phenomenological text has a responsibility to disclose what it is like to know and aims to show us how knowledge is held and expressed. As a reader, one needs to be attentive and responsive as the phenomenological text "*means more than it explicitly says*" van Manen (1990, p. 131). A third participant demonstrated this step, and talked about being really scared initially. She felt she could not do this, using the computer was just too much. But she did use it and she drew on her existing knowledge and skill and wrote out steps and keystrokes until the task became familiar to her. **"She laughs now as she explained the problem was that the steps were not always that easy to find".**

4.7.5 Writing & Rewriting

In crafting a text the approach of going back and forth by applying various levels of questioning and interrogation resulted in the writing and rewriting of the text. This "*rethinking, reflecting and recognising"* (van Manen (1990, p. 131) constructs layers and adds depth to the text. The fate of the text is in the hands of the reader, as only the reader will decide if it is of sufficient quality and significance to provide a deeper understanding of nursing informatics in the rural clinical setting.

I am hopeful that this writing is a reflection of the relationship between the nurse participants and myself, and is of relevance to nurses in the clinical setting. To this end the text is an endeavour to serve some benefit to the nursing profession in the way of positive change.

4.8 ORIENTATING THE ANALYSIS & RESULTS

4.8.1 Introduction

This section introduces the themes that describe experiential and subjective meaning to the impact on rural nurses of computer technology in their clinical setting. This chapter is designed to guide the reader to the overall results of the analysis and the interpretation of the data. The use of van Manen (1990) phenomenological methods was employed. They are outlined as four conditions of evaluation criteria for a phenomenological text. These conditions include that the text must be "*orientated, strong, rich and deep"* van Manen (1990, p. 151).

4.8.2 To be orientated

To be orientated is to remind ourselves where we stand in life. As a nurse this engagement is an appeal to how we understand things, and

understand ourselves as nurses (van Manen 1990). To be orientated as researchers van Manen (1990) says "*that we do not separate theory from life, the public from the private* van Manen (1990, p. 155)*.* Hence as nurses and researchers we need to think about nursing; how we observe, listen, relate and practice and then draw life and research more closely together.

4.8.3 To be strong

Being strong is to clarify the notions and aim for the strongest understanding; interpretation and formulation in the practice of research (van Manen 1990). The construction of the text incorporated the use of the ideals of concurrent data analysis and interpretation, review of current literature and research, and interview data from the participants. Subsequently these activities were all undertaken to provide further explanations of what it is like to be a rural nurse and live with the utility of computer technology in the clinical setting.

4.8.4 To be rich

In an effort to capture the appeal of the nursing world and the actions or events of experience, excerpts of the transcripts from the participant interviews have been included throughout the text. These "*phenomenological descriptions*" van Manen (1990, p. 152) are used to provide rich description as translations and are designed to engage and involve the reader. To this end they give insight into how inferences contained within the text are made. The participant's experiences and their reflections on their experiences are written in font style **"arial and bold"**. This inclusion will enable the reader to view the original data in

context, hence supporting the analytical and interpretive process that has been used. The sequence of events has been outlined in the index of this study to encourage the text to flow and allow the reader to follow the progression of the study.

4.8.5 To be deep

In order to better understand the deeper meaning or significance of human experience, phenomenological research "*borrows"* the experience and reflection of others (van Manen 1997). So I have incorporated "*rich descriptions"* van Manen (1990, p. 152) from the experiences of the nine participants who were interviewed.

A selective or highlighting approach was employed to obtain a phenomenological textual description. This process is discussed in greater detail in the chapter 4.6.2 Uncovering Thematic Aspects (van Manen 1990).

The opportunity was taken to examine each interview carefully and identify textual sentences, part-sentences or phrases that could be themes of the experience. The use of the participants' text in this way does not always allow for the capture of pauses, silence, body language, changes in voice pitch and tone, laughter or tears. Therefore it must be acknowledged that in a faithful reproduction the,

> "*Readers should be given the participants text in the language, feelings, emotions, and actions of those studied*" Denzin (1994, p. 511).

In contrast;

> "*we are less concerned with the factual accuracy of the account than whether it is true in our living sense of it*" says van Manen (1997, p. 94).

In consideration of the reader I have chosen at times to either add or remove these elements to facilitate the ease of reading the transcripts. This action has also been engaged to protect the confidentiality of the participants.

The information areas under discussion have been arranged in thematic order to present the data analysis and interpretation in a useful way. This provides theme-by-theme access to the different perspectives on the experience of rural nursing and computer technology for the participants in this study. This approach provides a space for the reader to reflect upon the significance of each theme in isolation and as part of the whole.

4.9 METHODOLOGICAL CONNECTION

For the participants, the impact of computer technology means essentially, working with the phenomenon of computer technology. Maurice Merleau-Ponty's (1962) classical work "*The Phenomenology of Perception*" cited van Manen (1990, p. 103) outlines four categories of inquiry.

4.9.1 The Lived Body (Corporeality)

The Lived Body (corporeality); and as such "*we are always bodily in the world*" van Manen (1990, p. 102-103). When we first meet a nurse in the ward environment it is through their physical presence that we engage them. The body changes the shape of what is seen depending on the circumstance; thus the body reveals and conceals the nurse. In this existential, the body explores the work role and status of the participants in relation to physical and emotional encounters they have experienced with computer technology.

4.9.2 The Lived Space (Spatiality)

The Lived Space (spatiality); signifies a place where there is a sense of belonging and being what we are. Lived space has the ability to make us feel small, isolated, and alone and lost in some situations; nonetheless bring a sense of comfort, security and contentment in others. The lived space provides an essence of identity and in contrast social or cultural space looks at the amount of space we need around us. However for some processes such as reading and writing the lived space is integral to performance and achievement. A modern turn of phrase used to describe this is often referred to as the "*comfort zone*". Spatiality, in the context of this study, refers to a clinical environment in an inpatient setting of a rural hospital and the value that participants attach to this space where they work and live.

4.9.3 The Lived Time (Temporality)

Lived Time (Temporality); denotes the concept of time, and relates it to the "*past*", "*present*", and "*future*" van Manen (1990, p. 102-105) times of a person. It is time that appears to speed up or slow down, depending on the current mood, and relates to an individual's age through dreams of the future, or memories of the past. It shapes the essence of where we are going and where we have been, and is subject to change as it shapes our perspectives and future. Within the study, temporality denotes the concept of time, and relate to the "*past*", "*present*", and "*future*" van Manen (1990, p. 102-105) times in the lives of the participants. The concept in time is further expanded to the sense of personal, private and

public time of the individual nurse participants. This means how the unique characteristics of time influence the individual existence

4.9.4 The Lived Relationship (Relationality)

The Lived Other (relationality); refers to the relationship shared with others and how others are presented to us. The sharing may be on a physical, emotional or spiritual plane to name a few, hence influence how we perceive others. We develop pictures of people we have never seen or met, and when we do meet them our pictures are confirmed or negated when compared to our expectations. Relationality in the context of this study indicates the relationship that participants have with co-workers who form the matrix of interactions in their day-to-day working life.

4.10 THEME FORMS

Together the themes form, "*an intricate unity*" van Manen (1990, p. 168) that draws together the experience of living with the phenomenon of computer technology. The shape of the themes will be described by using a botanical reference represented by a flower as identified in Chapter Five. The stem of the flower is the rural nurse, providing the essential flow of life for the survival of the plant, along with flexibility, endurance and support. Computer technology is the floral centre, and is made up of a multitude of diverse entities and parts that are at the mercy of the elements however are capable of a level of survival in isolation. The petals and leaves represent the themes; they are connected and flow through the veins of the flower; nonetheless there is no suggestion they are uniform and neutral. At any given time the different parts of the flower may dominate in size, space and importance; even though when viewed

as a whole, the flower may appear in proportion and balance. For example, spatiality themes may mark the start of the computer technology experience, whilst aspects of relationality themes may emerge when the participants talk about the needs of rural nurses in the clinical setting. Eventually, all of the participants may establish a pattern where the flower appears to be more or less in balance, without one part being much more significant than another. The overlap and intersection of each petal and leaf shows that the themes are interdependent and mutually supportive. The following chapters are detailed discussion of each of these themes.

4.11 CONCLUSION

The research methodology chapter has been developed utilising van Manen (1997) six research activities. These activities have been used as a framework method to seek the experience of rural nurses in their work setting as it incorporates computer technology and links their experiences through analysis and interpretation.

CHAPTER 5 INTRODUCING THE PARTICIPANTS

5.1 INTRODUCTION

This chapter introduces the rural nurses whose lives are central to the study, and whose shared experiences of nursing, give groundwork for the foundation of the study.

The first part of the chapter provides a geographic impression of the typical rural city, surrounding local area and the clinical services provided by the rural health service where the study was undertaken. The second part of the chapter provides an outline of the substance surrounding the participants. This forms the backdrop to the scenarios in which they work, before moving on to describe the characteristics of the nine participants.

This chapter provides only a snapshot of each participant, focusing particularly on the uniqueness in each nurse's experience. Various issues, such as the impact on everyday work life, and their social relationships within the clinical environment, will be woven into their experiences. Rather than a representation of them, the purpose of this chapter is to provide an illustration of, and an insight into, the participants in the study, The analysis and interpretation of the data, using van Manen (1997) research methodology, will be presented in the next four chapters.

These experiences are presented in a condensed commentary of each of the participants within their individual situational context. It also presents some of the experiences that the nine study participants revealed during the interviews. The text for each condensed commentary is arranged in a similar order; nonetheless the experiences were those of the person as disclosed in the interviews. The banding together by the different people

in this study and how they have woven their lives together is represented in this chapter. However, there is no claim that the accounts present a simplistic depiction of their nursing life. As pointed out:

> "… o*ur lived experience and the structures of meanings in terms of which these lived experience can be described and interpreted, constitute the immense complexity of the lifeworld. And, of course we can even speak of the multiple and different lifeworld that belong to different human existences and realities*" van Manen (1997, p.101).

This means the condensed commentary should serve as an introduction to the rural nursing life, by the individual participant, as they see it.

5.2 GEOGRAPHY AND DEMOGRAPHY OF THE STUDY SETTING

Governments worldwide are proponents of the introduction of computer technology to increase access to healthcare and reduce the impact of a declining and aging nursing work force. Through programs such as HealthConnect (2005) computer technology is being implemented in rural centres throughout Australia. The aim is to improve access for health consumers where issues of recruitment and retention of nurses has left gaps in health services. Nurses work within a variety of locations in both rural and metropolitan centres; however the rural nursing workforce has significantly different challenges to those of our metropolitan cousins. Therefore, in rural Australia, importance is attached in establishing links between the phenomenon of computer technology and the impact it is likely to have on the nursing profession. In line with the methodology chosen for this study, it is appropriate to draw a picture of the geographic setting in which the study took place. A word map description of the area may help the reader to form a mental picture of the regional landscape.

Hence, facilitating an understanding of where the participants work and live.

5.2.1 The Rural District

The nurses who participated in this study are all registered nurses who live in a rural region. Like may rural regional council areas within New South Wales it was amalgamated with other smaller regional councils in the surrounding area in 2004. This has resulted in the amalgamated rural local council serving populations across an expanded area. The new rural local council area now serves a population base of approximately 50,000 to 70,000 people.

Similar to others the rural areas there are four major highways leading to all points of the compass. It is approximately five hours driving time from the nearest major metropolitan area and has a geographical diameter that takes up to six hours of driving time to traverse.

Its physical location encompasses a mountainous area expanding out to create a wide floodplain through the city and its centre. Hence it is severely affected by flooding and drought on a seasonal and cyclic calendar. This is typical of many larger rural towns and cities where proximity to a large secure water source is vital to the survival of these centres. The climate is conducive to a rural outdoor lifestyle. Like much of Australia, the summer season generally has the highest rainfall accompanied by high temperatures ranging from 30 C to 36 C in summer. There is a sharp climatic change in winter with seasonal average temperatures dropping to 17C and below.

The economy is diversified however agriculture remains the backbone of this rural economy. It is estimated that in some rural towns over 300,000 hectares of land is devoted to agricultural production, with the gross value of this production estimated to contribute over $75 million to the local economy. Core agricultural activities include beef, sheep, grain, dairy, poultry and lucernes production. There has been a growth of boutique agriculture ventures including olives, vines, nuts, specialised poultry and fish farming, hydroponics, goats, alpacas and berries. These boutique industries are not dissimilar to those undertaken in other rural cities. The rural area has a large poultry industry along with intensive animal and meat production with expansion into pork production.

Like the national trend, the human profile is one of an ageing population and most employed people are employed in the retail sector. Like other rural cities the combined health and community services sector makes up one of the largest employers within the community. The manufacturing, agriculture, and education sectors make up the next three largest workforce pools.

5.2.4 The Rural Hospital

Rural Referral Hospitals in New South Wales provide the majority of acute care with in the rural area health services. They also provide the base for local specialists to supply outreach and consultation services to district health services and general practitioners.

These major referral hospitals provide an important interface between other smaller rural hospitals and metropolitan tertiary referral hospitals and act as a focus for rural acute health services. The rural referral

hospital provides a range of acute care and specialist services, as well as community health services for the population. There is usually a twenty four (24) hour emergency department. In addition surgical services include services such as anaesthetics, dental, ear nose and throat, general surgery, gynaecology, ophthalmology, orthopaedics, urology, vascular and plastics (visiting) burns.

Medical Services provided by rural referral hospitals can include cardiology, dermatology, emergency, gastroenterology, geriatrics, intensive care, neurology, nuclear medicine, obstetrics, paediatrics, palliative care, pathology, psychiatry, radiology, rehabilitation, renal medicine, respiratory medicine, rheumatology, sexual health and oncology. Additional services may include mental health facilities providing both inpatient and community services. Outpatient clinics for oncology (medical, radiology, and haematology), antenatal, diabetic, and respiratory diseases, hepatitis c, neurology, obstetrics and gynaecology may also be provided by these rural referral hospitals. These clinics link the local and community health services.

Surrounding area health services are likely to include a community, non-acute health facilities. These may be in the form of multi purpose health centres that provide access to a range of acute and community based services to smaller local communities. Primary healthcare is commonly provided through community health centres with the provision of aged and residential care being catered for by non-government organisations.

Many rural cities have a diverse population density pattern that ranges from rural and remote to a rural industrial city. The city population may

cater for up to 50,000 people when the surrounding shire is included. In some sites there is a low level of socioeconomic disadvantage and unemployment within the local community catchment area and commonly there are several small towns and villages with populations of less than 200 people nearby. It is not uncommon in rural areas that many of these villages have limited community infrastructure and negligible public and private transport available to the residents.

Some of the common reasons for admission to hospital in rural areas include pregnancy, childbirth, injury and poisoning. In one or two of the larger rural centres the Australian Bureau of Statistics (ABS) (2000) Population projections are predicting a slight increase of population and this goes against the negative trends found in most rural towns.

5.2.5 The Rural Referral Facility

To locate a rural hospital a sign the Road Transit Authority uses a white H on blue background. However, many rural hospitals were built on the highest point in the town and are commonly found on hills.   It is not uncommon to have most of the services distributed from the hospital however some community services such as mental health and sexual health may be provided from a shop front arrangement located some distance from the hospital. Alternatively the service distribution may be in discrete buildings spread out over a campus comparable to the size of many metropolitan hospitals. Many rural area's health service major rural referral hospitals have now been linked with universities in an effort to support the health workforce and educational and training needs for rural areas. Nonetheless what is common across all health facilities, both rural

and metropolitan, is limited car parking available close to each of the services.

5.3 THE PARTICIPANTS

Eight women and one man were interviewed. The nurses interviewed were between the ages of 30 and 60 years; five of the participants' age range was 35 to 40, with an additional two being in the 40 to 45 years range with remaining two being in the 50 to 60-age range. The age that is referred to in this study was the age, nominated by the participant at interview, which best described their age.

The participants all live within the rural region and have done so for at least five years. No one had suggested any definite plans for future relocation. It is important to note that, most of the nurses in this study have lived and worked outside the rural environment for long periods within their careers and many have family or connections that tie them to the rural environment. Thus their experiences should not be considered typical of rural nurses elsewhere in rural Australia – nonetheless there may be similarities noted between the experiences of the participants.

Eight of the participants work full time; that is thirty-eight hours per week; with one third of the participants working rotating shifts. All the participants have a dedicated patient workload that is undertaken in conjunction with other parts of their clinical roles. One participant works a permanent part time roster of twenty hours per week. All, except two, have worked for a minimum of five years in their current role, and all have extensive careers within nursing prior to their current appointment. The

two participants who are the exception have worked greater than fours year in their current role.

All participants in this study are registered nurses who had gained experience and/or undertaken additional study to make them eligible to apply for their current roles. These roles include those of Nurse Unit Manager, Clinical Nurse Consultant and Clinical Nurse Specialist.

The Public Hospital Nurses' Award August 2002, New South Wales Nurses Association, provides a broad definition of the three categories of the nurse participants in this study. Outlined from an industrial perspective are some essential characteristics of these roles (NSWNA 2002-2005). These definitions provide a description of how the participants may have advanced through the professional pathways of nursing, and add to the depth of their scope of practice.

According to the NSWNA, a Registered Nurse means a person who has undertaken an accredited course of nursing study at an approved institution, and is registered by the Nurse's Registration Board of NSW to practice as a nurse.

The registered nurses who participated in this study have acquired skills and qualifications as they have advanced on their nursing journey, which have made them eligible for specialist recognition. The specialist recognition is reflected in their industrial award via three streams; those being the nurse specialist, the nurse consultant and the nurse unit manager.

The NSWNA (2002-2005) defines a clinical nurse specialist to mean a registered nurse with relevant post-basic qualifications and twelve months

experience, working in the clinical area of specified post-basic qualification, or a minimum of four years post-basic registration experience; including three years experience in the relevant specialist field, and who satisfies a local criteria.

The nursing unit manager stream means a registered nurse in charge of a ward or unit, or group of wards or units in a hospital or health service. This classification commences at level one, and in addition denotes the responsibilities for this role. At this level they must be responsible for the coordination of patient services, and specifically liaison with all healthcare disciplines for the provision of services to meet patient needs, the orchestration of services to meet patient needs after discharge, and the monitoring of catering and transport services (NSWNA 2002-2005).

Included in the responsibilities of unit management in particular are those of implementation of hospital/health service policy, dissemination of information to all personnel, ensuring environmental safety, monitoring the use and maintenance of equipment, as well as monitoring the supply and use of stock and supplies and cleaning services. In addition there are the responsibilities for nursing staff management with direction, co-ordination and supervision of nursing activities, training, appraisal and counselling of nursing staff, rostering and/or allocation of nursing staff, and the development and/or implementation of new nursing practice according to patient needs (NSWNA 2002-2005).

As nursing unit managers level two, those responsibilities in relation to patient services, ward or unit management and staff management are in excess of those of a nursing unit manager level one. To achieve the

nursing unit manager level three, those responsibilities are identified as being in excess of those of a nursing unit manager level two (NSWNA 2002-2005).

The clinical nurse consultant stream of the NSWNA (2002-2005) defines a clinical nurse consultant grade one to mean: a registered nurse appointed as such to a position approved by the area health service, who has at least five years full time equivalent post registration experience and in addition who has approved post registration nursing qualifications relevant to the field in which they are appointed, or such other qualifications or experience deemed appropriate by the area health service. Furthermore to reach grade two, the clinical nurse consultant must have with at least three years full time equivalent experience in the specialty field (NSWNA 2002-2005).

To achieve the status of a clinical nurse consultant grade three means: a registered nurse appointed as such to a position approved by the area health service, who has at least seven years full time equivalent post registration experience, with at least five years full time equivalent experience in the specialty field. In addition an employer may also require a higher qualification in the specialist nursing field where such a qualification is considered essential for the performance of the individual position (NSWNA 2002-2005).

The nurses in this study have had experience in what could be described as general hospital based nursing. This means working in a hospital setting with an in-patient based healthcare consumer focus. Within this environment they have worked in the broad settings of chronic care and

acute care nursing. From these broad settings the nurses are now working within a recognised specialty area. The range of specialties includes renal, paediatrics, surgical, operating suite, intensive care, rehabilitation, diagnostics, pain management and orthopaedics.

An important and defining aspect to this study was that some participants experienced computer technology fairly early in their careers, whilst others had a slower subtler introduction. Those nurses working in the acute care specialty area of diagnostics, operating suite, intensive care and pain management experienced contact with computer technology on a daily basis. In contrast, those nurses working in rehabilitation and paediatrics used computer technology less routinely.

The discussion so far has been necessary to establish the diverse nature of the people involved in this study. Many studies require compatibility or correlation between a range of variables such as age, specialty and duration of exposure, gender and, educational abilities, however inherently this study does not.

While the phenomenon investigated is "*computer technology*" - as an encompassing phenomenon - if the participant refers to "*the computer*" or "*PC*", I do so also. Where appropriate, computer technology, nursing and medical terminology will be used when discussing certain aspects of the clinical setting. Using double quotation marks and "arial bold font" has highlighted where I have used the participants' voice in the text.

The name of a flower is used as a pseudonym for each of the nurse participants. Flowers provide a conduit essential for the cycle of life. Flower names were chosen as flowers have artistic, scientific and

practical properties that support many aspects of life. In addition they are assigned mystical and spiritual attributes, which lends support the cultural belief systems of communities' worldwide. Hence, flower names have been designated with characteristics and properties and are an ideal choice to use to protect the privacy of the participants within this study.

In order to illustrate the phenomenon and provide some context for the reader about the life of rural nurses' interaction with computer technology, I have chosen to begin the next section with Hyacinth's experience.

Firstly, Hyacinth is a nurse who if stereotyped would reflect the image of a typical charge nurse of the nineteen forties. These charge nurses used to be frequently encountered by all clinicians in clinical settings up until more recent times. Furthermore, Hyacinth's experience of living with computer technology, in particular the detailed particularities presented by her, exemplified for me a unique sense of meaning on what it is like to experience computer technology in a clinical setting. The final reason to expand on Hyacinth's experience initially is that nurses such as Hyacinth are becoming less common in Australian nursing.

In line with the methodological structure of van Manen (1990) human science inquiry as pursued in this study,

> "….*the aim of a phenomenology is to transform lived
> experience into a textual expression of its essence*'
> moreover has this "*methodological feature of relating
> the particular to the universal, part to whole, episode
> to totality*" van Manen (1997, p.36).

In this sense, the text of Hyacinth's whole life has incorporated her experiences of her professional life. The section includes Hyacinth's

reflection of her lived experience of computer technology in the clinical setting.

To provide a complete commentary of the nine participants would mean an excessively long dissertation, nonetheless in appreciation of their stories, to exclude their voices from this section would devalue their experience. The condensed commentary offers a glimpse only on several aspects of nurses living within their clinical setting. They are intended to give the reader an overview of the participants' experience and scope of practice. How these computer technology experiences are created, shaped, and made meaningful will form part of the next four chapters.

The participants are not presented in a specific order and all names used are pseudonyms, with the omission of some details, in order to preserve confidentiality. In an effort to maintain confidentiality for the participants, the names of flowers were used as alternatives to the person's real name, for example, 'Hyacinth". When searching for a pseudonym for the participants, I found flowers to be especially interesting as they belonged to families, were generally without gender, and were dedicated with characteristics that reflected personality traits. Each person's extract begins with a description (in *Italics*) of the clinical site and my observation of some of the particularities of each participant.

5.3.1 Hyacinth

The flower name chosen for this participant reflects the characteristics of the hyacinth; benevolence, playfulness and faith, thus Hyacinth was named. Hyacinth spends her working day moving around her clinical setting. Her clinical setting is located on two levels; one above the other,

and this involves much walking up and down stairs. This clinical setting revolves around the patient services area, where there is a reliance on high technology equipment used to support the healthcare needs of patients and clinicians in the shape of work laboratories. This space is very much the domain of Hyacinth.

The first thing you notice about Hyacinth is a sense of strength, an **"old girl"** *no nonsense, gets on and gets it done, sort of person. She is tall and big boned, but not overweight, with a slight stoop to her shoulders that gives the appearance that she has supported much weight and burden over the years. Her hair is white and she has a visual arthritic shape to her hands and constantly massages her fingers like a nun with rosary beads. Her stern expression is lost when she smiles and laughs - like an iron fist in a velvet glove. Viewed from another side Hyacinths' image reflects the archetypical of a nun.*

The interview takes place in one of the work laboratories as Hyacinth warns me **"at this time of day it's the only quiet place around here**"*.*

There is no-one else in the unit; however despite this, the work laboratory setting is bristling with the hum of computers and high tech computerised equipment designed to probe and invade and explore the human body. The work laboratory is bright and clean and at the desk where we are sitting there are two flat screen computer monitors. As she sits at the desk Hyacinth fiddles with the computer keyboard waiting to show me what it is she does.

Hyacinth is the oldest nurse to be interviewed for this study and she volunteered to participate after she had read the advertising for the study.

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Hyacinth spoke about volunteering and felt that perhaps she was not the best candidate; nonetheless she felt it was important for nursing in general that an analysis of computer technology for nurses be looked into. There is a small tape recorder that rests on the desk between us. It is positioned so the tape recorder does not distract either of us.

Hyacinth has been a nurse for a long time, most of her career she has spent in the rural environment, in the inpatient hospital setting and for the past nineteen years in her specialty area. Hyacinth started out in this arena as a clinical nurse specialist when there was only one nurse, and the role has grown to include up to major specialty patient services.

Hyacinth identified that there were immense changes in this specialty area of service. **"It's probably one of the biggest changes in nursing as a nursing role".** When she was training there were technicians who transported the patients down to her area to have specialist treatments. Over the years the speciality area expanded to introduce more and more sophisticated procedures. About eighteen years ago when she started nursing in her specialty area, one of the doctors, along with Hyacinth, started up what was then a cutting edge specialised patient service. It was a spur of the moment thing; they just decided, and then did it. Hyacinth went down to Sydney for two weeks training, and then came back and started the service. When they added the most recent work area; that was a huge complex undertaking, and was very different from how they had set up services in the past. For Hyacinth the current organisational situation wasn't quite the same as the old ways of **"just doing it"**.

5.3.2 Lilly

*In choosing a flower name for this participant the characteristics ascribed
to the Lilly of majesty, wisdom and humility is reflected hence Lilly was
named. When I first arrived outside Lilly's office I saw a slim tall door next
to a large electrical service panel and on the other side was a door stating
public toilet. The office door was located adjacent to the lift on the second
floor of the main hospital building. There was constant foot traffic from
staff, visitors and patients past the door, along with the trolleys and wheel
chairs with patients and goods that supply the clinical areas on that floor.*

*Upon knocking on the door it was opened by Lilly and my first impression
of Lilly, was one of fragility. Had I not previously seen Lilly at work in her
clinical role, I might have easily mistaken her for a patient. Lilly is tiny in
stature and pixyish in physical appearance. Lilly is the second eldest of
the nurses interviewed and has a serious expression on her face. She
had a slightly shaky voice that adds to the impression of fragility. Her
physical appearance belies the strength that is almost palpable once she
smiles and reaches out to invite me in.*

*She invited me through an isthmus that was the narrow door into a small
office area containing a desk, bookshelves and two chairs along with a
larger than life computer. Lilly refers to this large computer monitor
screen with an open hand many times during the interview. There is a tall
window that overlooks a courtyard roof on the ground level and at eye
level out to the hills and sky. She apologised for the cramped conditions
and explained her office was a converted staff locker room and it had
previously been designed to hold a wall of lockers and an access door to*

get to them. She had a bit of a laugh as she explained that at least her office was not a converted toilet as was the case with the nurse educator from a ward close by. After briefly explaining the study again, she said that she had no immediate questions. I turned the tape recorder on, with the volume knob turned up on maximum to capture her story.

Through the progression of working as a registered nurse in the ward, Lilly came into her current role. She was one who typically carried out rotational shift work. In developing the role she had a few ideas about what she would like to do, and so started by forming education programs in her specialty area for the nursing staff of the facility, and later for staff across the area. She built on these educational programs by delivering them on a needs basis, and also ran some education sessions in the form of seminars. In addition to this she developed and printed educational material to support what was being taught. Another important part in her role was patient education, which she conducted via specialty clinics. This specialty has developed over the last five (5) years due to an increase in the number of older patients requiring surgery, along with developments in technology. The specialised clinic approach has experienced an increased growth, as all elective patients within her specialty must now attend in preparation for their day of surgery. Lilly described this as being a big learning curve for her patients, as education is now conducted at this time through this clinic. Lilly says:

> "*That is basically that's how we have grown, with the most important areas after that being quality and research and we get that done when there's time*".

5.3.3 Daisy

*In choosing a flower name for this participant the characteristics ascribed
to the Daisy of loyalty, innocence, affection and questioning is reflected
hence Daisy was named. If Lilly's demeanour was one of seriousness,
Daisy's is one of openness. Daisy could best be described as what you
see is what you get. There is an air of light dishevelment about her and
along with a buxom appearance that hides her passion for nursing. I
remember the first time I met Daisy; breathless and running late,
disorganised and unapologetic. In her conversation style she sometimes
mixes her metaphors but she is always redeemed by her innocence,
transparency and genuine love of the work she does. Her eyes have a
hint of a mischievous sparkle and her quizzical facial expression reflects
a wonder at what all the fuss is about. The interview with Daisy took place
in my office at my home late one evening. I began to explain carefully the
purpose of the interview, and soon the tape recorder was rolling.*

Daisy started her nursing career via a university undergraduate degree
program. She has worked at the hospital for the past fourteen years and
within her specialty area over the last seven. She has predominately
worked in the inpatient hospital setting since graduating, and moves
between the acute and chronic care ward areas. The range of clinical
settings she has worked in include intensive care, emergency, general
medical surgical and rehabilitation. These days she still undertakes the
occasional shift in these areas however predominantly works within her
specialist service. She works shift work on a rotating roster and in

addition to her clinical load she provides support for both patient care and administrative functions within her clinical area.

5.3.4 Daffodil

The flower name chosen for this participant reflects the characteristics of the daffodil; joy, contentment and longing thus Daffodil was named. My interview with Daffodil took place at her home on an estate approximately 15 minutes outside of town. I spent a while driving around as I was unable to find the house even with directions. I stopped to ask directions of the first people I saw and then entered the estate via a gate, down a dirt driveway leading to the house. There were quite a few animals around and it was with some trepidation that I got out of my car and knocked on the door. The light from the opened doorway along with the rush of warm air and the welcoming smile invited me inside. The welcoming smile was on the face of Daffodil but my first impression on that day of Daffodil was one of melancholy. In my previously encounters with Daffodil I had not associated this impression with her. Daffodil is of medium height, is slight in stature and with long hair and a pale complexion that gives her a waif like physical appearance. She has a slightly high-pitched voice that adds to the waif like impression. Her strong psychic energy, along with the skill and knowledge in her specialty contrasts with her appearance once she starts to talk about her work. Daffodil had recently built her house and she was very proud of her design and the privacy it offered her. Although it was just on dark the living areas provided the promise of a 180 degrees vista of the

surrounding landscape. After a tour of the house and some refreshment

we started the tape rolling.

Daffodil described her nursing role as very interesting with never a dull moment, and where every day is totally different. Daffodil plans the core work, which is the structured work, however, the nature of the patient population, the diversity in their co morbidities, residential location, and the fact that there are not a fixed number of beds in the ward, makes it difficult to gauge what work is going to come in and go out. In her role Daffodil identified a wide range of skills that are desirable and there is a need to be very adaptable. Daffodil explains that:

> **"You may go to work with an idea of what you are going to do for the day, and wind up doing something completely different. But you still have to catch up and get your routine work fitted in somewhere"**.

Daffodil describes how she managed three aspects of the service. There are people who turn up on the door step acutely unwell and need to get sorted out in a hurry lest they quickly become intensive care patients; these are the acute patients. On the chronic side of things, depending on what people select for their long-term care, this is a point where the patient's take up the various therapy options. If they decide they are capable with certain therapy options, they may enter onto a chronic and long term care management program. A significant difference with the third arm of the service is that people can withdraw from active treatment if they wish, and this represents a palliative side of the service. The options for patients in this service were limited to lifelong therapy, transplantation or death. Daffodil explained about a transplant as being

just another treatment modality, so a patient can be classified as acute or chronic long term with that option. According to Daffodil:

 *"***Once we get you, we got you for life***"*.

5.3.5 Iris

The flower name chosen for this participant reflects the characteristics of the iris; wisdom, flame and pleasant thus Iris was named. Iris was the first participant I was to interview for the study and I drew a deep breath as I approached her office. Iris's office was tucked way on the edge of a busy corridor with a lot of traffic as the corridor connected two main clinical areas. The entrance was a glass door and after I tapped on it tentatively a welcoming face greeted me with a slightly nervous smile.

One of my first impressions of Iris was that of confidence; there was no mistaking her ability to get things organised to the minuet detail. Although she is of medium height she has a presence that makes her seem larger than life. Iris is in the 35 to 40 year age group and leaves you in no doubt that she is deadly earnest about what she does and her role as a patient advocate. She has a strong clear voice that adds to the overall impression.

She invited me in to a good-sized office area containing desk space, bookshelves and two chairs along with a computer on a separate worktable. Like Lilly, Iris refers to this computer monitor with an open hand many times during the interview. There are no windows in the office hence all the light is artificially supplied by fluorescent light placed in a high ceiling. The bench and desk space is covered in folders and paperwork and she apologises and explained she has only recently been

moved into this room and will shortly have her office space organised. After recapping and explaining the study again, we set up the tape recorder, tested it and then we started the interview.

Iris developed an interest in her specialty with the work that she had undertaken in the major surgical ward of the facility and progressed to a clinical nurse specialist in 1995 to 1997. She conducted quality programs at ward level for the nursing staff and started attending conferences and interest groups seminars and developed her interest that way. With the help of the anaesthetic department a pilot study was undertaken in regard to setting up a specialty service. After the three months trial, nursing staff and patients were surveyed and a 98% and 100% satisfaction rate was achieved. Through a slow process the service was eventually developed. The function of the service is based on both a clinical and administrative component. There is direct patient consultation undertaken for assessment, evaluation and review of individual needs. The continuation of the service is dependant on the upkeep of the administrative components of managing the data and service outcomes. Policy and guideline development, along with research into new and alternative techniques are additional to this service function.

5.3.6 Geranium

The flower name chosen for this participant reflects the characteristics of the geranium; melancholy, preference and friendship hence geranium was named. The clinical setting for Geranium is a busy general surgical ward. The patients move and flow through this area at a fast and constant rate. Geranium did not initially consider volunteering for the study

however reconsidered after receiving a second expression of interest for the study. My interview with Geranium took place in the office she shared with the manager of the adjacent ward. She needed to book the office for the time of the interview. There were several attempts by staff to gain access to the office area whilst the interview was taking place. In one instance we suspended the interview due to the persistence of a staff member trying to access the room.

The office area was small with two desks, a couple of small filing cabinets and a communal printer. There are no windows and the office is located in a corridor between the two large ward areas. Geranium is small and trim in stature, with short dark hair and a pale complexion that was characterised by the impression of a speedy, hurried, brisk presence. Her facial expression ranged from stern to serious and only occasionally did her smile reach her eyes. She has a firm confident voice that supports her strong energy; nonetheless a sense of isolation was exposed once she started to talk about her work. The tape recorder was positioned on the desk between us.

Geranium explained that she used to work in a similar position in the private health sector prior to taking on this job. The ward is a busy area with a high level of patients passing quickly through. At one stage there was a point when she had two management days a month where she could have time to do the management functions of her role. The remaining time was devoted to clinical work. More recently the management time was increased so she could have four days a month but only one of the extra two days was able to be backfilled and for the

other eight hours she could not replace the staff. Essentially this means she has three management days per month. On those management days she is rostered off the ward completely. Geranium relates more so than ever during the normal working days; you would never be able to get a couple of hours to come to the office and get things done.

When she first started the new job, she was able to spend and hour or two in her office each day to catch up. She explained she was very organised. Geranium says:

> **"I love the job because there is still that clinical element there and I don't want to sit in an office but it would be just nice to be able to do it without the chaos"**.

She explained that if she was told that the job was to be one hundred percent management, and she was required to work in the office, then she would not be prepared to do that. She very much liked working with her patients and being in touch with the clinical stuff.

5.3.7 Violet

The flower name chosen for this participant reflects the characteristics of the white violet; candour, modesty, thought and faithfulness thus violet was named. One the many different surroundings in which interviews were conducted was a room that was booked in the community health building located on campus. The interview with Violet was undertaken in the community health space as she did not have a dedicated office area. She wanted to be able participate on her way home from work and so this offered the opportunity to be free of work interruption and hear her story. The room was located off to the side of the foyer just inside the main entrance of the building. We could hear some noise from the passing foot

traffic outside and as the walls were clear glass and partially screened off

we could see the people passing on their way to their immediate future.

Violet is tall and has a solid but lean physique. Her gaze is stern and

serious like that of Geranium however her whole face relaxes into a

gentle and tender expression when she smiles. Violet has a strong voice

and a conversation style punctuated with sudden stops and silences, as

she seemed to weigh every word with care. Violet constantly moved and

shifted position leaned forward and back in her chair and laced her

fingers and hands. The high level of nervous energy increased when she

was explaining a situation that was of passionate interest to her.

Violet has worked in her specialty area in both metropolitan and rural

settings. She is currently in a management role, and has worked in this

specialty area for the last five (5) years. Violet finds this role challenging

as this area also has a high number of patients through its doors. In

addition violet has only three dedicated management days in which to

undertake the role and the rest is dedicated to a clinical role. Although her

work times are seven o'clock in the morning (7am) to four thirty in the

afternoon (4.30pm), Monday through Friday; Violet's time has to be

flexible as the clinical staffing needs take priority.

From an ideological stance Violet believes in the notion that health

services are under funded but not only in rural areas. She expressed

concerns that the cities are under funded as well. She explains from her

viewpoint, that when governments offer tax incentives and the like for the

higher earners, that she would be much happier if she did not get a tax

break. This would be conditional on the money being put back into health

or education and things like that. She states, **"I'd be much - much happier"** with this state of affairs.

5.3.8 Rosemary

The flower name chosen for this participant reflects the characteristics of the rosemary; healing affection and remembrance thus Rosemary was named. The interview with Rosemary took place in the same room as the interview with Violet. The room was bare and unadorned with pale cream walls. There was a large table and six waiting room type chairs that provided a reasonable level of comfort when sitting for an hour or more. There was a small sink, fridge and hot water urn, although Rosemary declined an offer of refreshment. The nurse unit manager of her ward recommended Rosemary as a possible participant after reading the study advertising material. When Rosemary was approached she did not feel she would have much to offer; however Rosemary agreed to be interviewed. We conducted the interview after work one afternoon during the week. Rosemary is of medium height and of lithe build; she has long dark hair with streaks of grey peeping through. She held a tense posture much like she was sitting for an exam. Her conversation was punctuated with a nervous laugh at times, although her voice is high pitched and firm there was the occasional quiver of nervousness.

Rosemary has had a long career in nursing predominately within the hospital setting. She has worked in a variety of settings following graduation from hospital based training and has spent the last fifteen years working in the acute care environment. While she is younger than Hyacinth and Lilly she describes herself as being of **"the old school"**.

She has as her main work focus that of clinical patient care, with her daily routine involving in hands on bedside nursing. Working within a rotating shift roster Rosemary balances her work and home life nonetheless she identifies that as a result there is little time left over for her own professional development. In terms of formal education and skill development she has the ability and desire; nevertheless lacks the time and commitment at this stage in her life to undertake extra work.

5.3.9 Poppy

The flower name chosen for this participant reflects the characteristics of the poppy; charm affection and consolation thus Poppy was named. The interview with Poppy took place in the treatment room of her ward. The door could be secured so people could not just walk in at any time. The room held an examination couch and a chair. Around the walls cupboards were attached containing all sorts of equipment and product that might be needed. In addition there were trolleys and stands and a window that was permanently closed. All the available light was from artificial light and the air in the room was circulated by a small air conditioner. Like Rosemary; Poppy was recommended by the facility manager as a possible participant for the study. Poppy was approached and agreed to an interview, however she too expressed concern that others might be able to provide more information about the topic. Poppy is small and petite in stature and fresh and neat in appearance. She has short blonde hair and her facial expression gives the appearance that she is always smiling as she displayed a calm confident demeanour. The tape recorder rested on

the examination couch between us and her conversation style flowed although there were some thoughtful pauses as the tape rolled on.

Poppy started her nursing career via a university undergraduate degree program. She has worked in the inpatient hospital setting since her postgraduate year when they needed nurses in her specialty area. Although at the time this was the last place she wanted to come, she has been there ever since. Although she works within a roster based on rotational shift patterns and workdays, she provided support as the acting nurse unit manager. In addition to this she is a preceptor for the nursing students, is the asthma educator and fulfils the safety officer function for the ward. That work is undertaken on top of an already busy patient care role. Poppy is a resource person and sometimes she thinks she is the next down the line to do the jobs that no one else wants to do.

5.4 CONCLUSION

This chapter has introduced the nine participants who volunteered to participate in the study. The data collection technique, that is, in-depth interviewing, provided the opportunity to obtain from the participants' a perspective of how they have presented themselves, the context of their work environment and something about themselves as nurses. Although each person's perspective is different, some shared qualities and association are illustrated.

Much of the research relating to computer technology is from a non-clinical perspective with very few studies conducted using a qualitative approach. Whilst much valuable information has resulted, it avoids capturing the different contexts that give rise to different interpretations of

the impact of computers on the daily nursing life and computer. This chapter has already begun to raise some issues concerning the rural nursing experience with computer technology. The next chapter introduces the first of the thematic analysis of this study and is followed by three subsequent chapters that further explain each theme in more detail.

CHAPTER 6 THE SHAPE OF NURSING SPACE

"We have thereby claimed professional ownership of the space between

technology and the patient."

Sandelowski & Barnard (2001, p. 371)

6.1 INTRODUCTION

This theme deals with aspects of the lived space (spatiality) as described
in chapter 4. *"Lived space"* van Manen (1997, p.103) is a category for
inquiring into the ways we experience "*the affairs of our day to day
existence*" van Manen (1997, p.103). It helps uncover the more
fundamental meaning of the dimensions of life. In this regard the
existential of space signifies the clinical setting as the place where the
participants live their working life. In particular, this chapter begins by
characterising the structural environment of the ward. The concepts of
public, private and personal space as spatial themes, which are present
in everyday life is then discussed. Associated with this, are the qualities
of space, which give nursing a sense of identity, when attached to
aspects of computer technology. In the study these spatial concepts of
computer technology in the rural clinical setting, is connected to the
meanings that the participants have attach to them. Hence they relate to
the "*space in which human beings find themselves and the impact this
space has on them*" van Manen (1997, p.103). This chapter focuses on
the experience of those rural nurses [participants] and how computer
technology has shaped the space of their clinical setting.

6.2 BACKGROUND

Traditionally, "*space*" van Manen (1997, p.102) has been regarded in mathematical terms as being involved with the length, height and depth dimensions as common characteristics of a location of things. In this chapter there is reference to mathematical space, however, in regard to this study; space is conceived as "*Lived Space*" (spatiality) or "*felt"* space van Manen (1997, p.102). "*Lived Space*" van Manen (1997, p.102) is difficult to put into words since the experience of *"lived space"* van Manen (1997, p.102) is largely pre-verbal. This means that, we take for granted our sense of "*space*" van Manen (1997, p.102) and we do not constantly or consciously think about where we are in this space. However, we all know how the space in which we find ourselves at any given moment, can affect the way we feel van Manen (1997, p.102). A patient may view for example the space in a hospital ward as big and cavernous; yet for the staff working in the ward it may feel cramped and small. For a nurse watching a patient collapse nearby, the patient may only be an arms length away. Nonetheless, for the nurse to reach out and stop the patient falling, the objective of travelling the distance in terms of "*lived space*" van Manen (1997, p.102) feels like they are miles away.

How space is experienced reveals what *"lived space"* van Manen (1997, p.102) means to people and therefore places some kind of value upon it. When we are ill the physical surrounding of the hospital ward can bring with it a sense of comfort and security and provide a sense of home. Upon discharge, we may feel a sense of homelessness as we regain our awareness of pubic space. In general, "*we may say that we become the*

space we are in' van Manen (1997, p.102). So the important point to make here is that *"lived space"* van Manen (1997, p.102) is different from objective space.

Furthermore, the purpose of this chapter is to explore how lived space is experienced and to discover how this experience has affected the lives of the participants of this study. In other words, what is the meaning of "*lived space*" van Manen (1997, p.102) for rural nurses working with computer technology in the clinical setting?

Thematic analysis from the data identified three spatial sub themes and their connecting relationships. Together they provide for phenomenological interpretation of what the participants mean by "*the shape of space*" for nursing when computer technology is attached to the nursing space. These sub themes bring together how:

6.2.1 A Sense of Structure Gives Shape to Space

This sub theme examines the mathematical, structural and architectural concepts of space. Commonly, it relates to the bricks and mortar and the structural boundaries of the clinical setting where the participants have found themselves working. Furthermore, insight is provided into the special characteristics that impact on the space of the clinical setting with the introduction of computer technology.

6.2.2 A Sense of Space Gives Strength to Identity

This sub theme examines what is unique about the clinical setting as the working space of the nurse participants. Identifying the layers, connections and links within the clinical setting, has identified how these participants recognise the identity of their "*lived space*" van Manen (1997,

p.102). Consequently how the rural nursing experience is aligned to the uniqueness of computer technology and how they all fit in the *"lived space"* van Manen (1997, p.102) of the hospital ward.

6.2.3 A Sense of Identity Gives Shape to Space.

This sub theme examines how nurse see the shape of their "*lived space*" van Manen (1997, p.102). This sub theme describes the actions and experience of the participants as they act to balance the connections and relationships and preserve the uniqueness of the clinical space, giving an understanding to the way in which computer technology has influenced the space of the clinical setting.

6.3 DEFINITIONS
6.3.1 Lived Space:

Lived Space "*is linked to how we feel about the spaces we inhabit. For example, it is they way we feel when we enter a church or a large modern building. We may feel small or lost, alternatively in wide open spaces we may feel exposed or then again free. Hence lived space and felt space are interchangeable terms*" van Manen (1997, p.102).

6.3.2 Mathematical Space:

Mathematical Space "*is linked to the height, length and depth dimensions of space. For example the distance between major cities, the kilometres travelled and the hours driving. Alternatively it is used to measure the size of a house or building*" van Manen (1997, p.102).

6.3.3 Body Space:

Body Space "*Our bodies end at the skin, but give rise to a potential space that is a form of extension of ones self. Each person has around*

them an invisible bubble of space, which expands, and contracts depending on the circumstance. Circumstance may include the relationship to the people nearby, the person's emotional state, the cultural background, or the activity being performed. Few people are allowed to penetrate this bubble or field and then usually only for short periods of time" (Canberra Education Australia 2005) .

6.3.4 Public Space:

Public Space "*As a general rule of thumb public space is the outside layer of the expanded spatial form and indicates a range of between four (4) and fifteen (15) metres. An example of this is the distance maintained between the audience and the actor or speaker*" (Canberra Education Australia 2005)

6.3.5 Social Space:

Social Space "*Is the outer median layer of the expanded spatial form and an example is the distance used for communication among business associates, as well as to separating strangers using public areas such as beaches and bus stops. Social space is estimated to range from one (1) metres and three (3) metres*" (Canberra Education Australia 2005).

6.3.6 Personal Space:

Personal Space "*Is the inner median layer of the expanded spatial form and an example is the distance used among friends and family members, and to separate people waiting in lines at teller machines. Personal space is estimated to range from half of one (0.5) metre and one (1) metre*" (Canberra Education Australia 2005).

6.3.7 Intimate Space:

Intimate Space *"Is the inner most layer of the expanded spatial form and an example is that we reserve this space for whispering and embracing with a high probability that any action will involve touching. Intimate space is estimated to range from zero (0) to half of one (0.5) metre*" (Canberra Education Australia 2005).

6.3.8 Summary

If the space in which we exist has an effect on how we feel, then it is useful to grasp an understanding of what space means in the experience of the nursing profession van Manen (1997, p.102). Space as a category in the study is investigated from three viewpoints. The first refers to: the environment of space and how it is divided up into the spaces in which nursing care is conducted. The second relates to the vision of nursing in the clinical space and the delivery of nursing care. Thirdly, the experience of these participants is reflected as the spirit of nursing space and explains the essence of its uniqueness. In a bid to better understand the world in which nursing professionals work the following three sub themes have been developed. They endeavour to add to the body of knowledge about the "*lived space*" van Manen (1997, p.102) of the rural nursing participants involved in the study.

6.4 A SENSE OF STRUCTURE GIVES SHAPE TO SPACE

6.4.1 Introduction

This sub theme reflects a sense of overview, which gives structure to the shape of space and looks at the architecture of nursing space. This means looking at space from the view of physical facilities in terms of

their structure, design and location. To achieve this, the study asks each participant a timeless question; "*Where are you from?*"   Many of us regularly ask and answer this question as we interact with other people. The answer to this question will reflect the time in which we are asked. For the participants within this study; "*Where do you work*" is an extension of the question. Hence, the answers they have given will serve to identify their "*lived space*" van Manen (1997, p.102) and define it for others.

Methodologically, the study setting provides a focus to engage participants. Beyond this, the designation of a specific place or space provides an essential uniqueness which can be framed within human science research. Hence the choice for the setting of this study, that of a rural inpatient clinical setting, was not chosen by accident.

Incorporated in chapter five (5) is a description that is typical of many rural hospital settings. It is within such a setting that the various rural clinical settings, in which the participants work, are housed. This description has been included to provide a mental picture of the physical structures that are the spaces where the participants undertake their nursing care. Additionally, this perspective of a rural hospital allows the reader to visualise the substance, shape, size and scale of the health facility in which the participants work.

This sub theme also includes discussions on the aspects of the physical layout and the design of the clinical setting. It is here that the relationship is drawn between the structural entity, the participants and the social understanding of the clinical setting. Intermingled is how these

participants have aligned themselves and their caring role within this space. What it means is that there is not a tangible structural space, such as the connection between healthcare delivery and computer technology. Hence, on behalf of these nurses the research asks; what answers have arisen about nursing space from its attachment to computer technology.

There is a growing attention to rural and remote health in Australia and also internationally. This identification with the notion of rurality has important implications for the participants. The significance of this lies in the areas of development, planning and resource allocation within rural healthcare. The notion of rurality or rural locations as being worse off is supported within Australia not only by a range of socio-demographic indicators but by the RRMA (2005). They are quoted as reporting that;

> "*in general, it is true that rural populations are poorer,*
> *less healthy and have worse access to health services*
> *than urban area*s" RRMA (2005, p.1).

 In the light of their rural status or "*lived space*" van Manen (1997, p.102), the participants support the concept of rural healthcare being reflected. They have an accepted sense of being disadvantaged when compared to their city counterparts.

"I think the country is way behind the city." (Daisy)

"We are definitely always going to be behind compared to Sydney and major metropolitans." (Violet)

When directly addressing the issue of rurality and computer technology Menadue (2000) highlighted that the growth of health related computer technology in Australia has been slow. This is evident when it is compared to other industries where computer technology systems are

core to their business. For rural communities within NSW in particular, the growth has been even slower. By identifying where they live, goes straight to the heart of how they predetermine the level of computer technology resources they can expect.

"Rural's just don't get the funding that they do in the Sydney hospitals and that's reflected in staffing as well as equipment just ……. just resources." (Violet)

NHDD (1994, p.279) describes a hospital as an entity that includes but is not exclusive to, one site or a multicampus site undertaking the movement and transfer of patients within its boundaries. It is also said to include any satellite units managed and staffed by healthcare workers of the hospital. Hence, the importance of this definition relates to the political, community and nursing perception of the architecture of clinical space. In particular the physical facility that contains the clinical setting. With this in mind there is a mathematical context as outlined by van Manen (1997) to the "*lived space*" van Manen (1997, p.102) of the rural clinical setting that is conveyed by the participants. The mathematical space becomes the place that makes up a public hospital in rural NSW.

To this end these nurses have a strong sense of knowing their individual clinical setting from its shape and location within the space of the hospital. In opening a second door to spatiality of the rural clinical setting it can be initially outlined as an "*architectural or structural space*" Tellio and Wagner (2001, p.165).

The significance of this structural or architectural space is how the participants view it. Public space is common space and in that sense is

open to anyone, much like a garden in a public park or beside a river. It is a path or road that is used to link one place to another and is not included as part of the clinical setting for these participants. This means that they often referred to as **"out there"** or **"outside"**. For instance, Lilly talks about this space as being **"outside"**, while Geranium describes this as being **"out there"** and **"not on the ward"** and for Violet it's **"not in here"**. For the participants public space is placed outside the boundaries of the "*lived space*" van Manen (1997, p.102) of their clinical setting. The substance of this concept lies within the reference that up to the point where this outside space meets the front door of the clinical setting; it is regarded by the participants as public space.

"You just can't be off the floor….. I might spend half an hour out there checking mail a week. You might go out if it is sign off week. You couldn't remove yourself from the ward." (Geranium)

Once entry has been gained via the sometimes-grand external structures that hospital present to the world, the clinical settings in which the participants work are located behind a series of closed doors. In much the same way that brightly coloured flowers in a background of green attracts our attention, so does the front door of the ward, unit or clinical setting (Manias and Riley 2002). Consequently the spatial arrangements of the clinical environment and the influence for nursing practices take into consideration the dimensions of the physical space both from an inside and outside perspective.

The individual clinical space for Hyacinth, Violet and Rosemary, are characterised by heavy doors with electronic locks and large signs that

create physical barriers to access or entry. This denotes that they work in the more specialised area that are highly controlled and regulated. One of the best examples of these regulated and spatially sealed clinical settings is the operating suite. In there is a distinctive, highly visible and widely recognised distinction between the inside and the outside (Manias and Riley 2002).

Alternatively while the front door regulates the level of access to these clinical areas, in the general ward areas where Geranium, Lilly, Daisy and Poppy work, there are fewer obvious barriers. This gives the appearance of a place where openness prevails. Nonetheless, with the front door looking more accessible, these general ward areas are no less restricted or guarded than any other. Consequently the design features of a clinical setting, which can be spatially sealed off are important and recognisable characteristics of the clinical settings for these participants. Over and above this the participants communicate to others that behind these doors is contained the space where nursing work takes place. So in addition, they use these spaces to manipulate access from the larger community of health care workers and visitors (Manias and Riley 2002).

While there are visible differences to the front door of the clinical setting that mediates between the interior and exterior, opening a second door exposes the similarities of the interior design. Regardless of the work undertaken by all of the participants the design traits that exist within this space repeat a pattern for the interior of all their clinical settings Goffman (1959; 1961) cited Tellio and Wagner (2001 p.164). If one were to take a bird's eye view the physical layout or design of the general hospital ward

or clinical setting in which Geranium, Lilly, Daisy and Poppy work, they are similar in design and construction. They have a dedicated front entrance, behind which rooms are recessed off a central corridor resulting in the inside outside notion being duplicated. Where the front entrance separates the public space and social space of the clinical setting, on the interior of the ward the social space is separated from the personal and intimate spaces. This means that nurses are able to control access to the spaces where the intimate nature of their work is conducted.

The place that is the clinical setting goes under a variety of names with the most common of these being "*the ward*". Thus it is consistently described by Rosemary and Poppy as **""the ward"** or **"the unit"**. Alternatively Violet and Hyacinth add another layer to this space by creating a sense of it being secluded, private and protected as they describe it as **"in here"** or **"down here"**, whilst Geranium, Iris, Lilly and Daisy name it as the **"nurses' station"** or **"the nurses' desk"** thus nominating the space into the nursing realm. In contrast, Daffodil **"does not have any fixed beds"**. Her patients are at home sometimes hundreds of miles away and she works with her patients by phone and computer. There is no substantial clinical area within the current community understanding of a ward. The ward becomes an extension that has been carved out of the clinical settings of others. This concept has added a unique dimension to the "*lived space*" van Manen (1997, p.102) of many of the participants. This clinical setting is not the property of the ward or unit or of community health, but fits somewhere in between. However regardless of the facility of the clinical setting the

participants all work within the architecture of rural hospital space. This environment, the participants have identified a clinical setting that is a "**special area**". Within this area personal space is still included however the sense of control and security are of a high priority. So for these participants, the way in which this inside outside notion becomes noteworthy, is that it maintains the intimate spaces and is transferred across the settings where nursing work is conducted.

"It's a special area and I think it's our expertise that makes it." (Rosemary)

The known clinical setting is a tangibly structured space, where the phenomenon of computer technology has been introduced. The participants recognised early on that they have largely ignored the entry of computer technology. They were unable to smell, touch or taste it and it was generally not heard. For the most part it has been unnoticed as it bypasses them on its way though (Tellio and Wagner 2001).

Consequently, computer technology for the participants has connected itself to the rural clinical setting largely through invisible means. Yet despite this notion of invisibility computer technology has its own architecture. This architecture or generally refers to information or data modelling however in broader terms it is used to describe the organisational structure of an information system (Conrick 2006). Apart from the visible face of the monitor and keyboard, it remains difficult for the participants to see beyond these symbols and visualise the concept of computer technology architecture. Hence, in the clinical setting for many

it remains alien and unconnected to their idea of "*lived space*" van Manen (1997, p.102).

"Wards traditionally weren't designed to have computers and outlets and things like that in them." (Geranium)

Computer technology is made up of many connecting components, some that are visible to the user, nonetheless much of the technology is made up of digital space (Tellio and Wagner 2001). This digital space assumes the status of intimate personal space because of the sensitive nature of the information it carries, however it cannot be seen. It also assumes a public and social spatial presence by freely coming and going from within the rural clinical setting. It is this digital presence that is difficult for the participants to grasp. There were some things about computer technology, which the participants have been able to make contact with. For Iris, there is a new front door via the **"Click of a mouse and a computer screen**", and for Daisy, from the **"snapshot program**", whilst for Daffodil new access is via the **"smart card"**. Hence the participants have recognised and contributed to the '*making known*" of computer technology in rural nursing.

The channels and layers of computer technology act as a magic book with a front and back cover but no pages. When the book is opened, it exposes to the reader [participant], by sight and sound, to the computer technology it contains. This means the participants' see computer technology from a single perspective. Then it is primarily viewed through the one fixed point of the monitor. Additionally it is generally represented as an individual focus, for example one program at a time can be

approach for use by the participants (Tellio and Wagner 2001). Consequently, the characteristics of computer technology have the capacity to change the internal routing of information within the clinical setting. It does this by changing what is known of the space of the rural clinical setting.

"Pathology and radiology is now all on computer. When pathology came on I thought oh wow what's this all about. We did not get any formal training we just started picking it up at work from other people around. We just got in and did it basically. I guess once you get used to it is - was okay but that first initial impact was oh my god can I do this? Then after a while you think yes I can and then it just becomes second nature. So then they go and change the pathology program on the computer and you're back to square one." (Rosemary)

Drawn from this, the participants' recognise the phenomenon of computer technology through their exposure and access to its symbols. Exposure is through the symbols such as the keyboard and the computer monitor that may be sometimes located within the nurses' station area. In addition, the programs that they know and use make computer technology recognisable in the clinical setting. Geranium, Lilly, Daisy and Poppy have significant variations in each case, of computer technology in the rural clinical setting. In their case they are limited in the amount computer technology equipment in there clinical area and hence have limited their exposure. In contrast Hyacinth, Rosemary, Iris and Daffodil have experienced a higher level of contact with computer technology.

"In the acute care and emergency department where you have to triage everyone through the computer the impact might be different…. where they have a greater role with the computer and possibly ICU. However in the sub acute wards the impact is happening but it has not been as forced. So, it is coming, but it has not come that fast." (Daisy)

Furthermore, by continuing with the inside-outside notion of nursing space, much of the computer technology available is commonly relegated to an area outside the clinical setting. This might be an office or room close by the clinical setting. The participants pointed out that whether by accident or design; much of what would make computer technology known and familiar and usable, is located outside their clinical setting and in public spaces. Consequently the participants were drawn to the idea that computer technology is largely not known or useful for most of them. Added to this is that there is little recognition is given of the role and function of computer technology in nursing from most others.

"So there needs to be a bit of a change in design of things to actually make it possible." (Geranium)

6.4.2 Summary

In this context the hierarchy of nursing space is made up of the overarching architectural vision of how the space is designed to incorporate the caring role. In the next layer the nomination of a location provides context to the political and geographic aspects of nursing space. The importance of this relates to the recognition of nursing space in both planning and funding of health service delivery. The identity of public,

private and intimate space mandates the characteristic of the space of where nursing work can be conducted. The identification of a rural location has bought with it an expectation by the participants that they will have less computer technology resources available to them. Architecture, structure and design are essential in providing an understanding of how the participants will recognise the "*lived space*" van Manen (1997, p.102). These elements of recognition will decide what is public and what is private space and thus the lived space reflects the quality and nature of the work that is undertaken within it van Manen (1997, p.102-103). Beyond this, the intimate nature of nursing care mandates the major characteristics of space. So it is within the intimate space of the clinical setting where much of nursing work takes place. Consequently, for Lilly, Geranium and Daffodil, the changing shape of their public and personal space tests their sense of lived space. An erosion of the intimate space brings about these changes and they continue to be challenged by the changes bought about by computer technology. However there is special nursing space that has come about that does not fit the stereotype of nursing space as a result of computer technology.

6.5 A SENSE OF SPACE GIVES STRENGTH TO IDENTITY

6.5.1 Introduction

This sub theme looks at space as a concept that identifies and recognises how the clinical setting defines the people who work in it. It encompasses the makeup of clinical space, including how the participants have defined this space as their own. Included is how the participants know this space. In this sense it means how the clinical

setting is seen in the eyes of the participants and reflects back what they look like in this space. This sub theme also gives transparency to what is meant when the nursing space is identified with the attachment of computer technology and how this has influenced the participants within the rural clinical setting.

In an effort to achieve this, the question of, "w*ho are you?*" is asked of the participants as they are seen when they enter the clinical space. The answer to this becomes a reflection of the individual of whom we ask the question. For the participants within the study, regardless the answers they have given, there answers will serve to identify in their "*lived space*" van Manen (1997, p.102).

"*Spaces are named spaces for a reason*" says Tellio and Wagner (2001, p.164), and in effect they are designed to house people, their history, tradition and culture. In this study, this means the environment in which the nurses work. NHDD (1994), outlines a healthcare facility as a hospital authorised under legislation for the purpose of admission of patients to provide treatment or care. With this in mind many of the current documents distributed throughout the health environment and studies within the academic world acknowledge the term the clinical setting. Correspondingly, though a search through the literature and dictionaries has revealed there is not a formal description of a clinical setting.

The work of nursing theorists, talks about nursing care that is based on a philosophy of caring to guide nursing practice. In this sense they provide a view of nursing practice that according to Watson (1979), that constructs an ideal reality. Mixed in with this view is the notion of nursing

space. Hence, for Hyacinth, Poppy and Rosemary the relationship that they have with their patients is a sequence of encounters that are conducted within an intimate space.

Additionally it is within the social characteristics of space that hospitals have been specifically designated as a space where the ministering of nursing care takes place. Most nursing work then takes place within areas of the clinical setting dedicated for that purpose. In applying this premise, the atmosphere and design of the wards is reflective of the participants and the nature of the work they do. Hence, nurses derive the clinical setting as being where the transactions of patient care takes place. Within a context of "*lived space*" van Manen (1997, p.102) it has been specifically developed and owned in order to conduct the work of nursing. The "*lived space*" van Manen (1997, p.102) gives rise to the sense of intimate space. The participants drew reference this "*lived space*" van Manen (1997, p.102), as a special space where the conduct of private and personal things took place.

"It's a very individual thing they can rub someone's back and they can make someone comfortable, the nursing workforce believe that it's personal it's hands on it's doing grass roots stuff, cleaning teeth and you know what have you." (Geranium)

In contrast other professions have endeavoured to establish regions within the clinical setting to be set aside for their specific disciplines (Tellio and Wagner 2001). However nurses have remained strong in claiming it as their own. These disciplines have been designated to undertake their clinical work in other places. This may be a surgery for a

doctor or a clinic for a physiotherapist, as the hospital ward or unit is for a nurse. As a result the "*lived space*" van Manen (1997, p.102) as expressed within this study supports the premise that the clinical setting or hospital ward is a space claimed by nurses for their work.

In the circumstance of nursing there is a spatial arrangement that extends to how nursing work connects both nurse and patient. What becomes an important and unique feature of nursing work is how nurses maintain their special connections to their patients in these areas. In this way they act not unlike a surveillance camera as they circulate and mark out patients and places (Foucault 1975). For the participants the significance of the design of the ward space is crucial in facilitating these connections. The thinking of some of the participants suggests that computer technology can enhance these connections. Whilst for others it is seen as a distraction or invasion of the intimate spaces. Regardless the connection is deemed as essential in linking these nurses [participants] to their patients through the atmosphere of "*lived space*" van Manen (1997, p.102). For Geranium, who considered careful thought of the location and design of computer technology will be needed when implementing computer technology in the clinical space lest this delicate balance be interrupted.

"Like we are talking down the track of nurses putting on their reports electronically, you know you would need a computer at each bedside that type of thing. That's what would have to happen."
(Geranium)

In addition to being a dedicated space for nursing work, the design of space enables boundaries to be drawn to designate ownership of the physical space. However within the realm of the clinical setting, the ownership is not only physical, but social and organisational (Tellio and Wagner 2001). These boundaries become important when a variation to the space occurs. Such is the case with the introduction of computer technology. There was a feeling by the participants that the boundaries had been breached in the clinical setting from a dual perspective. On the one hand, there was the view that there was a break down in the control over the comings and goings of people within the clinical setting. In the past, people accessed the ward or unit via a quasi invitation arrangement. These occasions included instances such as the medical consultation, physiotherapy sessions and diagnostic testing for the patient. Within the clinical settings where they are undertaken, there is a loosely prescribed flow for visiting to attend these activities. On the other hand, the advent of computer technology has introduced a sense of continuous access and activity to the clinical setting. The influence of computer technology has created a change to the workflow of all health professionals allowing work to be undertaken around the clock.

"We are busy; we are full all the time and now especially since things are electronic that they can just work all the time." (Geranium)

In this position Geranium was finding it more difficult to manage within the boundaries of the clinical setting as the demand for access to computer technology from all clinicians, was increasing. Above this she was finding a growing number of people coming into her clinical setting just to access

the computer technology equipment. From this background there is a sense that for Geranium the atmosphere of the clinical setting was being invaded.

Continuing with the inside-outside model of clinical space, the space should be designed to reflect the roles and activities as important aspects of patient care (Tellio and Wagner 2001). While the nurse participants go about arranging, organising and conducting their nursing work, they commonly intersect and act as a team with other healthcare professionals. Many of the participants perceived themselves to be the primary guardians of the clinical setting. Violet used words such as **"gatekeeper"** as did Geranium. Rosemary and Poppy, talk about **"controlling access"** whilst; Hyacinth and Iris have this need to **"protect"** the clinical setting.

In this realm people expect to have access to private spaces and within clinical settings, there is a social demand to maintain privacy for nursing work. Privacy is essentially the interest that individuals have in sustaining a sense of "personal space". The dimensions of privacy that are critical in the clinical setting include; those of the physical person, privacy of personal behaviour, privacy of communications, and privacy of personal data. Thus, from the social and organisational perspectives there is recognition the owners [that is the participants] of the clinical setting are responsible for ensuring privacy. Hence for the nurses the role of guardian of these intimate spaces has been a mantle they have always carried as part of their nursing work. However, in this respect the introduction of technology has changed the spatial boundaries of privacy,

security, ethical and legal aspects of care for the nurses. The participants relate to being confused about the change to these boundaries as brought about by computer technology. Nevertheless they expressed resolve about ensuring their guardianship role.

"Health just puts another notch in that area I guess. I am not sure. But say if patients agree and consent and understand it. I suppose the best security we can use is the best we can do." (Daffodil)

6.5.2 Summary

The rural clinical setting is changing and along with this are changes to the work roles of nurses. Computer technology is not the only reason for change; however it is a highly significant agent of change. The nursing identity is closely aligned to the clinical setting. Thus the clinical setting is a place that is transformed into *"lived space"* van Manen (1997, p.102) when the work of nursing takes place. These participants still see their role as highly caring and the image of the nurse at the bedside still has a very powerful value to nurses. Their role as patient advocate they also hold in high regard when held up against their image. In many respects it is how well these participants substantiate their identity with the clinical setting, which will determine the ownership of it, with the introduction of computer technology.

6.6.1 Introduction

Spaces are not impartial. They provide a view or a picture and they can set a scene. As a consequence, space can reflect power relations; they can include, exclude or confine and release connections to other places (Wagner 1993). In the previous sub themes the nurse participants

described how their "*lived space*" van Manen (1997, p.102), is affected by role and the work they perform within the clinical setting. However, their relationship with computer technology becomes more complicated by transposing it to mean to different things for the individual participant. The influence of computer technology and its integration into their clinical setting allows the participants to arrive at an understanding that at any given point in time computer technology will be what they see it as and what they use it for (Barnard and Sandelowski 2001). So, by enhancing what is unique about nursing space, this sub theme examines how digital space is not necessarily at odds with the provision of nursing care. Rather, it explains what it means when it is specifically and deliberately enrolled in the service of that care.

To achieve this, the study asked each participant, the question; "*What do you do?*" How the participants answer this question reflected where they are and what they are doing when they were asked. For the participants of the study regardless of the place, the answers they have given will serve to provide others with a view of the uniqueness of the nursing space "*lived space*" van Manen (1997, p.102).

The clinical setting, as a nursing space, represents for these participants a sense of home. Within this space is where these nurses project their image giving a view of themselves to the world. Van Manen describes this "*as being what we are"* van Manen (1997, p.102). The clinical space where these nurses work has been outlined in previous themes. This space must contain the characteristics that give the nursing experience a quality of meaning.

Arising from the words of the participants; computer technology needed to be seen as being a way forward, as an act of progress and of providing a benefit to nursing, both personally and professionally. They needed to feel comfortable with computer technology being in their clinical space. This sense of comfort is crucial to meshing the work of nursing to computer technology. As an example, Hyacinth described; initially she was required to use only an electronic rostering system; however this has been rapidly extended to encompass general word processing and presentation tools along with data base development and management.

For Hyacinth it is only after many years that the electronic rostering system has now become what she knows; it is what is familiar to her and is a recognisable part of her experience. However, this is not the case with most of the other programs. Similarly for Geranium this melding of tasks was reflected in the different programs and applications she was required to use, and she described this as;

"Meaning… the instruments… the data package…. the hardware to do that and the education… not something that's just been plonked here." (Geranium)

Hence where Hyacinth and Geranium could comfortably integrate the use of computer technology to their caring role, they did so almost seamlessly, although it did occur over a period of time.

Where computer technology is available to support the tasks of nursing care, the participants were conscious that there was great capacity to duplicate much of their work. To this end, a reduction in the duplication of effort is desirable. Where this was seen as a feature and the nurse

participants such as Daisy incorporated it into their caring role. Daisy explains,

 "It has to save replication of the data because cause someone may have done it already. So there no need to do it again if it's been done." (Daisy)

Significant to the uniqueness of nursing the participants have incorporated and adapted computer technology to fit into their own space (Barnard and Sandelowski 2001)*.* In contrast where computer technology was still something the nurses had to work against, work around, or work hard at, they were less likely to feel comfortable and less likely to use it (Barnard and Sandelowski 2001). Where there was a demand in adapting it to fit into their space, the experience of these nurses was to steer away from or avoid it. Regardless of the reason, when the experience was an overwhelming source of frustration and became too difficult or did not meet expectations, there was resistance to accepting computer technology into their personal space.

"I used to find it frustrating, we're sort of now not using it because it's so hard and its time consuming to batch and enter all the data in and then the data didn't correspond with some of the data. So it's not used at the moment." (Violet)

Alternatively, where people are comfortable in their surrounding and connected with others around them, they are more likely to be receptive to new ideas (Tellio and Wagner 2001). Where the space of the nursing participants allows for the establishment of these personal connections, these nurses was more likely to integrate computer technology into their

work. Both Iris and Daisy found computer technology allowed them to connect to an external environment through the extended space of the internet. In their role as nurses they used the internet to maintain currency of clinical practice. Violet uses email in her role as communicator, keeping her in touch although not physically with other people essential to helping her caring role. She used these tools to achieve her need to be connected to her space and to others that work with her. Hence for Violet, the use of email and the internet were fast becoming essential and recognisable adjuncts to nursing care.

"I use email to communicate with fellow co workers and with reps and things like to keep in touch." (Violet)

That space can be used to either control or enhance the notion of power within the social context and can be borne out of the works of Foucault (1997) and Spain (1992) cited Manias and Riley (2002) . Early on in the interviews the participants associated, positions with high status as more likely to have greater control over their space, in contrast to those of lower status. What these participants had recognised was that within the organisation, space dedicated to the use of computer technology for nurses was public space. They were commonly expected to share both space and resources not only between themselves but also with all others. They observed this was not the case with other higher-ranking clinical personnel. Even non-clinical staff was not expected share computer resources in the same way as nurses. This suggested that in the "lived *space"* van Manen (1997, p.102) of rural nurses, their ability to attract additional space and computer technology resources is less than

other groups of health care workers. Hence the participants did not see themselves as having the same level of power or attracting the same status as others outside the clinical setting. Consequently, they believed when they made computer technology part of their nursing experience, they were less likely to be able to preserve their clinical space. This was seen as erosion to the intimate spaces of the clinical setting. Beyond this they felt they were giving away their ownership of the clinical setting via computer technology.

"We are sharing an office here two NUM's. That's running sixty-two beds between the two of us and the printer we had here was a two hundred dollar one. It was just problem, after problem, after problem and we would come in most of the time it was not working and the time we wasted trying to get stuff done. But when they finally did something about the printer the one that came was from somewhere else so we got what was a left over problem again. Nursing management wouldn't put up with that." (Geranium)

Although some of these nurses have had some peripheral involvement, only one nurse was involved in the project management of a computer technology implementation plan. They voiced concern that despite having much to offer, as end users of computer technology they had little or no involvement in its planning. A recent report, that *"Nursing as a profession has not been the target of any research and development activity in HealthConnect"* Conrick (2006, p.10) supports these concerns. The participants perceive there is little recognition that they are ready and willing to support and work with computer technology. Some of the

participants identified that there were nurses who were well qualified to take a lead role in supporting the introduction and evaluation of computer technology. Lilly believed computer technology needed to be an integral part of nursing work. Hence if computer technology was to be useful for nurses and meet their needs it could not continue to be separated or disconnected from the nursing space.

"When you're looking at a system there needs to be system for everything, it needs to be able to grow, it needs to be able to be adaptable and it needs to connect in with other things." (Lilly)

6.6.2 Summary

There seems little doubt that in clinical locations there is a need to maintain space to perform the more traditional work of nursing care. Where computer technology could be aligned to the caring role regardless of the reason, it was, seemingly done so without great effort or conflict. Where it was seen to be a struggle it was disregarded, using strategies that might be seen as resistance. There needed to be a positive influence attached, along with the ability to use computer technology to the advantages to patient care. Hence, the continued use of computer technology depends on restoring the intimate working spaces, reinstating nursing power and reconnecting it to the nursing space.

6.7 CONCLUSION

As information and knowledge is learned, values and beliefs alter and change and become more likely to occur. As people grow, they adjust their feelings and understanding of the space around them. In the realm

of space there are many concepts that impact on the essence of nursing care. In the broad scope of the lived space of these nurses, rurality plays a substantial role. Rurality defines them geographically, politically and professionally. Geographically they are separated at work and home. Politically there is a sense of disadvantage born out by recent governmental reports. Professionally they are part of an aging yet mobile workforce. They are professionally in demand, but can readily relocate or retire if they are uncomfortable with themselves or their environment.

There was genuine concern that the architecture of the clinical space was changing as a result of computer technology. It did not look or feel the same and there were new things that made it difficult to recognise. Although they clearly considered the ward or the clinical setting as their own space, they were finding it more difficult to fit in and in some circumstances they felt pushed out. They had experienced nursing work as a collaborative effort between themselves and their patients. They aimed to promote well-being. Now, the boundaries were blurred and they had to negotiate with colleagues about the nature of the work and where it would be undertaken within the clinical setting. Hence they constantly balanced the conflict between wanting to preserve professional boundaries on the one hand, with the need to protect their space on the other. To achieve the aims, that is; a sense of wellbeing, these nurses worked on different levels. They are revising and adapting their "*lived space*" van Manen (1997, p.102), rather than be homeless. Therefore it is not surprising that a number of the nurse participants were manipulating computer technology for their own purpose. On top of this they are also

competing for computer technology resources within their "*lived space*"

van Manen (1997, p.102). Essentially they are balancing the values that

are important to nurses and using computer technology to connect them

to previously unknown opportunities. While this is radically changing the

way they think and feel about the nursing space, it has also enhanced the

environment and the relationship these nurse have with their patients.

Fundamentally what this study has found is that nurses are excited about

computer technology and what it can do for them. What they are

concerned about is how big the changes are that they are encountering.

They are worried that computer technology is unfamiliar to them and how

they can best take advantage of this phenomenon. They are uncertain

about how they will understand it and where they can fit it into their

space.

It is clear from the participants' experiences that computer technology has

affected their image of nursing, giving some a greater sense of power

through the connections they now established. For some, computer

technology has enhanced their everyday working life in terms of power,

knowledge, identity and a sense of belonging. However for others it has

distanced and separated them from the view of nursing space that they

recognise and are comfortable with. These participants are now engaged

in modifying or adapting to the changes facing them in their "*lived space*"

van Manen (1997, p.102). Computer technology is changing the shape

and the atmosphere and how the participants view their clinical space.

CHAPTER 7 - THE TOUCH OF NURSING TIME

*"**There is no single time, only a multitude of times which**

interpenetrate and permeate our daily lives."

Barbara Adam (1995) (p. 12).

7.1 INTRODUCTION

The theme, the touch of nursing time, transacts the layers of "*lived time*"

van Manen (1997, p.104) (Temporality), as discussed in Chapter 4. In this

theme the different concepts of time are seen and considered in terms of

"past", "present", and "future" (Temporality). Time is also reflected in the

evolution of computer technology into the clinical setting. Further to this,

an exploration is undertaken of computer technology and its impact as it

moves through the different time zones exposing the emotional and

physical experiences of the participants "*lived time*" van Manen (1997,

p.104).

The touch of nursing time encompasses the objective experience of the

nursing participants. Hence, the history of introducing computer

technology into the clinical setting as seen though their eyes is outlined in

their words. Inquiry into the aspects of time [temporal], presents a focus

to explore their experience with computer technology. This is seen in the

everyday life of the participants. The main theme is the touch of nursing

time and in the study this refers to the relationship that has developed

between the participants and their work. This means the "*lived time*" van

Manen (1997, p.104), where computer technology has been in introduced

into the clinical setting. "*Lived time*" van Manen (1997, p.104) or

temporality is subjective time and can be interpreted as "*felt time*" van

Manen (1997, p.104), similar to "*felt space*" van Manen (1997, p.103) as

discussed in the previous chapter. Now the study explores the concept of time as experienced by the nurse participants in regard to computer technology and the rural clinical setting.

There were questions around the concepts of "*lived time*" van Manen (1997, p.104). The participants were asked about their nursing life history and background. They were then asked how computer technology has affected their nursing experience. In this context this meant where they felt they had been where they felt they were now and the direction they felt they were moving towards. These questions according to van Manen provides insight and information about one's "*project in life*" van Manen (1997, p.104).

When referring to "*lived time*" van Manen (1997, p.104) writes "*that temporal dimensions of past, present, and future constitute the horizons of a person's temporal landscape*" van Manen (1997, p.104). In this study this becomes, the sense of "*lived time*" van Manen (1997, p.104) and it reveals how these participants consider the past, present and future. Here they consider how they know and define this "*lived time*" van Manen (1997, p.104), both before and after the introduction of computer technology into their clinical areas. Throughout the interviews the participants have voiced concerns about time. These concerns include, the way it is managed, changed and experienced; hence for the participant's, "*lived time*" van Manen (1997, p.104) is a vital part of their nursing image.

The temporal concept of nursing in this study looks at time from two conceptual frameworks. One framework is from the work of the social

theorist Hall (1984, p.34). In Hall (1984) work, the model of time is outlined as a linear clock time structure. According to Hall (1984), the model is embedded in

> "*a time frame measured by seconds, minutes, and hours and further characterised by invariance, context independence and precision*" Hall (1984, p.34).

By contrast in the earlier work by Hagell (1989, p.12), the theory developed incorporates a "time *structure*" Hagell (1989, p.12) to signify how people "*frame, organise and use time* Hagell (1989, p.12)". Against this, time is counter balanced by a, "*time perspective*" of "*ideas, beliefs, and views about the content, structure and experience of time*" Hagell (1989, p.12)*.*

In this study, both these models have been applied to the temporal framework of van Manen (1997). These theories are then used to detail a concept of "*lived time*" van Manen (1997, p.104), from the experience of the participants. Describing the temporal perspective gives a view of the effects it has on the experience of the participants. The meaning of *"lived time"* van Manen (1997, p.104) for these nurses, as it relates to computer technology was then able to be explored.

The model by Hall (1984) contains concepts of both clock and calendar time and describes it as "*a linear monochromic model*" Hall (1984, p.34). Simplistically, time is seen as a line extending from the past to the future. Beyond this, it is divided into portions of years, hours, minutes and seconds. Hence each and every event is marked on a line is able to be seen as having a beginning and an end (Hall 1984). This model is

especially suited to work cultures where the work role is based on tasks, schedules and procedures with little room to accommodate any variation in routine. Examples of where these models are said to work well are in industries such as car manufacturing where the process is undertaken in a uniform way, within a specific timeframe, year in year out (Hall 1984). In addition, those industries that rely heavily on the use of computers are also likely to benefit from using this model as the tasks of the work will most likely be the same or similar each time.

Nursing has been traditionally viewed as a highly process oriented profession and on the surface looks to be best suited to being dominated by "*clock time*" Adam (1995, p.22). This can be seen in the adherence to many nursing tasks that are conducted within stringent timeframes. For example, nurses undertake patient monitoring such as temperature, pulse, respiration and blood pressure at prescribed times and regulated by seconds, minutes and hours. In addition, service level performance is judged on time parameters. Examples of these include, time to triage, waiting times and length of stay, again measured in increments of hours, days or months Jones (2002, p.152). Some aspects of nursing lend themselves well to work in a "*clock time*" Adam (1995, p.22) model. In contrast the alternative offered by Hagell (1989) suggests, that much of nursing work is seen as an art and as so represents people's "*lifeworld, hopes, fears and ambitions"* Hagell (1989, p.12). From this view point there is much about nursing that does not fit the "*clock time*" Adam (1995, p.22) model.

7.2 BACKGROUND

The phenomenological interpretation from the data identified three temporal sub themes and the relationships connecting these together provide some explanations of what the participants mean by "*the vision of nursing time*". This theme brings together:

7.2.1 "First Hand Nursing Time*"*

This sub theme projects the capacity of computer technology to influence the lived time for the participants. There are elements of time and how this nursing time is seen in the present, past and future. This sub theme conveys the participant's view of how time changes affect their daily lives and how computer technology can realign the balance of nursing time.

7.2.2 "Second Hand Nursing Time*"*

"*The Second Hand of Nursing Time*" as a sub theme, views the power balances of the participants through their vision of time. This sub theme looks at the value of nursing time and how the participants have used a computer technology to influence what they do in their lived time. Contrast is given to how their association with computer technology as the cultural view of nursing time is related.

7.2.3 "Third Hand Nursing Time*"*

This sub theme shows the aspirations and hope for the future of the nursing profession. Beyond this, how daily life accommodates both the predictable and uncertain aspects of computer technology. In contrast to this, the means of understanding what happens to nursing time when computer technology is added to the mix is explored. Essentially the

ways the participants' are viewing the age of computer technology in the

clinical setting to one of significance or benefit are explored.

7.3 DEFINITIONS

7.3.1 Temporal Dissonance

"Temporal Dissonance is when the time perspective is incompatible

with time structure" (Charmaz 1991).

7.3.2 Nurse Professional Time

"Nurse Professional Time is the time a nurse is available to the patient.

i.e. the daily working time defined either by a patient's condition and

needs or by a formal schedule" (Narvanen 1994).

7.3.3 Nurse Private Time

"Nurse Private Time revolves around the concept that there is a

beginning and end to events. i.e. it is defined by concept of time available

for oneself away from public or work time" (Jones 2002).

7.3.4 Nurse Public Time

"Nurse Public Time revolves around the concept that there is a

beginning and end to events. i.e. it is defined by concept of time available

for work or public time and distinct from private time" (Jones 2002).

7.3.5 Clock Time

"Clock Time is the time of clocks and calendars and is a time frame

measured by seconds, minutes, and hours and further characterised by

invariance, context independence and precision" Adam (1995, p.22).

7.3.6 Linear Monochronic Model.

"Time extending from the past to the future is divided into portions of

years, hours, minutes and seconds, where each and every event is seen

as having a beginning and an end; each event therefore exists within a

linear time scale" Hall (1984, p.34).

7.4 FIRST HAND NURSING TIME

7.4.1 Introduction

This sub theme introduces time and describes how the nurse participants use time when computer technology is introduced as an accessory to nursing care. One of the key areas identified by the nurse participants were how computer technology is represented in the rural clinical setting. Beyond this is how it has made a significant change to the way they undertook their nursing work. The addition of computer technology contrasts the way they did things in the past, to how they do things now. Consequently, the study looks at what it means for nurses when they have changed to adapt to the challenges of computer technology.

The participants were interviewed about what aspects of information technology affected their perception of "*clock time*" Adam (1995, p.22) and "*nurse professional time*" Jones (2002) in the recent past. They responded with concerns of uncertainty around their skills, knowledge, equipment and access. However the most pressing complaint stemmed from a lack of time to undertake computer work where it is attached to nursing. Operating in an environment of "*clock time*") Adam (1995, p.22) performing care that was better suited to "*nurse professional time*" Narvanen (1994) caused frustration and anger for the participants. The concerns expressed by the participants were not solely caused by the introduction of computer technology. However, its use had contributed to

fuel their fears and uncertainties. Consequently, what is of importance to the participants is that it is difficult to quantify their time, particularly where they were in the situation as it is happening. An example of the contrast of measuring time between the theories can be demonstrated when predicting how fast a wound may heal or when a person may die (Jones 2002).

Adams (1995) model reveals three components of "*clock time*" Adam (1995, p.22), those being, temporality, timing and tempo Adam (1995, p.22). The concept of tempo is reflected by how time advances and slows at various speeds creating a rhythm that can be felt by the participants (Adam 1995). As revealed in chapter six, for a nurse watching a patient collapse nearby, the patient may only be seconds away. Nonetheless, for the nurse to get to them in time to stop them falling, the objective of how fast they can get or "*lived time*" van Manen (1997, p.104) is altered. It provokes a state in which they feel they are suspended or in a time warp, as time slows down.

The rhythm of time Adam (1995, p.22), takes into account the building up of a pattern or beat where there is an increase to the pace in which computer technology is introduced into the clinical setting. The participants found the build up of computer technology into the rural clinical setting that was first recognised in the early 1990's. Initially there were a small number of computers located in the clinical settings; hence for them during the initial phases there did not seem to be a sense of urgency to using information technology at this stage.

"The computers were here but there is very little um interest or motivation for them." (Geranium)

The participants' went on to explain some of the reasons for the lack of interest in use of computers in the workplace. One reason given was that when computers were provided to the rural clinical settings the equipment was old and slow in speed. It had limited functional capacity to support the clinical applications used by the participants for timely nursing activities. Consequently, there was little that made computer technology attractive to the nurses and early on it was not well established for use within the clinical settings. For the nurse participant's this meant they spent little time on computer technology and their work practices remained largely unchallenged.

"I got an old computer which was YK 2 ok and it had been replaced elsewhere and so they were getting rid of it so they just quickly transferred it to me and it was so….. slow." (Violet)

Over the next ten to twelve years there had been a significant push to increase the use of computer technology into the clinical setting. Much of the equipment allocated to these areas continued to be old and essentially of poor quality. Again it did not support many of the tasks the participants were expected to perform. Subsequently, there was little incentive for these nurses to use computer technology in a meaningful way.

"There are other areas that have got even older computers that are slow and they don't get the time to do their work." (Geranium)

An alternative model of time from Jones (2002) contrasts Adam (1995) view with a concept of *"nurse professional time" Narvanen (1994).* This model Jones (2002) sees time as having its own intrinsic value even though the culture of the nursing has largely been normalised to the idea of "clock *time*" Adam (1995, p.22). In this sense the use of computer technology has created conflict for the participants. They were required to perform the work of nursing but felt ill equipped in its undertaking. Consequently, the use of computer technology stands accused of taking extra time to perform the same level of nursing work.

"They expect us to do things…. and quite rightly so we should be doing these things….but we should have the time to do them." (Daisy)

Some of the participants described that they are slowly changing from the way they did things in the past and were moving towards blending the old ways with the new. This means the custom and precedent of traditional nursing has included computer technology together with the body work of nursing. The change bought about a conflict between the organisational expectations and the nursing expectation. These organisational expectations aligned to *clock time*" Adam (1995, p.22) and the nursing expectations associated to "*nurse professional time"* Narvanen (1994) were in a state of tug of war as the participants tried to meet both. Subsequently they were encountering temporal difficulties when the task oriented activities clashed with the more holistic approaches of care. In seeking to improve the delivery of nursing care they were unable to please either the organisation or themselves.

"We just keep adding extras in, but we haven't got any more hours in the shift or hours in the day to do these extras that keep appearing." (Hyacinth)

Subsequently, this bought about a sense that to use computer technology was to encourage extra work. The nurse participants believed information technology had significantly changed their communication and information management habits. Now much of what they reported and used is only available in electronic form.

"We use it to look up pathology results. They use it to access the blood work and the x-rays and CT scan and that sort of stuff." (Rosemary)

Introducing computer technology into their work is still in a state of flux for most of the participants. Those from the nurse manager or clinical nurse specialist groups in particular, reported that they were slower to approach the use of computer technology. Comparing these groups, the clinical nurse consultants commonly used information technology to access information for clinical practice improvement, and to support guideline and policy development.

The nurse unit managers and the clinical nurse specialists had difficulty finding the time to include the use of computer technology into their work. There were a number of reasons for this. These included access, skill, knowledge, understanding and the level of direct patient care within the clinical setting. They explained that where there was a greater degree of hands on patient care, there was less emphasis on taking on the computer technology activities to support the nursing care roles. In these

settings time was used as a means of justifying why computer technology could not be effectively used in the cause of nursing work. Consequently, there was work to be done maintaining the cultural balance of the clinical setting.

"The time factor….. its something a nurse is not going to get more of, they are only going to get less…." (Hyacinth)

The introduction and use of computer technology has created an impact on the "*nurse professional time*" Narvanen (1994). The participants explained that it challenged both their actions and the beliefs that they have taken for granted in the past. Now they have found they have to change many of the things they do and so their concepts of time were altered. The participants believed most of the computer technology equipment was not adequate to meet their needs. Beyond this, when they did not know how to use it; they wasted precious time trying to make it work. They expressed frustration and in an effort to get their work done, they reverted to doing things as they had in the past. Subsequently they did not make use of computer technology in a way that could support their work.

"If you haven't got the time …… you write everything down on a piece of paper, and that's it….., no computers, nothing." (Hyacinth)

Computer technology caused some of the participants to rethink their approach to the concepts of time. It encouraged them to make strategic decisions concerning the selection and allocation of their nursing resources. Where "*clock time*" Adam (1995, p.22) was able to provide them with a point of reference, they used it to do the work they had to do.

In contrast where "*nurse professional time"* Narvanen (1994) suited their purpose and provided a connection to what they were doing in the present, they used it as well. This meant that to keep up with the demands of their nursing work, they moved the temporal boundaries to justify the work they were doing. To this end where the participants were undertaking computer technology work they related this too "*clock time*" Adam (1995, p.22) theory. Where they were undertaking patient care, they reverted to "*nurse professional time"* Narvanen (1994). Subsequently, they felt they had the freedom to choose how to care for their patients. What they wanted was to use their nursing knowledge and experience to assess the needs of their patients. They achieved this by alternating between temporal states in an effort to maintain a balance between the time they spent on patient care and the time they spent on the activities to support it (Jones 2002).

"Time…. effects our performance and…..our ability again to make changes and improvements to practice. We need to look at that the scheme of things in relation to the big picture and …… and actually work to make improvements." (Geranium)

7.4.2 Summary

The significance of time is reflected by the initially slow introduction of computer technology then being ramped up to a rapid level in the latter half of the twentieth century. More recently there has been a greater demand for nurses to use computer technology and so there has been a rapid growth of it in the clinical setting. However, what has not substantially changed is the time provided for nurses to engage in its use.

The Impact of Computer Technology in the Clinical Setting:
a nursing perspective

In contrast, some clinical settings have made time available to include computer technology in their nursing work. However, others have used time as a means of resisting its inclusion into the culture of the clinical setting. Both perspectives are trying to balance the aspects of the caring role with the tasks required to support this role as well as achieve the measure of nursing work within the organisational time demands.

7.5 SECOND HAND NURSING TIME

7.5.1 Introduction

Economically, nurses are no different to most labour groups; they exchange their labour for money. Regardless of the nature of the work, they are tithed to an economic system where their work is conducted on the basis of "*clock time*" Adam (1995). However Jones (2002), argues that "clock *time*" Adam (1995) and "nurse *professional time*" *Narvanen (1994); Jones (2002)* theory are not necessarily complimentary to one another. Jones (2002), is concerned that by using "clock *time*" Adam (1995), there is a failure to grasp the complexity of nursing work. Jones, (2002), describes how his theory of time,

> "*demonstrates those nursing interaction with patients,*
> *which occurs in the present, has a relationship with the*
> *past that has already been lived, and the future we still*
> *expect to live*" Jones (2002, p.154).

This means nursing work does not limit itself to a single event in time, but works on a spiral like continuum.

(Jones 2002; Sinclair 2005) suggest that that there is a traditional lack of value applied to work that is considered as women's work. Hence nursing, being attributed to a predominately female profession, suffers a

lower work status than other health professionals. This general lack of worth and status is transferred through the concept of "*clock time*" Adam (1995, p.22), to the work nurses perform in the health arena. Consequently, there is little reason to change the economic framework associated with the remuneration of nursing work. Nevertheless, amongst the participants there is a growing awareness that the concept of "*clock time*" Adam (1995, p.22), does not fit the work time of nursing. There is a trend where the participants thought "*nurse professional time"* Narvanen (1994), was more compatible with using nursing time to deliver holistic care.

Alternatively, ideas about the perspectives of nursing time bought about thoughts of personal and private time for the nurse participants. Frankenberg (1992) describes private time as being a linear time model, where there is a beginning and end to events in time. In the writings of Frankenberg (1992), when this theory was applied to the work of nursing, the findings reflected "*that nurses do not return to their work until they are next on duty*" (Frankenberg 1992) cited Jones (2002, p.154). This suggests nurses have clear lines between their professional and private time. In contrast, Jones (2002), rejected this idea and states in reality;

> "*nurses return to work between shifts, or when on leave and are continually returning to their work, if not physically then mentally"* Jones (2002 p.159).

This view compares the value of nursing private time to that of women in general. In this view, feminist theory considers that women's work, both paid and unpaid, has long been seen as instinctive or biological (Jones 2002; Sinclair 2005). When applied to nursing the effect is seen as

undervaluing their caring work. Hence nursing work is seen as detached from the physically aspects of caring for patients. The views of the participants found the model based on "*nurse professional time*" Narvanen (1994) was sympathetic to the way they wanted use their nursing work time. They voiced their experiences of how aspects of computer technology affected their notion of nursing "*lived time*" van Manen (1997, p.104). This was viewed against a background of the existing patterns and cycles of time in the clinical setting. When these notions were contrasted against existing theories and models the concept of time was able to be linked to the temporal framework (van Manen 1997). Hence, the participants considered that in the make up of their daily work routines, the attachment of computer technology is expressed as additional or work outside their existing role. They believed that the way that computer technology and the traditional nursing work role exist in its present form has taken them away from providing a holistic model of care. This means they have changed the way they view their time. They sensed there is less "*nurse professional time*" Narvanen (1994) available in which to undertake the body work of nursing. Consequently, they had greater difficulty in accessing the available "*nurse professional time*" Narvanen (1994), for care activities of high priority (Lundgren and Segesten 2001).

There are some nurse participants in the clinical setting that are using computer technology to perform a range of technical tasks and functions. In this way, computer technology assists them to provide a greater emphasis on the interpretation of data to support their nursing

interventions. However beyond this, the participants explained that from their gut feelings, they used far too many hours on non-nursing activities. To this end, the participants in this study were concerned that information technology provided them with new and additional work. What was not clear to them was how this work could be achieved within the existing time resources. According to them to accomplish the nursing work, "*nurse professional time"* Narvanen (1994) was reduced.

"I certainly think it has taken away from my clinical workload. When I first began this role in '97 I think I probably had about an 80% clinical workload and it's probably gone back to about 20%." (Iris)

The participants were mindful that they needed to be careful in generalising that computer technology has increased the work time required to provide care. They all worked in different clinical settings and the type of work they did was very different from ward to ward. The individual work style varied in pace and character between the participants (Jones 2002). This has resulted in each participant working within a rural clinical setting that is unique and distinctive. Beyond this, the participants recognised the clinical setting reflected the values and beliefs of the people who worked within them. This means the work culture of those nurses in these clinical settings is very influential in their acceptance or rejection of the attachment of computer technology.

"There are still people who say 'I am not learning it….. I don't know anything about it.' So yes…there's a real resistance there for quite a few to use it." (Geranium)

The Impact of Computer Technology in the Clinical Setting: a nursing perspective

Conventional written and oral communication methods of using voice, pen and paper have been the mainstay of nursing communication until the introduction of computer technology. The participants explained that when they considered changing to using computer technology it was a major shift from how they communicated in the past. The first change was learning how to use a keyboard and mouse instead of the pen. Some had to relearn their typing skills, while other had to develop typing as a new skill. Consequently when they used computer technology they found it was more time consuming for them.

"I am a very slow two finger typist….and that I find a bit frustrating."

(Hyacinth)

The participants agreed that a significant cultural change was required when considering the attachment of computer technology to the nursing environment. To explain this, there has been an increasing demand for information to improve the nursing interventions. To achieve this nurses have developed guidelines, pathways and tools to gather the information. The paper based models of data collection allowed the participants to feel they had some choice about what was entered In contrast when the data was entered into the computer there was limited flexibility in what could be entered. Hence, rightly or wrongly, computer technology has been blamed for the increasing amounts of documentation that is required in the clinical setting. However, some of the participants see this as having to undertake extra work, while others see it as merely changing the way they do things. What they all agree on is that it takes them longer to

complete their documentation on the computer compared to when they wrote it down.

"It's taken a lot more nursing time to actually sit in front of a machine and do the stuff that has to go with the therapy, so extra testing, extra programming and setting up. But it's not clinical decision type stuff it just all these extra steps that you have to go into." (Daffodil)

In the current rural clinical settings there are two documentation methods in place. The manual and digital data collections methods are used simultaneously and have created duplication of the work. When computer technology was introduced rather than replacing the old, the situation arose where nurses were maintaining two systems. Subsequently these participants explained that they continued to use their paper records. This is because they believe that computer technology does not yet reflect the sophistication required for the documentation of nursing work. Hence, the use of computer technology in the role of data collection is not clear to them.

"So for a long time I think we will be double entering. Like having your paper records and doing your computer records as well…. for quite a while." (Daisy)

The nurses in the study discussed that when the two systems were being used there was inconsistency between what was documented for the paper record and what was entered into the computer. When computer technology was not available the data was gathered manually. When computer technology was used for this, the manually collected data then

had to be entered into the storage program. The participants explained that managing these types of systems took up valuable time. Consequently, these systems often failed to save time for the participants. Nor was there acknowledgement, they still needed a considerable amount of manual labour to produce results.

"Like with the stats, its manual counting…..and I count all the [procedures]. And I count and I narrow it down to [one procedure] to [another procedure] and I have to put that out every month. I count them and I check them…. it's time consuming." (Violet)

The time that nurses spend by the patient's bedside remains a powerful professional value that they live by hence, some nurses have concluded, the use of computer technology was not nursing work. However the participants cited, that the tradition and culture of nursing within clinical settings has created this divide (Jones 2002). Though what the participants have agreed on is that computer technology was the medium for the storage of data, not the reason nursing information was collected. Nurses have a long history of documenting and collecting data. However, the participants explained nurses have been lacking in the sophisticated level of data analysis need in today's nursing environment. They found that there were advantages in linking their data to computer technology for storage and analysis. As a result, computer technology was seen as a logical step forward in advancing the management of nursing data.

"They just don't realise that they need to go the next step and collect data that's useful to change practice, even to the point of where it can influence policies as well." (Violet)

The participants described, that in some clinical settings there were nurses who would not use computer technology. These nurses have used techniques to oppose using computer technology. They have taken the forms of delaying the use of the systems, minimizing their use of the systems, to extensive criticism of the systems and outright refusal to use these systems (Ngin and Simms 1996). Where this occurred, there became a two-tiered staffing situation. On one hand, there was the staff that used computer technology and another where they did not use it. The participants described there were two primary effects when this happened. The first one created an undesirable work environment such as the one experienced by Daisy. She (Daisy), talked about how she was treated when she first started entering data into the computer technology located in her ward. She described the elements of bullying behaviour that she was subjected too. Other participants have encountered similar problems and admitted that there are times when their colleagues would frown at them and make them feel uncomfortable (Ngin and Simms 1996).

"I got so much flack and now….. even now I have to have management days so I can legitimately sit down at the computer and do work'. (Daisy)

The second effect extended to the notion of resistance to the implementation and use of computer technology (Timmins 2003). Resistance for these participants was as much about trying to use computer technology and finding it too hard, as it was to openly refusing to use it (Timmins 2003). In this way, Daisy described herself as a subtle

resistor. She used computer technology where it was useful to her. In contrast Geranium identified resistors as those who refused to undertake any nursing work using computer technology. Though out right refusal was rare (Timmins 2003).

"We subtly resist in some ways by using the paper based system instead of or as well as the computerised one. So in some ways we have not embraced information technology. It's still a lot easier for us to use the old way and until those avenues are shut to us we can continue to use those old ways." (Daisy)

Despite these challenges and the divisions within the rural clinical settings, the participants have expressed a desire to know more about computer technology. They considered training and improving their skills in the use of computer technology was necessary. Nonetheless, developing skills to use computer technology competed with their nursing educational needs. Where this occurred, they pointed out; they would have to choose their nursing education as their first priority. They would seek training and skills in other topics as they had time. They explained that it was time that restricted them in gaining computer technology skills, not the desire not to learn. Nursing or clinical education would always come first.

"A lack of time is the reason that I haven't resourced it more….., looked into it more…. but it is finding the time." (Rosemary)

Alternatively they recognised that having the knowledge and skills to use computer technology could benefit them in creating more time for their patients (Jones 2002). This means, if they were practiced at using the

computer, they could rely on the one system of information management and reduce the duplication they were currently experiencing. They recognised the constraints of not knowing how to use computer technology and wanted help so they could focus on altering or changing how they did this in the past (Jones 2002). Consequently they believed that they needed time dedicated to expanding their knowledge and skills of computer technology.

"Once you learn it… its okay. But I think if we had more - more time where we could spend. A set time each week…, learning those sorts of things…. I think that would be great." (Lilly)

The participants, that routinely used computer technology, had difficulty in finding time to undertake this work. This meant much of this type of work is done at the cost of clinical work, either on the late evening or night shift. Alternatively, this type of work is generally done outside of the designated work hours or at home. The participants described that with computer technology aspects of nursing work, there was no clear demarcation between their public and private time (Frankenberg 1992). In this case the participants were concerned about the erosion of their professional and private time.

"When you have got a clinical role there is really no time away or set aside for doing other than that. Probably, only on an evenings or night shift if we are quiet,….not mornings. Mornings are just manic." (Poppy)

Flexibility in their work roles allowed some of the participants to include the use of computer technology as part their daily work time. Others were

unable to achieve this. However, while they were prepared to be adaptable where they had to choose between doing computer work or clinical work; clinical work always remained the priority. The participants agreed this was not new. It happens with the paper-based systems used in the past and with those currently in use. However In the nursing world, this means is that computer work remains as a low priority, regardless of any conflict with the activities of nursing (Lundgren and Segesten 2001).

"Even with the project and most of my computer work…. I do on night duty and only when it's quiet. You can really only do [the other] it on night duty or do it in your own time." (Daisy)

The participants discussed that the expectations of the organisation, was that their continued employment rested with their ability to get the job done; regardless of the time taken and expense to themselves. This again was not a new expectation; however computer technology introduced extra aspect to these expectations. The participants believed they were performing more computer technology work at home and after hours as they did not have the time to do it within the working day. Consequently, they either stayed late or worked from home to achieve this work. They could choose between doing these tasks in the workplace or at their home (Jones 2002). In this sense, they did not feel they had a choice about undertaking this work. Consequently the choice is not seen as genuine; given that they had to do the work and that they got little or no recognition or compensation in return.

"I have done it at home…. looked up more things than at work… to be honest." (Poppy)

Nonetheless, they chose to work from home for a number of reasons. These reasons included, access to computers, old and inappropriate computers at work, inability to access the internet at work and time constraints (Jones 2002). This meant the participants have to supply their own computer technology resources and use their unpaid private time to achieve this additional work. Consequently, the growing demand for nurses to use their unpaid private time and their personal resources has extended the organisational economic capacity in both time and spending on computer technology.

"Now we've bought a computer for home…. which I never intended to do… because I know that I'd have to take work home…. that has happened." (Iris)

In contrast these participants explained the expectations were different in the non nursing area. In the work environment of these areas staff was allocated the most up to date computer technology. If they worked from home, they were supplied with portable computers. They believed, the organisation encouraged the view that computer technology work done by nurses was seen as having lesser value and importance within the organisation (Jones 2002).

7.5.2 Summary

The participants went through similar physical and emotional circumstances yet their experiences differed from one another. They offered an insight and understanding of the effects of the time [temporal] considerations, when they worked with computer technology. As computer technology grows within the rural clinical setting, so does the

difficulty of balancing the personal, private and professional elements of time in which they work. There is imbalance related to the conflict between the theories of "*nursing professional time"* Jones (2002, p.154 and "clock *time*" Adam (1995, p.22). Nurses may need to redefine the values that they attach to time to redress this balance. Alternatively, imbalances result, when the organisational expectations have infringed on the public and private time of nurses. Consequently, realigning this imbalance will conflict with the long established social views of woman work (Jones 2002). Nonetheless, a powerful nursing value remains; that patient care will take priority over all other aspects of nursing work.

7.6 THIRD HAND NURSING TIME

7.6.1 Introduction

The participants in this study wanted to see that computer technology represented an influence that was progressive, beneficial or positive. Hence they wanted it to be able to improve aspects of the nursing profession. The idea of progress as being a good and positive thing was essential to their view of computer technology Herdman (2001, p.5). Thoughts of computer technology for nursing revolve around increasing the status of the profession and influencing the vision of nursing worldwide. These thoughts were not easy to disclose. Nonetheless, the participants found themselves in a position of having blind faith that computer technology will improve things and makes them better (Herdman 2001). Indeed, they felt a strong desire to embrace information technology and drive it to suit their purpose. Yet in contrast they

continued to feel they were unprepared for the future with computer technology.

At the beginning of the 21st century, nursing informatics and computer technology have become part of the activities of everyday nursing life. Subsequently, computer technology has the potential change nursing practice to enhance the quality of patient care (Conrick 2006). Perhaps then one goal of nursing is to harness technology to improve the lot of nursing. The participants in this study wanted to be seen as being forward looking and progressive. Computer technology was seen as fast moving, progressive and innovative in the public mind. It is reflected as exiting and the participants expressed that some of this image might be mirrored in the way the public sees nursing. Consequently, the participants believed that they needed to look to the future and engage with computer technology.

"I think that nursing in general will have to pick up the pace a bit or we are going to be seen as archaic, antiquated people who give you a cup of tea and mop the brow…… And we're not that." (Hyacinth)

There is no dispute, that the principle of time is related to power in the healthcare industry. What is important is that nursing work is regarded as having less status because of its relationship with power (Jones 2002). The participants believed that they were powerless to affect the future of the nursing profession where computer technology is integrated. They thought of themselves as disadvantaged both personally and professionally when trying to get in touch with what was happening with computer technology in the rural clinical setting. Not only could they not

effectively engage other nurses, they experienced difficulty in attracting support from other groups within the health arena.

The notion of power and status continues to influence their perceptions of computer technology. Collectively they believed there was not a firm grasp on their role with computer technology. These participants explained that where they failed to understand the nursing needs, they felt uncertain about how to progress with computer technology in the future.

"For information technology I really don't believe there is any acknowledgement for what is going on out there on the floor."
(Daisy)

Consequently, status plays an important part in how nurses perceived the future with information technology. The participants believed that their standing within the hospital was the reason they did not receive the level of support they felt they needed. However, the time they spend trying to embrace computer technology in their clinical setting was largely invisible and essentially under recognised. Thus consideration was given, to the idea that they needed the support and encouragement of both nurses and others healthcare groups to achieve a connection.

"We're are going to be left behind, I think it just shows that people aren't really in touch with what's happening. There's no acknowledgement and understanding that nurses do use information technology." (Geranium)

Professional development for the participants reflects that a large number of nurses are computer literate (Saba 2001). In contrast, for these

participants while they might be able to use computers, they believed they were disadvantaged in knowledge, understanding and support. To embrace information technology the participants thought they needed a strategic planning approach so they could get resources. They felt they needed to be in a better position to drive the direction of computer technology in the future.

"There's a lot more skills needed at one end of information technology from the nurse, because of a lot of what we are being asked to do now in terms of quality management, record keeping, stuff for the government, data management stuff." (Iris)

In addition author's such as Saba (2001), indicate computers are found in all areas that nurses work. The participants explained that while computer technology was located in the rural clinical setting it was usually old and slow. This was in contrast to computer technology processes that were of a higher level of sophistication and complexity than the equipment available to support it. The nurse participants believed they were unprepared in both skills and knowledge to attach computer technology to the future of nursing.

"If they want us to embrace it they have got to have the resources and training…. - like we must be able to drive it in a better direction other than having the end product talked about, sorted, arrived and we have to adapt to it." (Geranium)

Nonetheless, the participants identified that where their nursing time was altered, most significant was in the role changes between nurses and the clerical support staff. In the study these participants held the ides that

because of computer technology that they had assumed a greater clerical role. In some instances where nurses had assumed these clerical functions, the clerical position had been relocated or removed.

"In past years there were secretaries to do work even though it might not have been on a computer. It might have been just typed but there was someone to do it, there's no one to do it now." (Iris)

Consequently, the participants suggest that more of the clerical work could be handed over to the clerical support personnel and the use of computer technology could facilitate this administrative work (Lundgren and Segesten 2001). Either way, small alterations would change how much *"nurse professional time"* Narvanen (1994) is available to nurses. Nonetheless there are still temporal benefits that could be achieved for nurses if they embrace the use of computer technology in the rural clinical setting.

"It is certainly the way to go and we should all be embracing it." (Rosemary)

As nurses move towards the future, quality information is increasingly being sought to support nursing decision-making. Fortunately, on the World Wide Web, much of this information is being made available online in the form of computer-based patient records and vast digital libraries. The participants found that, information about patient care has never been more readily at hand (Saba 2001). They recognised that some of the benefits of computer technology looked to ideas of improved communication, more rapid identification of issues, with quick and fast information access and retrieval. Whatever the reason, the internet has

opened the door to knowledge that was previously restricted to only certain health professionals (Saba 2001). For the participants, information technology was seen to change the way they learn, communicate, document and access information to support nursing work. To this end, the participants believe they can become professionally more powerful by attaching computer technology in an arena such as healthcare where information and knowledge are the currencies of power.

"Although we are not necessarily encouraged…... It seems like the obvious thing to do." (Poppy)

Some aspects of nursing time are not easy to describe. Greater quantities of data are being collected and with analysis of the data, advances in nursing knowledge are occurring (Jones 2002). Thus, some participants foresaw a change to a different way of doing things. The new way involved the use of clinical data to focus on patient care. The participants believed there was an opportunity to design their own concept of nursing time (Jones 2002). Also the participants thought they could use computer technology to improve the nursing outcomes of patient care. Consequently, the participants explained that for them, outcomes and benefits to patient care were the prime movers for many nurses to pursue the use of computer technology in the rural clinical setting in the future.

"It's definably going to have benefits to the patients as well; … you know it has to help the patient." (Poppy)

7.6.2 Summary

Nurses recognise they need to include computer technology in their view of the future. However, the vision should be seen from a positive focus of improvement and benefit. They are prepared to embrace information technology and move forward from the way they did things in the past. Even though, this meant they were moving to an unfamiliar experience. Nonetheless, due to their status they felt powerless to influence computer technology in this future. Greater confidence in their attachment to computer technology would enable them to move forward to meet these challenges. The participants express that if they did not recognise the past, present and future of information technology then the future goals of nursing might never be achieved.

7.7 CONCLUSION

The nursing profession recognises that computer technology has established its presence in clinical settings. Nurses continue to use it with the understanding that computer technology can provide knowledge. Nonetheless, the need remains for time to be balanced between the competing aspects of nursing care. In addition dedicated skill development and learning time would help nurses overcome some of the negative aspects of computer technology.

In moving towards the use of information technology, the participants experienced a sense of motion about leaving something behind. Releasing the things of the past means they could change how they work, learn and connect in the health arena. This also means they have an opportunity to change how they have seen themselves in the past and

unite in achieving a different vision. However, while evaluating their present they are not necessarily relinquishing the past. The move is leaving them personally and professionally exposed and vulnerable in the labour markets and workplaces of the health workforce.

The movement through to the present is not a smooth transition to acceptance. Instead, they are constantly trying to adjust time to fit a different way of working. The participants found moving forward to the future is not about ignoring reality or "coping with it" or "giving in" to it. Heading in a direction that captures the positive aspects of computer technology, using these aspects and making them familiar becomes driving force.

Nonetheless, there is a growing imbalance between the time elements of nursing with more work being conducted in the private nursing time. Consequently in a world where money is synonymous with power; any time that cannot be given a monetary value is time associated with a lack of power. For the participants their personal and professional time with computer technology is invisible. It was not seen as being separate and distinct and so having a built in value.

Overwhelmingly though, they would struggle to justify computer technology in the vision of the future if it was not to bring about a more equal partnership between the patient and the healthcare team.

CHAPTER 8 - THE VISION OF THE NURSING BODY

"The clinician is no longer necessarily the flesh-and-blood person next to the bed

or examining table, but rather a voice on the telephone, an e-mail correspondent,

an online presence, or the tele-image of a face or hand holding a medical

instrument".

Sandelowski (2002)

8.1 INTRODUCTION

This theme deals with aspects of the "*lived body*'" van Manen (1997,

pp.103-105) (corporeality) as described in chapter five. In chapter six the

"Lived Space" van Manen (1997, p.103) the data revealed how the

participants recognised, defined, characterised and accommodated

information technology in the clinical setting. The "*lived body* " van Manen

(1997, p.103) [corporeality] is another category for inquiring into the ways

we experience conscious life as "*being-in-the-world*" van Manen (1997,

p.103). The theme of the body [corporeality] signifies the identity and

image of the bodily itself. This is how nurses might see themself in their

clinical setting. The essence of this theme looks at how the participants

viewed their image and its association with computer technology. The

theme also analyses the physical and emotional experience of these

nurse participants to the attachment of computer technology to the body

of nursing.

How we are seen in the world is through the vision of our bodies. (van

Manen 1997) refers to this "*as the phenomenological fact that we are*

always bodily in the world" van Manen (1997, p.103). This means, when

we meet someone out in the world, we meet that person with our bodies.

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Our physical bodies are made up of flesh, bone and blood and provide us with something to touch with and be touched by. In this way we are able to be recognised and become connected within the different environments of the world. Over time we have become familiar with and sensitive to what a body looks like. Hence it is through our bodies that we are recognised van Manen (1997, p.103). This means, that the way we look tells others about ourselves; who we are, what we do and where we live. At times, we might reveal thing about ourselves through our bodies. We may do this either knowingly or unknowingly, and in doing so let others know us.

Developing a theme about understanding the body and its image invited an opportunity for reflection on the experience of the participants through the physical body of a nurse. The participants' reflection on this theme is not solely about the care of the physical body of the patient. Contained within this theme, are aspects of the physical body of the nurse as they live through what has happened to them when computer technology was introduced into their clinical setting.

The works of Merleau-Ponty (1962) and van Manen (1997), have generated an understanding that the body and its emotions are interactive. This theme extends this understanding more specifically to the way the participants have responded to computer technology in the clinical setting. What is revealed in the study is the way the participants felt emotionally in response to their bodily experiences. For example, if the participants experience life within their bodies, then how they express those experiences is through their emotions. An example of this can be

explained as when they are confronted with a new piece of computer technology. If the use is simple and they can adapt it to their needs, they are more likely to use it to their own advantage. In contrast; if the computer technology is complex and too difficult, they are more likely to become frustrated and angry. Hence, delay or not use it.

8.2 BACKGROUND

The phenomenological interpretation from the data has identified three corporeal sub themes. These sub themes connect the "lived *body* " van Manen (1997, p.103) [corporeality] together within a framework to explain what the participants meant by "*The Vision of the Nursing Body".* This theme brings together:

8.2.1 Body Work; Subtle Influence

 The first sub theme examines the characteristics and concepts of the body of nursing. This means, it relates to what is a nurse within the context of the participants clinical settings. Beyond that, it explores aspects relating to the special characteristics of the body of nursing and its association with computer technology in the clinical settings.

8.2.2 Body Sculpture; Enhancing the Unique

The second sub theme examines what is unique about the body of nursing in the clinical setting for the participants. In addition, it describes the nursing experience as an account of their emotions and feelings. This gives an understanding of the way in which the nursing body is influenced by computer technology. Furthermore, what has been invested in preserving the uniqueness of the "*lived body"* van Manen (1997, p.103) is captured through the experience of the participants,.

8.2.3 Body Building Strengthening the Shape

Sub theme number three examines what it is that nurses do to shape their "*lived body*" van Manen (1997, p.103). This sub theme identifies the many corporeal layers and connections and links within the clinical setting, giving rise to how the participants are open to the experience and use information technology. Hence, giving strength to the identity of the "*lived body"* van Manen (1997, p.103).

8.3 DEFINITIONS

8.3.1 Nursing Informatics:

Nursing informatics is a specialty that integrates nursing science, computer science and information science to manage and communicate data, information and knowledge in nursing practice. Nursing supports patients, nurses and other providers in their decision-making in all roles and settings. This support is accomplished through the use of information structures, information processes and information technology (Staggers & Thompson 2002).

Nursing informatics "Is the integration of nursing, its information and information management with information processing and communication technology to support the health of people world wide" NIA (2004)

8.3.2 Fleshy body:

Fleshy body is the one that "*eats, drinks, sleeps, gets sick, and dies*" Sandelowski (2002,p.59).

8.3.3 Lived Body:

Lived body "*this refers to the facts that we are always bodily in the world*" van Manen (1997, p.103-105).

8.3.4 Virtual body:

Virtual body "*Being something in essence, power, or effect, though not*

so formally, nominally, or expressly" Sandelowski (2002, p.58).

8.3.5 Presence:

Presence "*has generally been conceived as minimally requiring bodily*

presence" Sandelowski (2002, p.58).

8.4 BODY WORK A SUBTLE INFLUENCE

8.4.1 Introduction

The sub theme reflects a sense of overview, which gives understanding

to the meaning of bodywork. This means looking out from the fleshy body

and what body work means when working with the patient. In contrast,

looking into the emotional body of the nurse is a means to understanding

bodywork from the experience of the participants. To achieve this, the

study asked each participant, a question; "*What are you?*" This asked the

nurses to look inside themselves and draw on their experiences for

answers. In this way, as before the answer to this will reflect the image in

which we see ourselves. For the participants, "*What is a nurse?*" is an

equivalent question and regardless of their self image, the answers they

have given will serve to define them in their "*lived body*" van Manen

(1997, p.103), to all others.

Bodies are not easy things to define, however they are what we stand for

both literally and symbolically. There is no mistaking what is being

described when we are talking about the physical body of a nurse. The

body of a nurse is of similar molecular construction as any other body. It

is made up of flesh and blood and skin and bone, yet it in effect, the

nature of body constitutes more than that (Sandelowski 2002). An understanding about the body in its historical, cultural, natural and social constructs brings to light that the body is like no other thing at all. Sandelowski (2002) describes this as the "*fleshy body*" Sandelowski (2002, p.58). The "*fleshy body*" Sandelowski (2002, p.58) of the nurses within the study has predominately been represented by the early middle aged female form. In this context, the nursing body is the same as any other. We know the nursing body through our reliance on the presence and awareness of the professional bodies of others. This means through recognising the bodies of others, we have come to know ourselves. Hence, it is through seeing the differences and distinctions of other professional bodies; we know what it is to be in the body of a nurse (Merleau-Ponty 1968).

Historically, nursing the "*fleshy body*" Sandelowski (2002, p.58), has been cited as the focus of nursing work through the ages. Nonetheless in more recent times, there have been successful attempts to gloss over the nursing image where work with the "*fleshy body*" Sandelowski (2002, p.58) occurs. This has been done in an effort to raise the status of nursing and fit it into the more sanitised scientific or biomedical frameworks. To fit into this purified version of body work, nurses have attempted to distance themselves from working with the "*fleshy body*" Sandelowski (2002, p.58). Thus, in distancing themselves from caring for the "*fleshy body*" Sandelowski (2002, p.58), they have developed extensions of themselves to reach their patients. This means nurses have taken up the use of tools and technologies to accomplish their caring role.

As a category of exploration, the focus of the "*lived body*" van Manen (1997, p.103), has been used to fathom the image of nursing and as such becomes an object of study.

Daffodil identified changes to the standard nursing tools such as thermometers, sphygmomanometers and fluid infusion devices, (Marasovic, Kenney et al. 1997). Things she said were **"commonly used"**. In her experience she found many of the nursing tools and manual equipment she routinely relied upon had been upgraded in recent years. They now incorporate computer technology as a component of how they work.

For Daffodil the bodywork of nursing has now distanced her further from her patients and blurred the distinction of the tools she used. Nursing tools she had used in the past now had computer technology embedded within them. Many of these tools had been readily accepted into nursing practice without an understanding of how things could change. Overall they changed the way she cared for her patients.

"There's the normal range of nursing equipment, and now computerised IV equipment. It is the program, the type of computer programs that we now need to actually program the machines." (Daffodil)

Alternatively Daisy outlined that her perception of the office equipment she routinely used such as faxes, video and television and even the telephone might need to be included within her scope of nursing tools when she considered them in the light of computer technology (Hughes 1999).

"I suppose the computers and the fax machines and the video conferencing and even….. even the telephone as conferencing to a certain extent". (Daisy)

These two nurses saw the physical symbols of computer technology being applied to their nursing tools. Commonly, they agreed that screens and digital readouts and press buttons were all symbols that stood to mean computer technology was an integral part of the design of these tools. What they found was where computer technology was added; a greater importance was given to those tools involved in that part of the care. For both Daffodil and Daisy computer technology had influenced the tools that they used to provide their version of nursing care. This meant that not only do the tools of nursing with computer technology have a greater level of importance; subsequently a greater value is given to those who use them.

"Some years ago we did not have even basic machines, the automatic machines that we now have, this software computerised part of it really started to kick in around about the 2000 mark." (Daffodil)

Beyond this, the participants expressed that on the surface computer technology might make things easier, however much of this technology has been introduced with little understanding about it effects on the bodywork of nursing. Lilly, explained that she that often felt at a loss when she incorporated computer technology into her nursing work. She felt it distanced her from her caring role. That the pace of change with computer technology meant that many core aspects of the caring role had

disappeared forever. They had just gone and Lilly felt threatened that some of the things she held as a unique to nursing had been lost forever.

"It is nursing technology to a degree … but we're not data people….. we're not…… we don't know all the ins and outs and nitty gritty and probably never will of computers and the technology. I think that's where it becomes a little bit difficult because it crosses over into another area." (Lilly)

For Lilly and others working on the "*fleshy body*" Sandelowski (2002, p.58) is an active role of patient care. They do this bodywork in conjunction with their patients. There is nothing between the nurse and the patient when they undertake these aspects of their caring role. These participants believed they were protecting what is unique about nursing from being threatened. Lilly spoke about groups of nurses who openly resist any challenge to this notion of traditional nursing work. They overtly promoted the use of computer technology as being out of step with the nursing experience and out of line with the "*lived body*" van Manen (1997, p.103) of nursing.

"There's a real attitude that some nurses have for gods sake we're here to nurse we're not here to learn computers" (Violet)

Often when the participants spoke of the symbolic meanings in their everyday nursing life, they included their role as patient advocate. Their commitment to protect the intimacy and privacy of the nurse patient relationship was highly rated by all the participants. In their role of protecting the patient, the ability to maintain the privacy and confidentiality of patient information was a strong value. This means,

where there is a threat to those holding this position as nurses, they are unlikely to participate. The attachment to computer technology where this was a concern left them with a sense of uncertainty. They were discovering something was different about the control they thought they had as patient advocates. Computer technology was able to change the way they accessed the "*corporeal body*", van Manen (1997, p.103), and was seen to change the way they saw themselves in their "*lived body*" van Manen (1997, p.103). Daisy explained how some of the nurses she worked with would object.

"I won't be doing it, this is ridiculous, and it is not a nursing job to do it this way". (Daisy)

Initially, there was not great a change to the way they saw themselves. Although for some of the participants it marked the beginning of a crisis. They suddenly had to use computer technology and they felt thrown in at the deep end. Alternatively, for others it represented a challenge. Consequently they experienced periods where they found difficulty in grasping something of the substance of computer technology. They also had difficulty in understanding how computer technology could benefit them in their nursing role. Only later on could they distinguish the changes that would effect the way they saw the image of a nurse in the future.

"Time moves on and we make progress and we keep up really". (Hyacinth)

8.4.2 Summary

In the first sub theme the meanings of bodies and the reasons for their importance in nursing was discussed. Our bodies are the face that is presented to the world and house the senses that allow us to make contact with the conscious life around us. This is described as "*being-in-the-world*" van Manen (1997, p.103-105). Hence, the body allows us to connect with the community around us. To maintain their sense of identity, nurses have a deep need to be in touch with the fleshy bodies of their patients and the theoretical body of their profession. Maintaining the patient connection involves nursing occupying a distinctive place within the healthcare arena. In these places there are regions set aside to provide care that ordinarily involves taboos and cultural constraints on bodies. These places are of great importance to the nursing spirit.

The nursing attachment to computer technology is much like a child that gradually develops awareness of itself and others as connected but distinct and separate. Developing knowledge here provides an opportunity to review and open up nursing practice in ways that the body complements the computer aspects of nursing work. These nurses were focused not only on the physical encounters but on re-examining their image in light of computer technology.

8.5 BODY SCULPTURE ENHANCING THE UNIQUE

8.5.1 Introduction

The second sub theme describes the way power becomes interwoven and reinforced by the particular work routines of the participants. This section is an examination of the ways the nursing body works.

Accompanying this is what nursing looks like when it is associated with computer technology.

The nursing body is not static nor is it or one-dimensional. This means that when the nursing image has attention focused on it, the image is seen in the context of the work it undertakes and space that it occupies. (Foucault 1975) writes that;

> "*Bodies only appear, only endure, only live within the production constraints of certain highly gendered regulatory schema*s" Foucault (1975).

Thus the work of the nursing profession is reflected in the unique and special ways of bodywork. However, in its natural state, the nursing body exists predominately within the culture, traditions and society of women. Authors such as Francis Bacon (1561-1626) cited Warren (1996, p.20), viewed women within society as being a reproductive resource. In addition to this Francis Bacon (1561-1626), cited Warren (1996, p.20) used the power of language and knowledge to portray nature as female. In this capacity both nature and woman could be reduced to a resource for economic production and society granted a license to dominate nature. Three centuries on this is still a prevalent point of view within the labour markets worldwide.

Nonetheless, when taking on computer technology it is in the framework outlined by Francis Bacon (1561-1626,) cited Warren (1996, p.20), with its sense of exploitation and oppression that the participants feel they have been thrust. Though nurses have developed an understanding about how to coexist within these surroundings, in this context there is a greater emphasis to move them from their caring role (Merleau-Ponty

1968). They are concerned there is a push towards the values of rational efficiency, maximising utility and material outcomes for patients where there is association with information and computer technology.

"It's a fact of life really. You can either embrace it or you know." (Rosemary)

However with computer technology they were like new borne infants; they had to use their senses and feel their way forward to explore their "*lived body*" van Manen (1997, p.103). The participants agreed that computer technology had assumed a role in their lives from an organisational perspective. To this extent the use of computer technology makes economic and environmental sense for their health organisation. Nonetheless they were fearful that computer technology had been introduced in an attempt to exploit and oppress them rather than to achieve any benefit for nursing (Francis Bacon (1561-1626,) cited Warren (1996, p.20). They initially believed the major benefits were to cut costs rather than improve the outcomes of their patients. In reviewing how they saw themselves, the participants recognised early on that they have a vested interest in understanding computer technology (Sandelowski 2002). It is from this position that these nurses foresaw that a major benefit of computer technology was to improve communication.

'I think it [information technology] is a really great thing and the more information you have got the better outcome for the patient, there's got to be." (Hyacinth)

As a means of communication, computer technology has the capacity to transfer information to a large number of people across a range of

settings and sites. This transfer and distribution of information is not new. What has changed is how it is conducted. In the past information was copied and sent via a mailroom distribution process. When it arrived in the clinical setting the information was sorted and distributed by the staff on duty as they had time. This meant that the participants in the clinical setting had access to the information in the public space of the clinical setting. The participants described how the organisation had changed the way the internal information was sent. This change saw information being converted to digital form and sent to the managers through the electronic mail system (email).

"It's difficult to get the information to all the staff. With a piece of paper you can move it around and other staff gets to see it. (Poppy)

The participants foresaw examples of how computer technology could undermine their presence in the clinical setting (Sandelowski 2002). This meant where there was change to the ways they had access to information affected them both personally and professionally. One of these changes meant that the internal information was sent to the manager of the clinical setting. Professionally, the introduction of a new system has left the responsibility for information distribution within the clinical setting solely in the hands of the Nurse Unit Manager. The distribution hinged on the willingness of the manager to open, print and distribute the internal communications. In addition there was a reliance on this happening in a timely fashion. Subsequently it also depended on the access, skill and presence of the manager in the clinical setting to do this. This meant with computer technology, the distribution of information was

confined to private space and in the hands of one person within the clinical setting.

Some of the participants believed whether by accident or design, this has added another level to the functions of the nurse unit manager. Although this is not a new function, in the past this was generally undertaken in a way that spread the workload across a number of roles. From organisation management through to the ward staff, the information was principally maintained in the public domain. Now the nurse unit manager must undertake these functions within private space.

"We don't get wads of paper and copies of things from the courier anymore like we used too. Not many things that come from the email get printed off…. for us we just don't see it." (Poppy)

Personally, they missed social functions such as sausage sizzles and fundraising activities. They also missed staff farewells and participating in occasions where staff was rewarded for their activities.

"You need to get the information on time. We don't want to be left in the dark." (Poppy)

The measures of worth they felt the organisation placed on them as nurses were of critical importance to their image of nursing. This meant that any change in they ways information was made available to them was a reflection of their value to the organisation. They saw that being able to access at least the social information in the public space of the ward allowed them to connect with others working in the organisation. Thus an important characteristic of how they saw themselves is reflected in the way they establish connections between themselves and others.

For Poppy, as a clinical nurse specialist where there was very limited access to electronic mail, found herself isolated within her workspace. Hence computer technology as a communication medium has the ability to both empower and diminish the image of nursing. This means the use of computer technology gives rural nurses access to information and increases their knowledge and skills. Without access to computer technology they are limited in how they connect with others, hence they can become invisible within the organisation without access to information.

"I learnt a lot when I was doing the relieving num a couple of weeks ago when I was accessing the email information." (Poppy)

In another example, the participants found that they could generate a common interest by using computer technology and its effects to benefit the tasks and activities of providing care (Sandelowski 2002).

This indicated they have been looking at new ways to carry out their caring role. This has seen the participants inventing new places to work, redesigning their existing workplaces and participating in actions to get better information and treatments to improve the level of care they give. They found they could use computer technology to reduce the burden of some of the more tedious clinical and managerial tasks (Ngin and Simms 1996). For Rosemary, using computer technology meant she could change they way she worked when caring for her patients. To do this she had to expand her knowledge and skills using computer technology and to think differently about how she did her work (Sandelowski 2002). In the past she was constantly performing the physical actions of taking

haemodynamic observations. Now she is able to have the haemodynamic observation taken automatically, giving her greater freedom to connect with her patients and react to their changing needs.

"Because if you don't have to worry about taking the observations every hour you have always got the monitor up there with a read out and you are constantly interpreting thing." (Rosemary)

When Rosemary was able to release herself from the tediousness of those physical activities by using computer technology, she was given a greater degree of flexibility to interpret and act on the clinical findings. In this way she used computer technology as an extension of herself. Using computer technology in this way had the ability to remove her from one aspect of caring work. Alternatively, it way gave her greater flexibility to participate in the caring process with the patient.

"These days we have much more input into the interpretation of things than we ever had before." (Rosemary)

Rosemary had to extend her nursing skills and knowledge to use computer technology in the work of nursing. In the past she was focused on the doing of nursing and less on thinking about what was achieved in her caring role. This meant she changed how she saw and interacted with her patients. Beyond this she had expanded the way she worked (Sandelowski 2002). Therefore the presence of nurses becomes a significant factor in making computer technology work in the rural clinical settings. Rosemary described this;

"I think about it, not only do I think about it, but what does it mean? Not only what does it mean but, what do I need to do about it. It goes on and on…..it does not suddenly stop." (Rosemary)

Computer technology was able to make nursing work more challenging and the participants were able to command more unique patient care regimes that were individually tailored to meet their patient's needs (Sandelowski 2002). For some participants, computer technology changed the knowledge and skills of nursing work to make it more interesting. They were able to foster many of the core values of nursing work (Sandelowski 2002).

Daffodil also saw information technology as redefining her understanding of the lived world. She saw the information available from the information technology environment, as additional tools to support patient care. The notion of offering the best available evidence for the provision of care was for her a challenge on behalf of her patients.

Poppy used computer technology to keep her nursing knowledge current. In the past she used books in the ward and the library. The information available from these sources was generally old and out of date. Poppy was able to access current information and she believed that computer technology gave her access to information that she used to support patient care. The information that was available to her enhanced her knowledge and skills. Poppy explained she felt this way she better able to influence nursing work. To achieve this Poppy and some other participants used information from the internet to develop patient information and inform personal studies.

"Some of our text books are so old it is really quite handy to get on there and get some up to date information. For instance we have got the bronchiolitis leaflet, the head injury, that pamphlet that we give the parents." (Poppy)

Daisy found that sometimes there were challenges from the newfound expertise of nurses. This means some of the practices based on the traditional ideas of nursing work have been call into question. Computer technology has enabled the nurses to access evidence to support the alternative practice regimes. Hence, computer technology was something the participants used to inform and circumvent clinical practice thought not to be in the interests of their patients.

"Because sometimes nurses need, some kind of hard evidence to back them up, in recognising best practice, best clinical guidelines type things - to use for looking after your patient." (Daisy)

Alternatively the boundaries of practice have changed. This change is not new. In the past nurses made many of the decisions about aspects of patient care. However nurses were subtler in the ways they supported the cultural aspect for the practice of others in the clinical setting. Despite past constraints, the skills and knowledge bought about from the use of computer technology has encouraged nurses to disengage from the cultural practices of the past.

"The doctors generally say you guys know more than we do on most occasions. Like our ideas and all that, but I guess that's one area that nurses can have a major role in." (Rosemary)

However, there were situations where the benefit of computer technology has been seen to cause conflict to the order of things. Rosemary explained, while nurses have been encouraged to use computer technology to develop and influence the profession, they were still seen as subservient to those of the medical profession.

"Like the doctors though…. you still have to get their approval." (Rosemary)

This last example refers to the importance of the nursing profession to maintaining and increasing their professional their presence in the clinical setting (Sandelowski 2002). This means they may need to maximise the benefits of computer technology. In the past they undertook the acts of providing care based on the idea that this would benefit their patients (Merleau-Ponty 1968). The participants felt they need to identify and integrate the parts of computer technology that could be useful to achieve this.

Daffodil found computer technology could be fitted into the image of nursing. Meaning, that many of the practices undertaken in the past could be refreshed and revitalised when computer technology was attached. Geranium thought that while the principle of the practice remained the same, the presence of the nurse allowed the practice to be undertaken in a different way. Geranium saw this as a way for nursing to look forward and push the boundaries of health care. In this way she was able to fit computer technology and its aspects into how nursing should look. She explained this by outlining a program on patient discharge. This program enabled an improvement in the flow of information to the

relevant service providers once a patient was discharged from hospital. She saw nursing as being involved in this process for the betterment of patient care.

"The pilot … we're the ward that is setting it up… It's an electronic discharge referral of patients to eventually encompass like…. a wide scope so that if you need to send it off to the GP and the Surgeon, to allied health and to try to have all the information in one area." (Geranium)

Similarly, Iris was excited about being involved in the development of a database for her service. She believed nursing should be more involved in the development of computer technology systems. She explained that if nurses were to understand the reasons for these computer technology systems, the nursing presence in the clinical setting would make sure it worked. If they were informed and skilled they would know how to get the best out of the system and be confident about its use to improve clinical practice.

"We were designing some database information that we could pull out to make improvements and put you know quality project together for a patient satisfaction database, also the data that we collected everyday on the round that actually looks at our performance and how we actually make improvement in clinical practice. She gave [him] the information… that she wanted to see in this database and that was a really, really exciting project." (Iris)

8.5.2 Summary

The concept of "*presence"* Sandelowski (2002, p.64) or, being there describes the physical encounters between people. Presence between the nurse and patient is where they can both directly see and feel a sense caring. This might happen through leaning towards each other or through the action of touch. This closeness or "*presence"* Sandelowski (2002, p.64), becomes an essential element of the nursing image.

Beyond this there are some characteristics that the participants saw as belonging to the image of nursing in moving from the era of nursing service to the age of information. One of these aspects included having alternative skills and knowledge to undertake the functions of nursing care. Another view sees the image moving from task orientation to an interactive approach to providing care. This is seen as using the information available through computer technology to support the work of nursing. This way the participants saw computer technology as a means to empower and influence the work of nursing. This path could influence and extend to individual, organisational and political environments.

8.4 BODY BUILDING: STRENGTHENING THE SHAPE

8.4.1 Introduction

In the view of Foucault (1975) the body or the biological existence, is seen as a political event that is governed by the power and cultures of the professional discipline. This sub theme discusses how the participants see computer technology as being able regulate the nursing profession and how they see it as being integrated into the economic and social life of the clinical setting. There is a check on where nurses' stand and what

attitudes they hold towards computer technology in their clinical settings. In addition, the participants discuss their experiences of continuing to focus on their presence as essential to the caring role of nursing. For these participants being a nurse is more than just a means of earning a living. Working as a nurse gives each of these participants a purpose. The participants have strong views about this; nursing brings meaning to their lives.

Rosemary and the other participants found that computer technology in the clinical setting had created both benefits and barriers. They believed that nursing was ready for change and that some foundations for change were already in place. However, they believed that the support for change towards computer technology was not yet available to rural nursing. This meant that while they identified the need to move forward, professional and culturally, they did not feel ready. In the past, when changes to nursing practice occurred, it was subjected to strict performance through adherence to procedures. Changes for nursing that related to the use to computer technology did not fit into this method. Where all the elements of the process were not captured, nursing did not have a good grasp on how to fill in the gaps. Subsequently nurses would need to adapt or submit to another culture dominating their nursing lives. Consequently a cultural adjustment is required by the nursing profession to include computer technology into the nursing world.

"There is certainly a need; there would be a need to move from the culture that's out there." (Daisy)

Much of what is valued as intuitive and tacit about nursing did not translate well into the participant's command of computer technology. Where the participants possess a deep connection with their caring role or where nurses have entrenched attitudes to traditional nursing work, their reaction was seen as a level of resistance. Geranium identified that some of her staff are highly resistant to using information technology.

"So definitely that's an attitude with some, not all but certainly with some." (Geranium)

Violet's staff considered that nurses rely heavily on data collection, documentation and information to conduct the functions of patient care. Nurses routinely undertake these activities and Violet believed these were core components of nursing practice. She considered that what computer technology contributed was an alternative to how information was collected and stored. Subsequently, she considered that while the tools may be changing, the functions remained the same. In this way she saw the patient as the source of nursing information and computer technology as the next logical step forward to manage it. Hence she concluded that for her, the use of computer technology was nursing work.

"They collected information as far as temperature, fluid balances etc. So they have been collecting that data right through." (Violet)

Even so, Daffodil was concerned that the skill levels and critical thinking of nursing may decrease where computer technology provided information on the patient's status. In the past the information was taken in conjunction with the patient, documented and analysed and interpreted by nurses. This is not new, however what is new, is that data can be

analysed and interpreted by computer technology. Daffodil explained in this context, computer technology had the capacity to reduce the role of the nurse to that of a technician.

"There is actually now a loss of skill, amongst staff in physical evaluation of the patient. They don't actually clinically think about if that is appropriate for the person. They don't have the same assessment skills and they don't have that same responsibility of managing what's going on." (Daffodil)

How the information was made available was of greater importance to Violet. However, Daffodil was troubled by the distinction between computer technology work and the work of nursing care. This means in the current environment, there are parallel documentation and storage processes in place. The documentation and storage of information depended on the service. Some services relied on either a paper based or an electronic system. While others had both in place running side-by-side. Where the two systems were in place, computer technology offered the nurses an opportunity to opt out of aspects of nursing work, in favour of their caring role. Consequently, they can distance themselves from computer technology rather than move toward using it in the service of nursing care (Sandelowski 2002).

Daisy agrees with this idea and sees denial, avoidance and withdrawal by her fellow nurses, as indicators of where computer technology does not fit well into the clinical setting. From where Daisy sits, there is a perception that it is harder to continue to perform the everyday nursing activities. She sees that some of her colleagues have been forced to take on computer

technology while others continue to overlook it. Consequently, what they all understand is that with computer technology, things really are different.

"People who don't feel comfortable using the technology or the programs don't get asked to do the jobs that those who do use the technology get asked to do it." (Daisy)

Daisy saw, that the nurses began to engage in activities around avoidance and negotiation to make a choice before deciding what action they might take. Daisy foresaw that those who acquired the skills and used computer technology were rewarded and given more authority and status. Daisy explains that within the clinical setting for those who did not engage or align themselves to computer technology in their nursing work, were seen as resistors (Timmins 2003).

"Like …..They purposely don't know how to use that program, so that they won't be asked to put it on." (Daisy)

Daisy expressed concern that this resulted in conflict and disharmony between nurses in the ward. The way Daisy sees this is that the personal values of the individual nurse extensively influence the use of computer technology. Consequently for these participants, the success of computer technology is where the presence of nursing combines the patient work and information work in an effort to support nursing care for patients (Sandelowski 2002). Daisy sees this as another image of the nurse evolving.

8.6.2 Summary

There is work to be done in reconciling the service culture of nursing to the information culture that is prevailing within rural health through the

introduction of computer technology. This means there are both practical and symbolic implications to consider when measuring the losses and gains for nurses associated with such a radical change. Establishing a clear understanding about what computer technology will do for nursing, coupled with a framework for implementation across all levels of nursing would assist in the use of computer technology. Nonetheless the foundation of computer technology in the rural clinical settings rest with the ability of nurses to bring together the bodyworks with the information work of nursing. Consequently, nurses need to be there, as workers and translators of patient care.

8.7 CONCLUSION

Nursing spaces are being transformed and with it are the unique contributions that nurses make. This means there is much that is good about the new environments being developed. However uniting nursing work and computer technology is essentially about how strongly nurses feel they are there for their patients. The work of the participants with the fleshy bodies of their patients reveals the richness and uniqueness of nursing work. Bodywork allows them to measure the value they apply to this nursing role. Consequently, a perspective is shown of how they are either moving away from or towards a state of incorporating computer technology into the way they deliver care. They wanted to be heading toward an integrated and holistic concept of bodily care. This means the body is seen to be inseparable from its whole self, and is embodied in human experience, history, and culture (Sandelowski 2002). The connection between computer technologies and nursing work, though

difficult to describe, was even harder to understand in the early stages. What continues to be a challenge is maintaining the balance of bodywork and the support work needed by rural nurses to deliver patient care. What this amounts to is keeping the factions that are maintaining opposing views to computer technology on side to favour of the nursing profession. The importance of this view is identifying the tools of nursing that enable the continuation of work with the "*fleshy body*" Sandelowski (2002, p.65), along with the other core values of nursing. Nonetheless from an organisation level both bodywork and computer technology for nursing has been rendered largely invisible. This means the attachment of computer technology to the nursing image remains largely unresolved. Perhaps the most serious consequence of this is the tug of war between the highly valued caring role and the attachment of computer technology in the clinical settings.

CHAPTER 9 - THE SOUND OF NURSING SOCIETY

"No body is ever inhabited or appraised as pure physiology but rather it is situated, reflecting and reflected in cultural norms, dominant institutional practices and defined pathologies and the shared psychic significance of groups".
Gatens (1996, p11).

9.1 INTRODUCTION

This chapter, sound of nursing society, [relationality] refers to the relationship the participants shared with others working in clinical settings. This theme relates to how the participants fit in with other health colleagues in the every day working world of the clinical setting. Encompassed within this theme are the relationships that have been altered for nurses in the clinical setting under the influence of computer technology. These include the traditional nursing relationships, the organisational relationships and other interdisciplinary and professional relationships. In many ways there is a resonance to the quality of professional interaction played out in clinical settings. There is a noise to these relationships. A normal rattle and hum, as these groups rub along together in their day-to-day professional practice. This chapter provides examples from the participants of how this noise has been disturbed by the influence of computer technology. However, computer technology in itself is silent and relies on a spiritual like acceptance of sharing a concept that is largely invisible. Therefore the influence of information technology rests largely on the relationship nurses have with others in the clinical setting to bring to bear its purpose.

In this theme there is a focus on the experience of the everyday relationships that meet in the clinical setting. Hence, the "*the sound of*

nursing society", in the context of the study refers to the "*lived relation that human beings maintain with others in the shared interpersonal space*" van Manen (1997, p.104-105). Merleau-Ponty (1962) has prompted recognition that the body itself is capable of expressing the existence of nurses. This means the identity of nursing and other health professionals is critical to the development and the maintenance of social relationships. In a similar way, van Manen (1997), says that "*through our lived body human beings interact with others that form part of the world in which we live*" van Manen (1997, p.104-105). This means that it is through the body of nursing that the participants are able to partake in professional, social and community dealings. As an example van Manen (1997), writes that;

> "*as we meet the other, we approach the other in a corporeal way: through a handshake for example or in another way that he or she is physically present to us*"
> van Manen (1997, p.104-105).

Hence this theme seeks to explore the relationship between the participants and other professionals and healthcare workers in the clinical setting. Subsequently, this chapter will outline the changes experienced by the participants to their professional "*lived relations"* van Manen (1997, p.105) when computer technology is introduced into the clinical setting.

9.2 BACKGROUND

The phenomenological interpretation from the data has identified three social sub themes. These sub themes have included aspects of how the principle relationships connect. Together they have provided the essence

of what it meant by "*the society of nursing life".* This theme brings together:

9.2.1 Fashioning the Nursing Partnership

This first sub theme conveys how the participant's view the changes bought about to their daily lives by the introduction of computer technology.

9.2.2 Renaissance of the Nursing Partnership

This second sub theme anticipates the capacity of nurses to balance their relationships with other disciplines where computer technology has been introduced into the clinical setting.

9.2.3 Approaching an Organisational Connection

This last sub theme highlights the importance of nursing in maintaining the relationships between healthcare workers and the patients where computer technology is part of their everyday working life.

9.3 DEFINITIONS

9.3.1 Disconnection "*is a sense of social isolation and being cut off or out of time from the ebb and flow of the everyday nursing working life"* Charmaz (1991) .

9.3.2 Embracement "*is about not ignoring reality or coping with it or giving in, it's about moving forward from a familiar experiences*" Charmaz (1991).

9.3.3 Equivocal affirmation *"that allows employees to affirm their commitment to the organisation in a manner that preserves a sense of difference*" Flemming and Sewell (2002, p.866).

9.3.4 Practice as performance *"What many of the nurses did was to use the systems in such a way as to demonstrate publicly that they were using them, but do no more than that"* Timmins (2003, p.267).

9.3.5 An ironical disposition "The *use of the systems' reliability meant by that this was the way in which reliability was used as 'an excuse' for not using the systems"* Timmins (2003, p.267).

9.3.6 Scepticism and cynicism "*picking on issues where they think they have a chance of success, rather than wholesale resistance*" Timmins (2003, p.267).

9.4 FASHIONING THE NURSING PARTNERSHIP

9.4.1 Introduction

When we meet and greet other people we exchange something that enables us to form an impression of them. This means we might approach them in one of two ways. Through the direct approach, such as when we work with others or indirectly by telephone or email, we are able to learn something about the other person. Although the reasons are unique to each nurse, it is through such exchanges that we connect ourselves with others in the world. How nurses work with computer technology and accept it into their professional world is of significant importance.

How the participants have approached the implementation and the ongoing use of computer technology is important to the image of nursing. Other healthcare worker may see them as either embracing or resisting computer technology. Nurses may be seen as resisting computer technology where they have been unable to participate in its use.

However, there were reasons for not using computer technology. The participants identified that a lack of skill and knowledge, poor access to equipment and old and inappropriate equipment and programs were common reasons for not using computer technology at work. Subsequently, these were identified as the three primary reasons the participants could not connect and become familiar with computer technology. On the other hand, the participants all described situations with other nurses where there was withdrawal and outright refusal to use the computer technology (Timmins 2003). On one hand Timmins (2003, p.260) refers to, "*something perceived to be resistance exists*". In another view, O'Connell Davidson (1994, p.94) rejects the notion that any "*formal definition of resistance" is necessary".* Their work conveys the importance of the actions and reasons for those actions and is articulated in the statement "*the actions workers took, and why they took them",* O'Connell Davidson (1994, p.94). Both Timmins (2003) and O'Connell Davidson (1994) have used resistance as a category of inquiry. Hence, in the study there is significance in examining how nurses attach and participate with computer technology in the clinical setting. Nonetheless for the participants, what was of greater importance for them is does it "*count as resistance in the context being studied"* Timmins (2003, p.260). Therefore, where the participants in the study have experienced or witnessed detachment from computer technology does this count as resistance?

The term "*Svejkism*" was developed by Flemming and Sewell (2002), in a workplace conceptualisation of resistance (Timmins 2003). This

theoretical model examines resistance using the following categories: equivocal affirmation, practice as performance, an ironical disposition and scepticism and cynicism. This conceptualisation provided a framework based on categories of resistance. These categories have been referred to in this study. This sub theme explores the relationship between the nurse participants and the concepts of resistance and looks at the extent they have resisted attachment to the nursing process of computer technology

Daisy was used to tackling things head on and initially her fear of the unknown prevented her from associating or engaging with computer technology. This meant her fear of the unknown threatened her self-confidence and disturbed the way she saw herself. Daisy withdrew from any attachment to computer technology as her fears caused her much apprehension, in particular that she would cause damage to the equipment. Daisy might be said to project "*an ironical disposition*" Timmins (2003, p.260) in the beginning to information technology in the workplace.

"You think it's going to be really terrible and when you start doing it…, really it's breaking down that fear of using the computer." (Daisy)

In contrast, "*practice as performance"* Timmins (2003, p.260) for Iris was about being overwhelmed about the level of understanding, skill and knowledge that she felt was needed to engage in the use of computer technology. Iris says;

"I did not have any idea of where to even turn the on off button on the computer and just sat there….. I remember looking at it and I was thinking I don't know where to start with this." (Iris)

Likewise Lilly's "*practice as performance*" Timmins (2003, p.260) stemmed from being repeatedly denied access to computer equipment and then being supplied with old and inappropriate equipment. This meant she was excluded from recognition and worth from within the organisation and by nursing in particular. This certainly was a hurtful and damaging experience for her. So in the same way the loss of functional capacity in any sense has an effect. Lilly she experienced feelings that disturbed to her sense of self worth. She withdrew from any association with computer technology. She handed over the development of her nursing practice manuals and information to a group of volunteer health workers. This meant she had tried to engage in the use of computer technology and she was unable to participate in its use. However, by using alternatives she was still seen to be demonstrating her commitment to the organisational goals.

"There were actually two volunteers that had done courses in computers - they had done rather - they were well informed with the computer…because they went through lengthy education courses at TAFE; there weren't any quick fixes. So they were very helpful…. they did all my typing up manuals and updating manuals for me on an old Osborne computer." (Lilly)

Despite this, the experience for Lilly was similar to those of Iris. They both found they were **"still fumbling…"** as they lacked the understanding

required using computer technology. **"I'm still trying to learn and teach myself***".* (Iris). Essentially they both felt they had been thrown in at the deep end and were then left to their own devices to find out about what information technology meant to them.

"It's not good to be thrown in the deep end and say well just go for it." (Lilly)

Both Hyacinth and Lilly found themselves in a position where they were now responsible for a great number of tasks that were previously non-nursing work. This non-nursing work consisted largely of typing letters and memos, performing data entry, constructing reports, and on-line ordering of stores for their clinical setting. Lilly explained this meant, **"In my job, you work on your own there's no clerical assistance what so ever"** and for Hyacinth it had a similar meaning; **"I don't have a receptionist and I tend to do a lot of the work myself."** This may it may be interpreted as "*scepticism and cynicism"* Timmins (2003, p.260), where they fought against taking on a function that they considered was not part of their nursing work role.

In addition Geranium expressed that she did not understand enough about computer technology. She wanted to know more about it and tried to find people who could help her. This meant that when Geranium wanted to use computer technology and incorporate it into her ward, she needed the help of people who truly understood her concerns. She needed people who would listen to what it is she needed. The problem she encountered was to find people to help her who did not make her feel inadequate. Geranium explained how difficult this was. There was no

opportunity or time to find some common ground. She was fearful and defensive in her dealings with the people available to help her. This reaction had significant disadvantages, as she wanted a mutually supportive and understanding atmosphere to enable her to discuss her concerns.

"For someone to be treated in a condescending way is going to a bigger barrier so, that person has to be seen as one of the team ….has some leadership qualities in the team…. so they are not coming across as…. you will come and learn this because I am very clever and you are not so clever. But if it's the leadership qualities that include a lot of team work like…I will show you… its like this…. building on the people who have absolutely no confidence."
(Geranium)

Geranium's experience relates to "*Equivocal affirmation*" Timmins (2003, p.260). She continued to approach the support services provided by the organisation, although she felt they failed to address her needs. This meant Geranium felt justified in not using computer technology, as she was unable to gather adequate support to help her use it. She explained because she had tried to find help, her situation was unique or different. In this way she could withdrawal from using computer technology confident that she had tried her best.

"I had asked around through the data centre and various people there and didn't really get the help that I actually needed. There is a –not- help desk and their role … and they make it very clear is not to

train you on software and isn't really that helpful for other things."

(Geranium)

Therefore, if communication is a critical human need and is the way people relate to each other and interact with the world (Westbrook, Gosling et al. 2004), then it must be important to nurses. In her experience with computer technology Hyacinth, sees that the ability to communicate effectively has been compromised, especially in her clinical setting. The way this happened was that in the past a package of information was delivered to her clinical area and placed in a specific site within the ward. Either nursing or non-nursing staff within the ward may have undertaken this activity. Thus for Hyacinth, she did not have to worry about whom and how it [the information] was accessed, receive and distributed. In this particular clinical setting a routine had been established and when faced with the reality of adapting to an electronic communication model, problems were encountered. This was due to a large number of staff working over a diverse area. In Hyacinth's experience, since the change to the digital communication system has been introduced, she now receives the information and is responsible for its distribution. This means the information sits on her computer and until she puts the information into the public space, it is not accessible to others. Hyacinth believes it is an unrealistic expectation for her to manage this task. This task alone has made her feel overwhelmed by the use of computer technology.

"People just seem to think we can just hit a button and we can get whatever information we have there after in five minute flat, but it's not that easy to get that information." (Hyacinth)

From another angle, Violet was frustrated and angry that the computer technology systems failed to deliver the benefits they were supposed to. Violet saw this as one of the biggest hurdles to nurse accepting that computer technology was of any use to them. Violet explains:

"The system that was actually supposed to do all the stuff, collecting a minimal data set etc, but they only bought one module of it… there was another two modules to buy and now that system is no longer used by anywhere else…. I used to find it so frustrating …… because it's so hard and its time consuming to batch enter all the data in and then the data didn't correspond with any other data…so it's not used." (Violet)

What was important for Violet was that she had invested a lot of herself in trying to achieve an attachment with computer technology, yet it did not work. Regardless, she still had to undertake the work with or without the computer technology.

Other nurses experienced similar issues, although from different perspectives. For Iris, this was particularly poignant as she explains about the results of all the work she put into developing a database for her service;

 "it never was completed….we can only pull certain amounts of data off that really its not, not enough for what we really need to be looking at." (Iris)

The experience of both Iris and Violet was a common thread that was readily found in the stories of the participants. The common thread was that they had invested personal resources (themselves) in time and money to use computer technology to benefit their clinical setting. They expressed feelings and emotions such as anger, frustration, annoyance, disbelief and shock when they could not make the systems deliver the expected results. Their sense of failure was heart felt and had contributed to them backing away from and withdrawing from attaching significantly to computer technology. They believe there is still a lot of myth and magic about what information technology can do and how quickly this can be done and so if this is resistance it should be deemed "*equivocal affirmation*" Timmins (2003, p.267).

9.4.2 Summary

Challenges around how information is exchanged are encountered in most organisations (Westbrook, Gosling et al. 2004). While it is not unique, the transient nature of nursing and that they work in larger teams, makes effective communication even more difficult (Westbrook, Gosling et al. 2004). The participants in this study showed that the inability to engage information technology in the clinical setting in a meaningful way was brought about by a lack of available support within the organisation. In their collective experience, computer technology bought about withdrawal, a sense of social isolation and being cut off from the ebb and flow of the work and people in their organisation. From their perspective this had imposed greater demands and constraints upon them in highly charged work environments.

However does this count as resistance? Using the categories of Timmins (2003, p.260) there are obvious elements when aligned to the experience of the participants that could be likened to resistance. However posing another question where O'Connell and Davidson (1994, p.94) asks what "*actions did the nurses take and why did they take them*" allows a different focus to develop. Consequently, these participants do not see themselves as resistors. They view themselves as resilient and spirited in their attempts to engage with computer technology. Hence for the participants it is less about resistance and more about a tactical retreat.

9.5 RENAISSANCE OF THE NURSING PARTNERSHIP

9.5.1 Introduction

(Merleau-Ponty 1968) writes that conscious life begins not as a "*sphere of ownness or self-centeredness*", but as communion with others. This concept of communion is seen as similar to that of an infant in early life. In this way, the infant is unable to distinguish its own body from that of another (Merleau-Ponty 1968). Initially, in the first months of life, a child shares a collective life in how it exists in connection with others. What has arisen from within this structure is what we have come to know as "*consciousness,*" "*intelligence,*" and "*knowledge*" Merleau-Ponty (1968). Hence the phenomenon of computer technology can be seen in the light of a rebirth, as it was introduced into the lives of these participants. In the clinical setting of the hospital theses nurses are striving to be viewed as "*normal*". Collinson (1994) suggests that structured and organisational workplaces contain '*authoritative norms'* and these are commonly viewed as acceptable behaviours. Hence in the clinical setting of a rural hospital ,

cultures and patterns of behaviour are strongly entrenched. For nurses the notion of conforming to workplace norms becomes a powerful goal. As individuals the participants saw that fitting in was important to their professional lives. This meant they tried to attain what was "*normal*" Collinson (1994) within the boundaries of their clinical setting. This was seen as not wanting to be considered different because they lacked the skills and knowledge relevant to nurses. Being recognised as "*normal*" Collinson (1994) also meant not feeling embarrassed, isolated or humiliated, but being accepted as part of a team when computer technology was attached to the nursing process. At times this meant they would keep certain knowledge hidden from others. In the study they outlined the dilemmas they encountered when they employed this strategy to computer technology. They experienced mainly two unwanted effects. Firstly, that others thought nurses were managing with computer technology, and therefore do not make allowances for what they don't know. Secondly that nurses do not use information technology and therefore do not need assistance with it. This sub theme explores what the participants mean by normal and how they maintained balance with the introduction of computer technology within the clinical setting.

Beyond this there were a number of features that the participants expressed were elements outside their concept of normal, which impacted on their relationships with other healthcare workers. In Hyacinth's view she was concerned that on an organisational level there was an assumption that nurses had pre knowledge and experience of computer technology. This meant there were both assumptions and

expectations that she could undertake the task of typing. On top of that there was a basic belief was that she could work a computer and printer and manage computer programs. Hyacinth explained how she felt inadequate dealing with a computer. In addition, Iris also felt this way. She talked about how limited or absent her skills were when it came to computer technology.

"There's an assumption that everyone knows what to do with computers, but it's not really ever been a huge part of our roles as clinicians." (Iris)

Consequently nurses themselves often singled out nurses with computer technology expertise at both an organisational and clinical level. Nurses with computer technology skills are often sought out for special work and awarded special status within the organisation. They are also commended and praised by nurses for these skills and are sought out by nurses when those skills are required. Hyacinth found that when she was setting up a new service there were no dedicated computer technology resources available to her. She had to seek out people with these skills from the nursing profession. Hyacinth explains how important these nurses are to her.

"We were lucky to have a computer whiz to set up the database and transfer all that information on to the patient file. There are nurses that have the knowledge to do that…., it's at their finger tips. If I hadn't had access to those nurses…. there was no way I could have done it." (Hyacinth)

The Impact of Computer Technology in the Clinical Setting:
a nursing perspective

One of the most significant features arising from the introduction of computer technology is the attitudes and behaviours between nurses in the clinical setting. This means the lengths these nurses went to hide what they did not know about computer technology. Violet described this as not wanting to be seen as stupid and would only approach certain other nurses that was sympathetic and with whom she felt safe, when she needed help. Hyacinth found she had to learn about computer technology in a different way to how she would gain nursing information and knowledge.

"It's more of an informal type way of passing information on to people I just asked certain people and they helped. Most of them are happy to do that even though you may feel at times really stupid for asking." (Violet)

This fear of not knowing was a strong feature of their attachment with computer technology. Subsequently, Rosemary described using personal strategies similar to those used by Violet, for gaining the knowledge and skills she needed to work the computer technology.

"When asking how to do it, you know - you don't want to let people know that you don't know. You think that the person you're asking may think that you're stupid." (Rosemary)

In the case where nurses had given the appearance of managing computer technology, it was becoming increasingly difficult to overcome with the introduction of more and more computer technology into the clinical setting. Although they still had the means to hide their lack of knowledge, the assumption around their levels of expertise with computer

technology was rapidly being eroded. This left them with fewer resources to employ or less alternatives to pursue as means of hiding what they did not know from others.

In the view of the organisation, the vision of the nurse as an extension of computer technology has seen nurses with these skills placed in a position of high regard (Sandelowski 2002). In contrast, the nursing profession sees that maintaining the caring role is of great importance. This means that undeniably, the ward or clinical setting has its norms and culture well established. Beyond this the development and maintenance of social routines and relationships in the clinical setting is critical to the delivery of patient care. Hence individual participants found themselves in the presence of a less-supportive nursing environment when they attached computer technology to their nursing work. Rosemary explains how she experienced this indirectly

"If you are seen sitting at the computer when you on clinical duty you are seen as not doing your work." (Rosemary).

So that sitting down at the computer immediately and visually removed her from being a normal nurse in her clinical setting. The attitudes of some nurses have resulted in Poppy being cautioned about using the computer at work as it would be outside what would be considered normal in her clinical setting. Poppy explains **"In a fun way I have been chastised about using the computer at work"** (Poppy). However, Poppy found the value of her work and role as a nurse was being judged against what would be normal for a nurse in her clinical setting Poppy

explains she has been told **"to sit at the computer seems a bit lazy."** (Poppy)

Nonetheless, the introduction of computer technology has altered the vision of nursing and the understanding of nursing care. Daisy's experience of using computer technology bought about swift retribution from other nurses in her clinical setting. Using computer technology made her stand out in the ward. The consequences of this caused her to be stigmatised as being different. Daisy was subjected to a very direct and personal assault from her work colleagues. Fortunately for Daisy the lack of support did not extend to her manager who was able to put some interventions in place and rearrange her work role. Daisy explains her experience;

"When I first started entering data into it… I got so much flack and now…. even now…… I have to have management days so I can legitimately sit down at the computer and do work. I don't know if I am over reacting about that supposition. But there is that stigma there ….. that … you're not working." (Daisy)

9.4.2 Summary

These participants have identified issues that alter the normal vision of the nursing role. However, some of them found that trying to use computer technology made them feel embarrassed, isolated and humiliated. Those who have felt this way develop a range of strategies to keep their feelings hidden from the people they work with. This was because they found there were many uninformed attitudes from other nurses towards the use of the computer. This meant that negative

behaviour was directed at them from of other nurses in some clinical environments. The participants developed ways to keep their lack of knowledge about computer technology hidden. This was to protect their image and keep their fear of being seen as stupid from exposure. This also protected them against others knowing that they were not managing.

The participants realised that the main responsibility and burden for managing computer technology will be on them. They understood that when they needed help it was generally crucial that the help came from a reliable source. They relied on other nurses to help them and while this help was often given willingly to support each other, it is emotionally and physically demanding work. This work is generally under recognised from an organisational perspective and often unpaid. Needing help with activities and reliance on others appeared to be viewed as one of the most serious drawbacks of living with information technology in the clinical setting.

9.6 APPROACHING AN ORGANISATIONAL CONNECTION

9.6.1 Introduction

When change occurs, things from the past, because they are familiar, provide a sense of security (Charmaz 1991). So with the introduction of computer technology into the clinical setting there is uncertainty and insecurity for individuals working within the environment. This means the balance between the past and the future is disturbed. The participants may mark the disturbance by enhancing the positive things derived from the change; such as the nurturing and support they received from other nurses. Alternatively, it may provide them with a common purpose

against the change. The sub theme explores what happens to the relationship between these participants and others when computer technology is attached to the nursing process.

Violet saw that having mentors or champions of computer technology in the ward or clinical setting was highly desirable. They were also seen as an important part of how staff was able to access and move computer technology resources into the ward. Violet had colluded with the doctors working in her ward to get basic computer technology equipment into the clinical setting. Violet used this strategy after she visited a clinical area outside of her own. Violet explains that in the other ward, the "**unit director up there is excellent for them".** This Director is able to access computer technology resources where they might otherwise have gone elsewhere. Whereas in her own unit she states: **"We don't have anyone in this area really championing towards [computer technology] improvement."** Consequently she viewed this as one area having an abundance of computer technology resources available to them. She explained allocating computer technology resources in this way disturbed the balance between the clinical wards and units of the hospital. Though Violet viewed this process as unfair, she was not above increasing the computer technology resources for her ward this way.

The participants had the belief that within the organisation there was a view that nurses did not need to have computer technology. This meant they were concerned that they were less likely to be allocated computer technology equipment; training and support if they had a nursing background. This view was in contrast to how they saw computer

technology resources being allocated to the non-clinical areas. To staff in these areas, they saw the latest equipment being provided with significant level of support to ensure computer technology worked for those people. Violet saw this as a clear bias from clinical staff to non-clinical staff of computer technology resources and explains this as:

"Because it was the office person's computer and no one else was to use it." (Violet)

For the participants there was a challenge to getting adequate computer technology and support resources. They saw the organisational bias extend from nursing managers when nurses requested these resources. They were concerned that even senior nursing managers did not fully appreciate the difficulties of nurses where computer technology was involved. Many of the participants had heard stories about the difficulties nurses encountered however Lilly found that for her the experience was so burdensome. When she tried to get access to computer technology she was unsuccessful. She then applied to get not just access but an actual computer. In Lilly's experience it was so hard and for her particularly damaging. Despite this she needed to have some computer technology resources to do her job. Lilly explains what she felt:

"I felt that I was begging…. I had feelings of guilt, of well…. was I really worth getting a computer, was I not important enough, was the work that I did not mean anything. No… they weren't good feelings….. they weren't good feelings." (Lilly)

Extending from getting the resources, the participants found that there was an ad hoc approach to learning about computer technology. In their experience their learning happened mostly by trial and error.

"we did not get any formal training we just started picking up at work from other people around who were more o'fey with it or we just got in and did it basically." (Rosemary)

However with the mounting number of programs and computer technology equipment being introduced into the clinical setting, Violet and Hyacinth considered their work role had significantly changed. They were the ones undertaking computer technology tasks to support others in the clinical setting, such as students, doctors and managers. While this was not new they found that what was required to support the clinical work was of a higher standard than in the past. This meant they were taking on functions in a different way using different equipment and skills. They believed to engage nurses in developing these skills a range of learning opportunities would need to be provided. The use of in-service, training workshops and skill stations would go a long way towards inviting nurses to attach computer technology to the nursing process.

"We need to have some kind of education program that everybody can slot into, also get a basic skill level up to par before any of this stuff is really as useful." (Geranium)

Both Hyacinth and Violet felt that in their experience doctors and managers were well supported with computer technology equipment and training from the organisation. However beyond this, the participants described that there was a need for certainty about the level of support

from the organisation they would need. In addition they wanted the comfort of knowing that their colleagues supported them. They found that their supportive relationships with other nurses were a source of strength for them. This strength had a positive effect on them and enabled them to feel a sense of belonging. For Lilly this meant having a **'recognised"** network of peers to support her when she did not know what to do.

"They helped me with assistance when I need it and they made the time to provide it and I am talking about nurses that work here in the hospital on rotating shifts." (Lilly)

There was a dilemma facing the participants. Many of them wanted to use computer technology. However, they could not engage assistance and support from other people outside nursing, to help them do this. They had difficulty in communicating to others what it was they wanted. Thus they had difficulty working together where computer technology was the issue. This meant for the participants to improve their circumstances with computer technology they had to search for a more supportive environment. They would have liked this environment to extend to their teachers, managers and outsiders. When this did not happen, they preferred the support of their nursing colleagues. This way they found someone who understood to their problems. For Violet, this meant the use of her clinical nursing network was the first point of call. If help was not available immediately, then an alternative arrangement would be made.

"You will go to networks of colleagues first, really you are relying upon your normal…. clinical help….. networks, because outside of

them there isn't much other help. Sometimes when you do approach them they can't do it there or then. Then you'd make time to go back through it." (Iris)

In this way they found a strong network and support group had developed among nursing peers. This network was where they provided assistance to each other by sharing their computer technology skills and knowledge. Setting up these groups and networks was a very important support structure for them. They found that they commonly used these support groups to breakdown the barriers to using computer technology, making it more desirable to nurses. However, they believed the organisation needed to endorse these networking approaches. Subsequently they wanted to publicly acknowledge the work of these nurses to encourage a greater understanding of computer technology. Geranium explained official recognition was needed because **"the times not there to do that even though the ability is … if you cannot leave the ward for a couple of hours and it would take a couple of hours…. just show me how to do it."**

Consequently they realised that this approach should belong to the organisation. They believed that it should not be solely the responsibility of nursing to unofficially provide the education training and skills development of computer technology for nurses. Though Violet and other participants found there was bias against nursing receiving computer technology and training, they recognised that the responsibility could not lie within one department.

Communication and the importance of a supportive and sensitive organisational computer technology support services featured strongly for these participants when they sought assistance. In some cases they found the help encouraging. Lilly found **"there are some people that work in the data centre that are absolutely fantastic and they do the work really well and they are more than helpful".** However most of the participants expressed dissatisfaction with the service they have received from this source. There was concern and the participants believed that the clinical areas were given a low priority rating when computer technology help was needed. They found there were limited resources and support allocated to their clinical area. Geranium found this low priority and limited support seriously disrupted her work routines in the clinical setting. She explains this:

"You ring the data centre and I have had days where I have taken management days and you actually cannot do any of your computer stuff because they cannot come till the next day." (Geranium)

Consequently the participants saw a computer technology support service as essential to assisting them with computer technology in the clinical setting. Lilly comments, **"They should provide comprehensive assistance for clinical software and program functions, maintenance, repairs and replacement, along with in-service and educational support"** (Lilly). However she believes this is currently not available to the clinical areas. Beyond this, she needs these services to be available in a timely manner to support her delivery of clinical care. Lilly explains this:

"I believe the resources should be set up in the workplace for me to ring that person and say I need some help and that person can pretty well get to you with in the next hour or so." (Lilly)

Alternatively Daffodil experienced a high margin of error and raised concerns about the accuracy of nurses undertaking the function of entering data. This revealed nurses have had limited training in the skills and knowledge required for data entry for many of the programs they use. She explains, **"'e' information is only as good as the person putting it in."**

On top of this Daffodil was scared about the loss of data when it was collected and stored using electronic sources. For her, theses concerns stemmed from the fact that electronic data management was not robust enough and she explained *"***sometimes I feel that computer records can be erased or lost or corrupted as hardware and software lines are pretty dodgy out in the rural areas.***"** Consequently from her experience, she wanted some assurance that should the system fail she would be able to continue with her work. Again Daffodil expressed that **"if the system goes down then you're stuffed"*,*** and therefore you cannot work. If the systems currently in place were inadequate to handle the volume of work, so it follows that **"if the computer is down, you don't have access to that information*."*** Daffodil wanted the security of knowing the system was consistent, reliable and accurate. This was important to her to ensure the workflow could be maintained. Yet Violet found information technology had a great impact on the roles of nurses, doctors and allied health professionals in the clinical setting. She found

they were able to arrange communication between each other without the trappings of the traditional face-to-face meeting. Computer technology has the potential to breakdown of the customary barriers to communication. Moving from the past, it has allowed these people to get on with the job.

"Yes I think it has made a big impact. You can now share and create through communication, peer comparisons and stuff. It's great for communicating with other professionals." (Violet)

9.6.2 Summary

The participants express that despite the uncertainty in their working lives, computer technology has increased the closeness between co-workers as they banded together to engage with these new concepts. This meant there was the comfort in knowing that much of their experience was similar when it came to computer technology and this provided a sense of belonging. In the study, there is evidence that collegial spirit and support is a strong feature in accepting the challenges of computer technology. This enabled an environment to develop that provided comfort in times of difficulty both now and in the future.

The nurses found in themselves the capacity to make small changes to the norms and attitudes toward computer technology in their clinical setting. Where they found differences in the attitudes, access and resources they were able to see the value of diversity and equity and offer ways forward. However where they found gaps in the support, skill and ability, resources and respect of nurses, they recognised that they

would need a more strategic approach to bring these aspects of computer technology together.

9.7 CONCLUSION

In this process of rebirth the participants were moving from one phase to the next, notwithstanding that for some, there was the regret of leaving something behind. However for others this was marked by a sense of excitement and innovation about a new identity for nurses. This transition has been marked by highs and lows and has been followed by an active decision to either accept or reject computer technology in the "*lived world*" van Manen (1997, p.103-105) of nursing. In accepting the move forward, some of the participants were able act now and foresee a future. On the one hand this future is likely to encompass something that is currently beyond them. However, on the other hand, they saw computer technology as an opportunity for nursing to influence its own future. On the other hand, if they rejected computer technology they might be abandoned, isolated, stigmatised and deprived of a place in the clinical world. Nonetheless they need to be able to balance these fears with hope for the better … not worse.

They saw that in the past, nursing had resigned to the inevitable of what had been given to them by others. This direction provided an environment where the participants felt they had much to fear and where there was confusion and uncertainty about computer technology. The participants were prepared to empower themselves and leave things from

the old life behind. They expressed the need to let go of some of what was familiar to them, so they could act from a position of strength. They recognised that they would need to gain skills and knowledge about computer technology in a different way to their traditional ways of learning.

There was a necessity to encourage a greater sense of understanding about computer technology if they were to compete with other health professionals. Subsequently a need had arisen to integrate resource and support the clinical aspects of computer technology to encourage a greater acceptance by nurses.

CHAPTER 10 DISCUSSION, CONCLUSION FINDINGS AND RECOMMENDATIONS

10.1 INTRODUCTION

A common understanding about computer technology in the health care setting is that it has advanced substantially over the past decade. These revolutionary changes in medicine and technology now enable doctors and nurses to understand and treat people in ways undreamt of even a few years ago.

While the growth of information and computer technology is universal across all aspects of the health industry, there is marked variation in how it is used. Where literature is available on computer technology in the patient care setting it is based mostly on the needs of doctors. HealthConnect (2005) is based on the assumptions that doctors will be the leaders and the driving force in using computer technology within the patient care setting. However there are ways in which nurses provide care that is substantially different to that of doctors and other paramedical staff. The medical profession's needs may not be broad enough to concern themselves with the computer technology needs of other clinical groups, including nurses. While some needs may be common others will make it complicated for nurses when incorporating computer technology into their professional practice. Arguably, the computer technology necessary for doctors in this view may not be necessary for nurses'. However the most substantial challenge for nurses is in understanding how to use information technology and computers in the ways they provide nursing care.

Throughout the preceding chapters there has been reference to the four existentials described by van Manen (1997). The participants described that using computer technology in the clinical setting bought about changes in the "*nursing body*", the "*nursing space*", the "*nursing time*" and the "*society*" of the nursing profession. Consequently there was an importance attached to the environmental, cultural, physical and emotional effects on those nurses using computer technology in the clinical settings.

This chapter will consider the understanding that has emerged from the data provided by the participants in this study. It will bring together the wider meaning of the impact of computer technology for nurses working in the clinical setting. Also this chapter will restate the implications computer technology might have for nursing professionals. Chapter ten will include of a summary of the conclusions analysed from the data and incorporate the recommendations resulting from those conclusions.

10.2 DISCUSSION: THE LIVED SPACE (SPATIALITY)

10.2.1 Introduction

Objective one as outlined on page 64 was to learn about the perceptions of rural nurses where computer technology has been introduced into their clinical settings. This objective was originally expected to reveal any transformation to the notion of the clinical workplace with the introduction of computer technology. Hence the concept of nursing space reflects the feeling the participants have about the environment in which they work. It is from this nursing space that these nurses derive a sense of power and

control. Consequently the view within the ward setting shows aspects of computer technology to be evident in each and every ward in which the participants worked. Undoubtedly at face value, computers have infiltrated the space of nursing both personally and professionally.

This means that the architecture of nursing space makes an important contribution to how these nurses feel about the place in which they work. The architecture of nursing space can be aligned to the notion of common, personal and private space as outlined in chapter five.

10.2.2 Common Space

The boundaries of the hospital ward have changed following the introduction of computer technology. Previous to this nursing work was conducted predominately in a hospital ward or community health setting. Nursing work is mostly still undertaken within these settings however information technology has expanded the ward boundaries. Nurses now work from a range of sites and environments that are remote from the traditional view of the hospital ward and this has increased the arena in which nurses provide care.

Rurality adds another dimension to the changing boundaries of nursing space. Previous to this rural locations have been characterised by a diminishing and sparse population, whereby there is a need to travel long distances to access nursing care. While this is still the case, government and communities see information technology as a means of providing both creative and innovative solutions to improve equity and access of health services to these rural communities. Hence the perception of disadvantage of nurses working in a rural location has been disturbed as

a result of the introduction of computer technology. In the past rural nurses described distance, isolation and funding, as impediments to undertaking nursing in rural and remote areas and this remain essentially unchanged. Nonetheless the decrease in cost and advancement of computer technology has improved the potential for computer technology to support nurses in their role of providing patient care in rural areas.

10.2.3 Personal Space

The size of the hospital ward has remained the same in dimension and structure however there have been changes to what happens in the ward space. The introduction of computer technology has changed the way in which the hospital wards are now used. Previously nurses were the only staff continually in the ward and attended to the full time care of the patient. Now doctors, paramedical staff and others who before this only entered the ward to attend to patients use the space to access the information provided by the computer. This can interfere with the regular nursing treatment of patients and there are more people occupying the ward than would ordinarily be there.

In addition, nurses are dislocated from the caring areas when computer technology equipment is located within the clinical setting. Subsequently they are set apart from their nursing space and at times are required to access computer technology outside the clinical setting. Hence the introduction of computer technology has altered the arrangement and design of the space within the ward. Prior to the introduction of computers the equipment was mainly located within non-clinical areas and high level care wards and this remains largely unchanged. However increasingly

small amounts of computer equipment are located within the general ward environment taking up space previously offered to patients and nurses. This has reduced the private and intimate space available to nurses to undertake patient care and conduct nursing work.

10.2.4 Private Space

Computer technology has increased the way patient information is delivered to nurses in the ward. In the past patient information has been available predominantly as a patient medical record and in paper form. While much patient information is still available in this form there is increasing availability and use of patient information in an electronic form. This can segregate patient information available in the ward and interfere with the decision making when nursing care is planned or provided.

In addition computer technology has altered the way patient information is received into and sent out from the ward. In the past patient information has been located and managed within the ward and made available to doctors and paramedical staff when they are providing treatment. While much patient information is still available in this form there is increasing amounts of patient information being sent and received in an electronic form. This can impede the work of nursing staff when planning and providing patient care and in deciding who will have access to what information. Consequently there is confusion about the responsibility to manage privacy and confidentiality of patient information by nurses when information is available in the electronic form.

Subsequently the introduction of computer technology has changed the way in which information used by nurses when conducting patient care is

now stored and retrieved. Previously this information was stored as a patient medical record and staff continually added to the record. In addition the information was stored and maintained in a secure medical records unit on discharge of the patient. To a large extent this process still occurs. However doctors, paramedical staff and nurses now maintain information in individual unlinked databases. This can hamper the regular nursing care of patients as the access to information is fragmented.

Finally the ways in which nurse's access patient information, is altered as a result of the introduction of computer technology. Prior to the introduction of computers patient information was accessed from a paper based record maintained within the ward. This aspect of access is still available; however a part of the patient record is only accessible from the computer technology present in the ward. The information is available to one person at a time from fixed point within the ward.

This complicates the timely access to some aspects of the patient record and removes the nurse from the patient bedside.

10.2.5 Summary

Therefore the introduction of information technology in the clinical setting means there is an impact on the "lived space" of nurses. This impact encompasses change to the common, personal and private space of these nurses. Nonetheless there is agreement that this impact creates an opportunity for evaluation with a view to reshaping the known nursing space. In conclusion, spatial changes for the nursing profession is likely to extend the environments in

*which nurses work, expand the boundaries in which nurses
currently practice and enhance the ways that nurses provide care.*

10.3 DISCUSSION: THE LIVED BODY (CORPOREALITY)

10.3.1 Introduction

Objective two was to uncover the attitudes of nurses to the introduction of computer technology into the clinical setting. Originally contained within this objective was the anticipation that the participants will discuss issues relating to defining nursing technology. These issues include; why they use it and what are their expectations of computer technology. Linked to this are the concerns of how nurses distinguish their image and value their association with information technology. Information technology has extended its reach to influence the way nurses feel about the image of nursing and challenges the way nurses see themselves. How they feel about their image is not how short or tall, fat or thin they look, but how they see themselves as nursing professionals. Nurses are highly prized for their ability to provide nursing care and it is from this image that the participants identified the characteristics that make nurses distinct from other health professionals.

The equipment nurses use to provide patient care has changed with the introduction of computer technology. Previous to this nursing work was conducted using a small range of equipment that supported the physical findings of the patient care they provided. This obviously has not changed. However, changes to the design of clinical equipment incorporating computer technology have resulted in an increase in complexity and range of equipment now available to nurses. This has

challenge the notion about what are nursing technologies, blurs the boundaries of nursing practice and interferes with how nurses see themselves in their role of carer.

Secondly the introduction of information technology has altered the ways in which nurses collect information in the conduct of nursing care. In the past, nurses have used communication, observation and interview as techniques to collect information about patients when providing nursing care. These aspects of information gathering have not changed however there is an increased reliance on mechanical equipment to electronically collect information for use by nurses. While this can relieve the boredom of performing the tasks of manual observation, there are now changes to how nurses undertake the observation of the patient. This has bought about an alteration in the basic assessment skills of nurses. This provides an environment whereby patient assessment and care can be undertaken remotely and therefore interfere with the intimate nature of nursing work.

There are changes to the ways the tasks and nurses undertake the processes of patient care. In the past nurses performed the functions of observation, monitoring, interpreting and treatment of patients while in the act of providing patient care. This has not changed. The introduction of computer technology has changed the ways nurses use these functions. Before this doctors were credited with being the only staff to undertake these functions while much of the interpretation and treatment undertaken by nurses remained concealed. However nurses' now support nursing and patient care using information available from computer technology.

This can altered the boundaries between doctors and nurses and changes how nurses see themselves in their future roles.

There are changes to the ways nurses record the progress of patient care with the introduction of computer technology. Previously much of what is documented by nurses was conducted by writing in patient charts and notes. While much of this is unchanged there is a greater expectation for nurses to be entering patient information via a keyboard into a computer program or programs. However where there are nurses who have not used computer technology when undertaking their caring role this can interfere with the way they see themselves as a skilled professional group.

Sharing of general information from other areas throughout the hospital has changed. To a large extent the information has remained the same in content however there have been changes to the ways this information is distributed. Previously this information was delivered to the ward and sorted by nurses, pinned up on notice boards and stored in a designated site in the ward. Staff were able to access this information continuously, however much of this information is now distributed electronically and only to the ward nurse manager. This can interfere with the regular access to information on educational and social opportunities within the hospital. There is the potential for general information to be restricted and for nurses to be isolated and powerless with diminishing access to information.

10.3.2 Summary

Therefore the introduction of computers and information technology in the clinical setting means there is an impact on the "lived body". This impact encompasses an alteration to the common perception of how nurses see themselves in providing their caring role. On one hand some nurses are committed to a predominately task oriented role as a caregiver and are resistant to any changes. In this orientation the delivery of care would remain largely unchanged. Alternatively other nurses see themselves providing care from a more progressive orientation. This view identified that the role as a care provider has maintained an overall importance; however there is significant change in the ways in which nurses undertake the work. Nonetheless there is agreement that this impact creates a crossroad for the nursing profession and an opportunity for a cultural change with a view to redefining the nursing image. In conclusion, bodily changes for the nursing profession are likely to extend the roles in which nurses' work, expand the boundaries in which the profession operates and enhance the power of the nursing profession.

10.4 DISCUSSION: THE LIVED TIME (TEMPORALITY)

10.4.1 Introduction

Objective three was to understand how nurses have prepared themselves for computer technology in the clinical setting. Initially incorporated within this objective it was anticipated that nurses would express both the positive and negative influences of computer technology and the role of computer technology in patient care, along with the broader clinical management routines and educational requirements. There is no doubt

that computer technology has broken through the barrier of nursing time [temporality] and bought with it feelings that time is moving at a faster. However the concept of nursing time is more than things moving faster it reflects the feeling the participants have about their sense of time from several directions. How they feel about nursing time is about how they see the past, the present and future. From another direction they see time in terms of the time they spend at work and at home and alternatively how much time they have to undertake the caring role. Nurses are highly flexible in the time they spend providing care for their patients and time is one of the core characteristics that contribute to the image as they see it. This means that the concept of nursing time makes an important contribution to how these nurses feel about what it is that they do. The idea of nursing time can be aligned to professional, public and personal time as outlined in chapter seven.

10.4.2 Professional Time

The introduction of computer technology has changed the amount of time nurses spend on their caring role. Previously nurses spent time on providing direct patient care and while this has not changed there is an increase in the type of activities related to direct patient care. This means the information required to provide the tasks of nursing care are sourced from several places within the ward. Beyond this there is change in how the tasks are performed and reported. This can interfere with the time taken in providing direct patient care and increase the time spent away from the bedside.

New and additional work for nurses has resulted from the introduction of computer technology. Previously, nurses spent time providing patient care, with many of the non-nursing tasks were undertaken by non-nursing staff. However now many of those non-nursing positions have been removed and those tasks have now been transferred to nurses. This can alter the balance with the time available to be spent on direct patient care and increase the time away from providing patient care.

10.4.3 Personal Time

The introduction of computer technology has changed the way nurses communicate. In the past nurses primarily used oral communication skills when talking with their peers, doctors and other paramedical staff. Now they use email to a greater extent to communicate with other staff. Access to email as an important communication tool can reduce the time nurses spend following up ward related work. Alternatively the use of email has reduced the face-to-face communication of nurses. This means that nurses talk less to others; they write to them with the expectation of a written reply. The advantage of communicating by using email is being able to send and reply to communications when time is available. The disadvantages are that emails do not get answered in a timely manner. If the nurse receives large numbers of emails they may not be answered or they may be deleted. Those nurses without access to email are disadvantaged when it is used as the major tool of communication. Sending and answering emails can also prolong the time spent away from undertaking clinical care.

In addition computer technology has changed the way in which nurses spend time away from work. Previously nurses have worked extra time at the end or beginning of their workday and this has not changed. However with the introduction of computer technology nurses now supply their own computer equipment and take work home with them. This can interfere with the balance of personal and professional time where nurses are spending longer hours undertaking unpaid nursing work.

10.4.4 Public Time

The knowledge and skill required by nurses has changed with the introduction of computer technology. In the past the skills of typing and the use of computers were not a requirement for nursing. However nurses must now be able to manage complex computer programs and databases as part of their daily role. The level of computer skills of the nurse working in the ward can alter the time spent caring for patients. On a larger scale this has the potential to change nursing education requirements.

The ways nurses allocate their time when at work has changed with the introduction of computer technology. Prior to this nurses used peer knowledge, books and library services to access information to sustain nursing care however now they rely heavily on the internet to access this information. This has the advantage of providing current information to inform the care provided by nurses and by giving nurses access to information enabling them to support appropriate and timely care choices for their patients. This can also disturb the balance of knowledge and

skill between nurses and doctors and other paramedical staff by blurring the boundaries of practice between these groups.

10.4.5 Summary

Therefore the introduction of information technology in the clinical setting means there is an impact on the "lived time". This impact encompasses an alteration to the common perception of how nurses use their time in providing their caring role. On the one hand there are increases in the work nurses do that are not aspects of direct patient care. Consequently there is less time available to undertake the existing and additional work. However nurses are committed to their role of caregivers and accept that a certain amount of personal time is given to support the professional role. This extra time may take the form of paid or unpaid overtime, education, or work preparation. Nonetheless there is agreement that this impact creates an environment of new and additional nursing work to be conducted without an opportunity for cultural change from within the hospital ward. In conclusion, time changes for the nursing profession are likely to decrease the satisfaction of nursing work as the scope of nursing work expands and the balance between the professional and personal time is blurred. However this environment also provides a chance for nurses to redefine the ways in which they use their nursing time.

10.5 DISCUSSION: THE LIVED RELATIONSHIP (RELATIONALITY)

10.5.1 Introduction

Objective four was to appreciate the experiences of nurses within rural clinical settings to the phenomenon of computer technology. Expressed within this objective is the probability of issues being raised that relate to

the expansion of the multidisciplinary approach to care, along with changes to boundaries of practice for nurses and their associates. In addition the translation of knowledge and clinical practice development has the potential to raise issues around redefining the relationships and associations within the clinical workplace. The concept of nursing relationships reflects the feelings the participants have about the people with whom they work. It is from this cultural aspect of nursing that the participants derived a sense of ownership, image and autonomy over their work. It is evident that computer technology [information technology] has the ability to change the status of groups of workers within the hospital through access, education and support. Consequently the relationship they have with other workers within the hospital is crucial to how they view their own status when computer technology has been introduced into the work environment. The working relationships can be aligned to the notion of access education and support as outlined in chapter nine.

10.5.2 Access

The introduction of computer technology has changed the relationships between the clerical and clinical staff within the hospital. Prior to this much of the computer technology was allocated to the clerical areas of the hospital. While this remains unchanged nurses generally receive older, slower computer technology to perform their work. This interferes with the work of nurses and causes disharmony in the working relationship between nurses and other staff.

The allocation of computer technology to the various areas of the hospital has changed the relationship between the nurse, doctors and other paramedical staff now accessing this technology. In the past these groups accessed computer technology from the library service and non clinical areas of the hospital. This still occurs however there are increasing demands from clinical staff to use computers in the hospital. Where there has been little increase in the allocation of computer technology to the ward areas this has increased the competition for access to computer technology between theses groups. This has disrupted the balance of the relationships by creating conflict between these groups as they battle for access to these resources.

10.5.3 Education

The introduction of computer technology has changed the education and skills required by nurses to manage computer technology in the hospital ward. On the surface there is the appearance that nurses have the knowledge and skills to work with computer technology. While this is true of a few highly computer literate nurses working the hospital wards, there are many more that lack the basic skills, knowledge and education in understanding computer technology. In the past nurses were responsible for finding their own education and training in computer technology. While this is still the case the dependence on a few nurses to undertake computer work can interfere with the need to ensure appropriate education and training is available to nurses in the use of computer technology.

In addition to the conflict between nurses and other health professionals the introduction of computer technology has created division between nurses. In the past the allocation of work was distributed between those nurses rostered on duty. While this is still the case nurses with skills in computer technology are often allocated extra work as a result of these skills. This situation creates division between nurses on the ward as some nurses are seen as not doing their fair share when computer technology work is undertaken.

10.5.4 Support

The introduction of computer technology has changed the type and level of support nurses need from the hospital computer technology service to support their caring role. In the past much of the computer technology support systems were directed in supporting the non-clinical area of the hospital. This has not changed however where there is an increasing amount of computer technology being introduced into the ward. The data support available to the ward has not kept pace. This has resulted in many of the computer technology programs introduced into the wards to be underused and at times fail as many nurses struggle to manage complex computer technology with few if any support resources.

Consequently since the introduction of computer technology, many nurses have developed networks consisting of other nurses they can call on when they encounter a problem with computer technology. While the use of nursing networks is not new, it has allowed nurses to increase their skills and knowledge of computer technology in the hospital ward where there are few available resources for skill development and training.

10.5.5 Summary

Therefore the introduction of information technology in the clinical setting means there is an impact on the "lived relationships". This impact encompasses a distancing of the relationship of nurses to other staff. This distancing is a response to the competition for computer resources in the ward. Consequently where there is one or more groups seen as receiving a greater share of resources there is likely to be conflict.

Nonetheless there is agreement that this impact creates an environment of the haves and the have not's and a greater collaboration between nurses has been established in the form of networks. While these computer technology networks are not yet well established they are becoming a growing voice promoting the computer technology needs of nurses in the ward.

10.6 FINDINGS

10.6.1 Introduction

This study has revealed the following findings that are supported by the data provided by the participants and outlined in the discussion chapter. From this a number of recommendations have been made to conclude this chapter.

10.6.2 Summary Findings

The discussion has identified a summary conclusion that the impact of computer and information technology in clinical settings involves change, but such changes need not to be constraining to the nursing profession.

<u>I find that information technology has an impact on lived space</u>:

- By disturbing the balance of the public and private spaces of the hospital ward.

- By diminishing and invading the intimate space where patient care is undertaken.

- By changing the ways information enters and exits the ward.

- By changing the place and the scope of nursing work.

<u>I find that information technology has an impact on the lived body</u>:

- By altering the known characteristics of the professional and public image of nursing.

- By disturbing the nursing image between the holistic and virtual view of nursing care.

- By providing a platform whereby the form of knowledge and professional power of nursing is altered.

- By identifying patient information and management as nursing work.

I find that information technology has an impact on the lived time*:*

- Through the recognition of change to the education, training and skills that nurses need to work in an environment exposed to information technology.

- By altering the time that nurses have in partnership with their patients.

- By providing a platform whereby nursing time can be acknowledged, recognised and appropriately remunerated.

- By recognition of the past, present and future, nursing is contributing to normalising the positive and negative effects of computer technology in the clinical setting.

I conclude that information technology engenders an impact on relationship with others:

- By altering the personal, professional and organisational boundaries and relationships of nurses with others working in the hospital ward.

- By changing the scope of professional practice between the various groups of health care workers.

- By recognition of the changing supported needs of nurses within the hospital ward.

- By recognition of the growing importance of nursing teams skilled in computer technology.

I conclude that, for the participants in this study, living with information technology is facilitated by a determination to use computer technology to increase skills and knowledge thus empowering the nursing profession, extending the range of nursing practice and enhancing patient care.

10.7 RECOMMENDATIONS

I therefore recommend that**:**

- Nurses use their power to lobby the various healthcare professionals, policy makers and health planners, to explore the situations that will enable nurses to use computer technology more effectively in the clinical areas.

- Nurses and others use their power to enable the use of computer technology in the clinical setting and that they are supported to achieve that end.

- That relationships be formed, built on mutual respect, to facilitate locally nationally and internationally a supportive environment to meet the future technological needs of nursing care.

- Nurses and others health workers turn their attention to ensure appropriate access, equipment and use of computer technology are available to nurses for clinical purposes.

- Collectively nurses extend their viewpoint about information technology and use it in the support of data collection, analysis and translation of knowledge to improve patient care.

- Nurses become proactive and advocate the benefits of information technology and lobby for access to information technology as a part of the basic nursing toolkit.

- Nurses extend their use of information technology to expand their nursing knowledge and provide innovative patient centred care models and changes to nursing practice.

- The scope of nursing is widened to incorporate nursing informatics as a relevant nursing specialty to support the clinical workforce.

- Nurses unite with other health professionals to improve the capacity of clinical applications, thus reducing the duplication and work in an effort to retain and enhance the nursing workforce.

During the undertaking of this study some recommendations for future research have been identified. Some of these recommendations have come about from limitations of the study and others as a result of data generated from the study. These are as follows;

Future studies are undertaken comparing the use and skills of female and male nurses using computer technology. Within this study there is a bias toward the perspective of female nurses. This is due to the low numbers of male nurses who nominated to participate in the study. The information generated by research in this area could have significance on the introduction and implementation of information technology where there is marked difference in the gender balance of nurses working in the clinical areas.

The direction of this study has been aimed at exploring and identifying aspects of computer technology that could benefit or challenge the

delivery of rural nursing care. Additional research needs to be undertaken in the skills and range of computer programs that nurses use in the ward setting and the relationship to direct and indirect patient care. Research in this area could benefit health planners in targeting the future directions of nurse education.

Information management generated from the introduction of computer technology represents a challenge to the traditional ways nurses undertake these processes. Research into the aspects of information management as it relates to computer technology and nursing could benefit the future aims of the nursing profession in the terms of the scope, form and role of work undertaken by nurses.

Nurses in the workplace could benefit if future studies were to be undertaken in how nurses gather, analyse and interpret information derived from computer technology. Nevertheless how nurses transform this information into knowledge and how that knowledge is translated into patient care is an area of study that has significance for the image of nurses worldwide.

APPENDIX A

Participant Information Letter

Logistics of Patient Care:

The Impact of Information Technology in the Clinical Setting

This research is an exploratory study utilising qualitative methodology that aims to explore with clinicians their experience of information technology in the clinical setting, including the delivery systems of information technology and the impact on that experience.

This study will involve unstructured interviews of participants who identify themselves as being a Nurse Unit Manager, Clinical Nurse Consultant and Clinical Nurse Specialist working in the clinical setting.

The interview will take approximately one hour of your time. Once the interview has been transcribed, I will ask you to read through the transcription to ensure this is a reflection of your experience. At this stage you can direct any changes to the transcription.

The data collected will be analysed and a report will be compiled. Any data included in the project will be reported in a manner that will not identify the individual participants or their place of work.

If at any stage you wish to withdraw from the project, please contact me and the tape recording of your interview and all other data relating to this will be removed and destroyed. All participants will be sent a summary of the findings of the study when it has been completed.

The researcher has undertaken to carry out the study with honesty and integrity. However, if you have any queries concerning the study or wish

to discuss any aspect of its content or processes, please do not hesitate to contact:

Trish Alexander   Phone: Work 02 6767 8074   Home   02   6765   8806

Any comments or complaints about the conduct of this study can be made to the Director, New England Area Health Service Research Institute, Phone 02 6766 2266.

Any contribution you can make to this study will be greatly appreciated.

Trish Alexander

Principle Researcher

APPENDIX B

Participant Consent Form

Logistics of Patient Care:

The Impact of Information Technology in the Clinical Setting

This research is an exploratory study that aims to explore with clinicians their experience, perceptions and attitudes to the impact of information technology in the clinical setting, including the uses, the resources, the preparedness and the changes related to information technology.

I have read the information letter by the researcher, Trish Alexander, that outlines the aims of the unstructured interviews and my role as a participant in the study.

I understand that Trish Alexander is conducting an exploratory study to collect, analyse and interpret the experiences, perceptions and attitudes of nurses in relation to information technology in the clinical setting.

I further understand that data collected will be for the purposes of that research only and any information I supply will be treated in the strictest of confidence. Access to the data obtained will be restricted to the researcher and research supervisor.

The researcher has assured me I will not be identified by my participation in this project. I am aware that my participation is voluntary and that I may withdraw at any time from the interview without prejudice.

I understand that my identity will not be disclosed in connection with the unstructured interviews and that when the final report is written my opinions or information will not be identified to me personally.

Signature of Participant		Signature of Researcher
Date		Date

APPENDIX C

Example of a Transcript Page

(Thematic Analysis)

The following is a sample of the first interview with Iris. This example will give you an idea about how the analysis was conducted in line with the "*lived experience description*" (van Manen 1997) p.92). Statements or phrases that are fundamental or enlightening were highlighted and aligned to an interpretive code in the next column of the table (van Erp 2002) p314).

Iris	I was actually looking to <u>put together a nursing manual</u> as a nursing resources manual for staff within the hospital so I guess <u>I accessed a lot of the literature from the library</u>.	Confident Skills Knowledge
TA	What sort of things did you encounter?	
Iris	I remember the very first day that I was given a computer. <u>I did not have any idea of where to even turn the on off button on</u> the computer just sat there and I remember looking at it and I was thinking I don't know where to start with this. <u>I have absolutely no idea.</u> I had never really seen one, did not have one at home to access, no experience whatsoever.	Embarrassed Skills Knowledge Fear Culture Shock Powerless
TA	What sort of resources did you find within the organisation?	
Iris	<u>I had asked around</u> through the data centre and various people there. I <u>didn't really get the help</u> that I actually needed to get me started. I remember <u>actually paying someone privately</u> to give me tuition on <u>how to use the basic programs</u>, a word document and excel to actually be able to start getting some records together. I had no idea.	Frustration Despair Education Taking Control Skills

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