Nursing and technology: gendered domination at work

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Contents

Abstract

Eleven experienced registered nurses, female and male, were interviewed in-depth about technology. Poststructural analysis reveals that they challenge the gendered cultural stereotype of women being alienated from technology, while men enjoy it. The participants spoke of the strong association between technology and the power, status and control of the medical profession; the challenge, enjoyment and stress they experience as the users of health care technology; and of the impact of machines on their clinical practice. Health care technology would appear to be a gendered social construct that cannot be adequately met with individual survival strategies.

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

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Chapter 1

Introduction

> ***"(N)urses' worlds are primarily women's worlds that have not yet been thoroughly understood: nurses' work has traditionally been women's work and these linkages should be more fully described. . . . Only through feminist research will we be able to redefine what we have already thought was knowledge."***
>
> (Keddy 1992:8)

Much has been written about how the status of nurses in the health care system reflects society's broader problems of gender and class (Jolley 1995; Mason, Backer & Georges 1991; Oakley 1984; Street 1992) and therefore feminist research is particularly relevant for investigating the nature of nursing. Stanley (1983), a feminist author, states that throughout recorded history, technology has also been gendered, because it has been defined as what men do, rather than what people do. This has implications for nurses' relationships with technology because nursing remains a predominantly female profession. Also of interest is Acker's (1992) belief that all organisations are gendered although it is assumed that they are not, and that this contradiction between reality and gender-neutral thoughts is very problematic. According to Kaplan (1995), discussing society without considering gender is like discussing the climate without considering daily weather patterns and yet, in Australia, very little literature about women existed before 1968.

Stanley and Wise (1990:33) cite Frye's belief that *maleness, heterosexuality and whiteness all 'work' ontologically by being states of*

unawareness in which the key privilege of the privileged group is not to notice that they are such. As a consequence, the nature of women's oppression is frequently insidious and only uncovered by feminist research, which has gender as its main analytical construct.

Feminism is about freeing men and women from distorting and disabling conceptions of themselves and of their relations to one another (Cooper 1993:47), and hence feminist knowledge can be liberating and lead to significant changes in people's lives. Game (1991) believes that the power that subjugates, also produces the possibility of refusal and therefore reversal of the power in those relationships. The first step in this process, however, is creating awareness that a relationship of domination exists, and this is dependent on *asking the right questions to get the right answers* (Meredith 1987:101). Questions therefore need to be asked about technology and nursing practice.

Technology is an important issue for registered nurses (RNs) because it is presently not only shaping the nature of nursing's professional specialities, but also the nature of nursing work itself. It is predicted that during the next century there will continue to be unprecedented technological progress and change (Tonges & Lawrenz 1993). Technology is not new to nursing because nurses have used thermometers, sphygmomanometers and stethoscopes to gather data about the people in their care, for the last century (Laing 1982). The challenge now is to explore technological social relations within the health care system and to this end, this research explores a variety of issues about health care technology, and its relationship with nursing work.

In 1991, the Australian Nursing Federation (SA Branch) produced a policy statement about technology and nursing which defends the

position of the professional nurse as the central, most important figure in the health care context. There is no mention of medical practitioners and hence this is a powerful document as it creates the ideal world which can then be called into reality. However, it is the present situation in Adelaide that is explored in this research. Are nurses involved in decision-making processes about expensive health care technology? Is the proliferation of technology in any way controlled? How does it occur? Do nurses enjoy using technology in their professional and personal lives? How does it impact on their working lives and, most significantly on their relationships with the people in their care? Feminist research calls the invisible and the taken-for-granted into the spotlight and allows creative options for the relationship between nurses and technology to be envisaged and then made operational. An optimistic view about health care technology is realistic, because, according to Arnold and Faulkner (1985), technology can always be transformed into something liberating. With this in mind, the final chapter of this thesis explores how health care technology may be able to fulfil Zwolski's (1989) suggestion, that technology needs to proceed with greater empathy and affection to people, rather than imposing a solution. It is important, however, to keep Street's (1995:51) words in mind, that all *(r)esearch conclusions are multiple, contradictory and partial rather than definite.*

The next chapter contains a review of feminist, cultural and nursing literature about technology, describing the background against which this research project proceeded.

Chapter 2

Literature review

"The belief that technology represents the triumph of human intelligence is one of America's most cherished cultural myths."

(Bush 1983:153)

The inevitability of a high technology future in health care is one of the main themes in nursing literature about technology (Australian Nursing Federation 1991; Bandman 1985; Brewer 1983; Hardy & Douglas 1990; Kellogg 1991; Lindeman 1992; Romano 1990; Simpson 1992A, 1992B; Smith & Murray 1988). Technology used to be thought of as applied science, but this is no longer the case, because technologists and scientists are now seen to have their own separate cultural resources which include practices, institutions and knowledge, with the boundaries between the two constantly changing (Wajcman 1991). This is reflected by some nursing authors who express the view that nurses should learn more about biomedical engineering, in order to become involved with the design of new technologies (Jacox 1992; Laing 1982; McConnell 1989; Schultz 1980). Societal values impact on health care technology because it is an intensely political activity (Lowe 1989), and this means that gender should be at the heart of any exploration of technology. In fact both Linn (1987) and Cockburn (1985) have stressed that it is very difficult to avoid biological determinism in any discourse of technology, because of technology's extremely gendered nature.

While technology is not new to nursing, interestingly, Postman (1992) believes that it was the invention of the first stethoscope that began to focus doctors' attention on machinery and diseases, rather than the patient and their point of view. This change has been so complete, that now *the treatment of illness is regarded as being solely a matter of application of the appropriate technology* (Wilkinson 1992:194, citing Canter 1984). In a paper published in 1980, Walker, an Australian nurse, comments that the manner in which technology is *introduced and embedded in an organisation* is more important than the technology itself (Walker 1980:60); and that massive changes were inevitable within the health care system, as a result of the availability of different technologies.

In order to thoroughly explore gender, technology and nursing, the discussion needs to be framed within the wider context of feminist, cultural and health care literature. While articles from medical journals, about medical technology, have not been included in this literature review, some of the cited health care literature has been written by doctors. Firstly an exploration of the social context of technology development is in order.

Technology, patriarchy and capitalism

In the western world today the major technological breakthroughs are stimulated by war, industry, and increasingly, commerce (Griffiths 1985; Hacker 1990) with women largely the passive recipients, or users, of technology. Griffiths (1985:60) states that as a consequence, the *masculine personality attributes of competition, assertion, aggression and dominance* are institutionalised and hence many

women and girls may continue to reject technological goals and values, seeing technology as symbolic of male domination (Griffiths 1985; McNeil 1987A). Pelletier (1990) cites Benner's (1984) view that women's socialisation towards humanistic values discourages the development of technological skills because they are unfeminine and this view positions women outside of even the easy use of technology.

It is difficult to define technology (Karpf 1987), but Banta and Luce (1993) use the definition from the Office of Technology Assessment, (USA. 1978) which states that health care technology consists of *the drugs, devices, and medical and surgical procedures used in health care, and the organizational and supportive systems within which such care is provided* (Banta & Luce 1993:9). This is a commonly accepted international definition as is borne out by Pillar, Jacox and Redman (1990). However, the word technology is frequently used to mean just physical objects and machinery, while the context of the machinery - that is, the skills and knowledge of the users is overlooked (Banta & Luce 1993). This is the case within much of the feminist literature, where technology is predominantly assumed to be equipment (hardware), which is viewed by many authors as an inherently masculine social construct (Cockburn 1985 & 1991; Faulkner & Arnold 1985; Karpf 1987; Linn 1987; MacKenzie & Wajcman 1985; McNeil 1987B; Reiger 1985; Wajcman 1991). According to Rothschild (1983), many feminists believe that technology does not free women unless they control it, and it does not harm their health. Technology is seen by feminists as an equity issue, having *everything to do with who benefits and who suffers, whose opportunities increase and whose decrease, who creates and who accommodates* (Bush 1983:163).

Feminism, which can be defined as a world-view that insists on the well-being of all women, continues to impact on patriarchal western cultures, calling into question existing explanations of reality, and questioning language itself (Weiler 1989:71). Feminism acknowledges that the social domination of women by men is structured, extensive and constantly reproducing itself, rather than diminishing (Cockburn 1991), and within the health care system, the subordination of the mainly female nursing profession and the domination of the medical profession, continues (Cheek & Rudge 1996; Darbyshire 1987; Marles 1988; Street 1992; Wearing 1996). Ashley, writing in 1980, cited Daly's (1978:274) belief that *the rituals of medicine are more often than not sadistic*, with nurses as the token torturers. Payton (1984) and Chinn (1989) agree, with Chinn commenting that in the future, people will view the 20th century health care system in America, as treating physically ill people in a medieval and barbaric manner, as is the present view of the treatment of the mentally ill in the 19th century. Health care technology is not viewed as facilitating a pleasant healing environment in today's health care system.

Feminists need to be particularly concerned with the ways in which technologies are likely to reinforce masculine dominance, because, according to Kipnis (1990), the controllers and users of technology have power, and may have attitudes of derogation and indifference to those for/on whom it is used. Wajcman (1991:162), a feminist author, agrees, saying that technologies reveal the societies which invent them and hence are value-laden, and cannot be neutral, as is sometimes thought. Rather, they depend primarily on the distribution of resources and power amongst different societal groups, and are therefore mediated by gendered power relations. Wajcman

explains that

> *(t)echnologies result from a series of specific decisions made by particular groups of people in particular places at particular times for their own purposes. As such, technologies bear the imprint of the people and social context in which they developed.*
>
> (Wajcman 1991:22)

Another theme in the literature is the strong link between health care technology and capitalism (Banta & Luce 1993; Bates & Lapsley 1987; Collyer 1996); frequently *(t)he development of health care technology often seems to have little relation to important health care needs, except where those needs translate into reimbursable demands* (Banta & Luce 1993:33). In 1983, it was reported that in the United States of America there were 7,000 manufacturers of medical devices, producing a total of 50,000 separate products (Kessler, Pape & Sundwall 1987). The links between capitalism, production and technology become clear when one considers the capitalistic profitability of American medical device manufacturers who, according to Jacox and Kerfoot (1990), were expecting an annual increase in profitability of 15% from 1992-4. In another article, Jacox (1992) states that the use of technology is responsible for as much as 25% (or more) of the increase in health care costs in the USA during the past 20 years. Within the health care system, the medical profession acts as an agent of capitalism, manipulating the health care sector for business corporations (Collyer 1996 citing Waitzkin 1989, Navarro 1986, & Johnston 1972).

The social dimension of the development and use of technologies, means that the creation and implementation of new technologies reflects the priorities and values of white, middle and upper class male scientists, technologists, academics, executives and entrepreneurs

(Drygulski Wright 1990). This notion of the social dimension of the development and use of technology is well supported (Arnold & Faulkner 1985; Banta & Luce 1993; Bates & Lapsley 1987; Cockburn 1992; Cramer & Zegfeld 1991; Lowe 1989; Wajcman 1994; Willis 1983). Drygulski Wright (1990:368) asserts that science and technology's claim to *objectivity and distance from political or economic interests . . is clearly an illusion*, while Abel-Smith (1988:11) remarks that the

> *key features of the market for medical technology are lack of information and the fact that the provider who demands . . . the technology does not bear the cost or can readily pass it on to insurers, health services or patients.*

The medical profession encourages technological developments in order to enhance its professional dominance (Willis 1983) and as a result of this, hospitals are large and *more elaborate than . . . libraries, churches, and art galleries; they cost far more to run, and their equipment is renewed more often* (Bates & Lapsley 1987:6). New equipment quickly moves from experimental to standard treatment, proliferating rapidly (Pillar 1992A; Schultz 1980); however, it is capitalism and men that are out of control, not the technology itself (Cockburn 1985).

In 1989, Lacey stated that Western civilisation now has a single, universal technological system which he called mega-technology. The most alarming aspect of this mega-technology is its capacity for self-propelled growth. At any given time, there are certain potentials for growth, and these are usually realised. Lacey explored the cultural myths that promote such technological determinism; for example the views that technology sustains us; is vital for our culture; and has to be accepted without question. In nursing literature, Sandelowski

(1993A) voices a similar concern about technology dependence in health care, defining technology dependence as *the short- or long-term reliance on devices and techniques to evaluate or to satisfy or resolve health-related needs or problems* (Sandelowski 1993A:37). This dependence mirrors Lacey's (1989) view that the cultural trend in western societies is to adopt mega-technology. Sandelowski (1993A: 39) states that *the very existence of new techniques may make the option not to choose to use them a non-option.*

An earlier author who agrees with this point of view is Ladriere (1977), a philosopher and scientist who stated that technology actually creates its own needs, and can have spell-binding power over people. This dependency is presently exhibited in both patients and caregivers, including nurses (Sandelowski 1993A). Sandelowski (1993A) uses the example of invitro-fertilisation being the solution to not being able to produce a biologically-related child, rather than the solution to having a child to parent, and hence actually defines the health problem. Within the health care system, it is hospital-based medical staff who are the most dependent on medical technology (Banta and Luce 1993), with a resultant proliferation of medical specialities, and as a consequence, nursing specialities.

Technology and specialisation

This link between increased technology and the increased specialisation of health professionals, means that there is a greater possibility that patient care will be fragmented and de-personalised (Sandelowski 1993A; Zwolski 1989), with each speciality developing its own language and values, while focusing on a limited aspect of the

client's health. Zwolski (1989) sees this as not only fragmenting people's care, but also diminishing their uniqueness as human beings. With this in mind, it is understandable that the proliferation of technology in the health care system is well documented as being morally troubling for nurses (Bates & Lapsley 1987; Carnevale 1991; Cooper 1993; Drought & Liaschenko 1995; Fleck 1987; McConnell & Murphy 1990; Pickler & Munro 1994; Pillar 1992B; Ray 1987; Reilly & Behrens-Hanna 1991; Yates 1983).

It is alarming that with the exception of drugs, as many as 90% of all marketed medical devices/procedures have not been adequately assessed before being brought into use (Jacox & Kerfoot 1990; Kellogg 1991). This need for assessment is a major theme within the literature (Bates & Lapsley 1987; Battista & Hodge 1995; Bush 1983; Collyer 1996; Scott Heide 1982; Marsden 1991; McConnell 1994; McConnell, Newland, Manning & Paech 1993; Pelletier 1990; Pickler & Munro 1994; Pillar 1990; Quivey 1990; Scenario Commission on Future Health Care Technology 1987). Historically, nurses were generalists and therefore versatile, easily able to move from one department to another (Ashley 1976). Drygulski Wright (1990), and Cockburn (1985), both feminist authors, believe that polarisation and exclusion characterise today's workplace technology, and this has certainly been nurses' experience, as health care technology has proliferated. The increase in technology and specialisation has meant that nurses are now frequently fearful about making a horizontal transition from one unit to another (Wichowski & Kubsch 1995).

Cassetta (1993A), however, points out that in community care, the increase in technology will mean that the present separate specialities of High-dependency and Community nursing, will need to become

combined in the near future, thus heralding a merging of these two distinct specialities. There is now an increasing use of technology in home care within the community (Carnevali 1985; Cassetta 1993A; Golonka 1986; Henderson 1985; Jacox 1992; Moccia 1989; Paige 1990; Pelletier 1990), as well as in hospital care. Moccia (1989) describes this change as a diffusion of technology out of hospitals, due to the high cost of keeping people in hospital, and Cassetta (1993A) predicts that in the future, technology will also be more prevalent in nursing homes. Leader and Leipig (1988), cited in Pelletier (1990) believe that there is an urgent need for research into the effect of increasing technology in community care, as it may result in physical or mental health problems for the caregivers involved in its use. Within feminist literature, this concern is mirrored by the concern that computing technology is consigning women to the home, once again, through home-working opportunities (Lloyd & Newell 1985).

Recent research has found that older nurses are likely to have a more positive attitude to technology, with confidence about any technology being a key characteristic as to confidence with technology in the clinical area (Pelletier 1995). Pelletier (1995) points out that this confounds an earlier view (Pelletier 1993, citing Yates 1983), that technology may be detrimental to nursing because it increases the dichotomy between education and service. Rather, nursing literature contains evidence that clinicians are calling for more education about devices (Pelletier 1995, citing Campbell et al 1988; Golonka 1986; McConnell 1994; McConnell & Nissen 1993;).

Australian nurses are increasingly concerned about the proliferation of high cost medical devices, and to date have had very little input into decisions about their acquisition and use (Australian Nursing

Federation [SA Branch] 1991; Hickson 1992; Marles 1988). Many authors are of the opinion that this concern must be translated into action, or there is otherwise the risk of the occurrence of further subordination of nurses, with their role being dictated to them by other health care professionals (Brewer 1983; Kristensen 1989; Marles 1988; McConnell 1995; McConnell & Murphy 1990; Simpson 1992B). There are many nursing articles calling for nurses to assess medical devices, in order to select the most appropriate device for use in any given situation (Australian Nursing Federation 1991; Jacox 1990 & 1992; Jacox & Kerfoot 1990; Marsden 1991; McConnell 1989, 1994 & 1995; McConnell, Newland, Manning & Paech 1993).

Power, control and technology

In 1983, Brewer's (1983:17) research indicated that *it was specialist consultants who were largely responsible for deciding which equipment would be required by their individual departments*. These consultants (or senior medical officers) may or may not discuss their decisions with their nursing colleagues. Alarmingly, Brewer (1983:102) concluded that there had been *a lack of administrative support designed to protect the nurse and the patient*, and that there appeared to be an unscalable wall between the power of the medical profession and other health care professionals. Marles' (1988) study of nursing in Victoria also discovered that the single most significant problem identified by nurses was *their perceived lack of control over the application of advances in medical science and technology to their work and their work environment* (1988:24). Another major issue was the lack of *planning for both the implementation and the consequences of technological change* (Marles 1988:24). Many nurses are now

advocating for further research about technology (Halm & Alpen 1993; Hickson 1992; Jacox 1992; McConnell 1990B; McConnell & Nissen 1993; Pauly-O'Neill 1991; Pearson 1993; Pelletier 1990; Romano 1990; Sandelowski 1993A; Spencer 1995), as have feminists such as Bush (1983) and Rothschild (1983).

While there is debate about technology in health care literature, as is demonstrated by More and More (1994), there is no mention of the nursing profession. Rutten and Reiser (1988), and Battista and Hodge (1995), have done extensive international research about health care technology, without mentioning nurses. According to Ashley (1976 & 1980), Darbyshire (1987), Jacox (1992) and Spencer (1995), nurses are invisible in medical discourse while doctors are visible within nursing discourse. Fairman (1992) discusses how past studies of the development of Intensive Care units also focused on machines and physicians, leaving nurses invisible. Linn (1987:146) states that *those who do essential work, across and between technical labour processes are structured out of the productive account. They are given no recognition.* This would seem to be very applicable to nurses within health care literature about technology.

According to McNeil (1987B), the relationship between technology, knowledge and power is very complex. Two views in the literature are firstly, that power is exercised through technology (Brans 1995; Feldberg & Glen 1983; Griffiths 1985; Hacker 1990; James 1993; Kipnis 1990; Sofia 1995), and secondly that technology promotes power and knowledge differentials (Cooper 1993; Marsden 1991; Postman 1992; Sandelowski 1993A). Power does not reside in machines, but rather, exists in the relationship between people (Foucault 1982; Liff 1987) - that is, in the structure of the labour

processes, and McNeil (1987B) warns that while technology may represent power, it does not always realise power for the user.

Technology such as automated information systems is expected to support nurses and save them work, however technological devices are also known to change the interaction between people, the manner in which knowledge is shared, and the way in which people form work teams (Straub & Wetherbe 1989, cited in Tonges & Lawrenz 1993:16). Sandelowski (1993A) believes that technology actually increases labour, as it raises people's expectations and standards of work. This notion that technology usually produces both positive and negative effects is a theme in much of the literature: feminist (Bush 1983; Feldberg & Glenn 1983; Hubbard 1983; Karpf 1987; Sofia 1995); cultural (Bates & Lapsley 1987; Postman 1992); and nursing (Braun, Baines, Olson, Scruby, Manteuffel & Cretilli 1984; Cooper 1993; Erlen 1994; Ford 1990; Jacox 1990; McConnell 1994; Sandelowski 1993A & 1996; Tonges & Lawrenz 1993). Technology changes people's thoughts, symbols, and communities. An example of this is that when computers are used, everything becomes data (Parker 1987; Postman 1992; Sofia 1995). Technology causes social change, and Daza Samper (1990:347) believes that because of this, technology *cannot be adequately met with individual survival strategies*, but also needs the attention of legislators and trade unions. In her research into the effect of office automation in the USA and Western Europe, Daza Samper (1990) discovered that the Western European countries had far more legislation and government policies about the implementation and use of technology than did the USA, which had nil. Countries around the world had responded very differently to the introduction of office automation.

Throughout human history women have made major contributions to the development of technology, and were not previously viewed as being antithetical to it, as is believed by some people today (Griffiths 1985; Kass-Simon & Farnes 1990; McNeil 1978B; Rothschild 1981; Stanley 1983; Wajcman 1991). Kass-Simon and Farnes (1990) believe that it was the professionalisation of various scientific fields which led to the exclusion of women inventors from fields such as engineering. Engineers and technicians have a drive to continually invent, believing that technological expansion is progress (Pelletier 1990) and they shape industrial technology with their values of efficiency, productivity, profit and control (Hacker 1990). This focus on efficiency and precision also accompanies the use of computers, and Ford (1990) believes that nurses' conception of nursing will change as computerisation becomes more widespread.

Impact of computerisation

Several authors are highly critical of a perceived lack of enthusiasm from nurses, about using computers (Schroeder & Carter 1989; Tamarisk 1990), relating this reluctance to a lack of knowledge and expertise; conversely, Herring and Rochman (1990) found that nurses adapted more readily to the introduction of bedside computers, than any other health professionals. These contradictory views illustrate the problematic nurse/computer relationship, which is confounded by authors such as Wichowski and Kubsch (1995:176) who state that, *(t)he technological explosion is frightening to even the most experienced (nurse).*

An assumption about technology, particularly information technology, is that it always makes a positive contribution to the lives of the workers who use it. Yet feminist research into the effect of computers within a large insurance company clearly demonstrates that computers have had the effect of isolating their users, and making them individually accountable for a particular workload, so that 'backlogs' can seem overwhelming (Knights & Sturdy 1990). Knights and Sturdy (1990) believe that computers have given management a productivity bonus far greater than would have been achievable by any direct methods of management control. This study concurs with Cockburn's (1985:66) view that the *shift to computerisation is a shift away from a worker-controlled pace of work*, making individual workers more accountable and increasing their work stress.

Hacker (1990), another feminist researcher, carried out a case study of a large, private telephone company in North America, in order to investigate the effects of increasing automation on the working lives of the male and female employees. Surprisingly, affirmative action policies within this organisation actually gave men more of women's positions, than the reverse, with women remaining the reserve labour army. Hacker concluded that corporations select their technology to focus organisational uncertainty on the most disadvantaged groups in society, with working men directly advantaged by women's subordination in both their public and private lives. This feminist research is a sobering case study of the impact of technology on a large industrial workplace, and has implications for nurses.

Cockburn (1985), Feldberg and Glenn (1983), and Hacker (1990) agree that technology in industry has led to male workers consciously and actively keeping women confined in unskilled and low-paid jobs.

Within nursing there are statistically many more male nurses than female nurses in positions of authority (Gaze 1987; Hardie 1987; Hunt 1991; Skevington & Dawkes 1988) and how much this can be traced to the impact of technology is yet to be defined.

Campbell (1993A), a Canadian nurse, describes how

> *(a) decade ago, nurses began to suffer from heavier and heavier workloads at the same time that technologies for measuring and managing nursing workload were being introduced. When nurses expressed fears about declining patient safety and comfort (due to . . workloads), hospital managements introduced technologies that made 'quality assurance' a matter of documentary procedures and records monitoring.*
>
> (Campbell 1993A:24)

As a consequence of this, regardless of what nurses do and know, quality care is now measured by documentation, and therefore control has slipped from nurses (Campbell 1993A). It is little wonder that according to Simpson (1993), management rewards those who embrace technology. Within nursing literature, nurse managers advocate for technology in the form of computers, because of their streamlining effect on administrative procedures (Simpson 1993; Tonges & Lawrenz 1993), but this technology also gives management easy access to a wealth of data about their staff and patients, and hence increases management's power and control.

Technology and nursing practice

Pillar et al (1990) believe that technology has a double impact on nurses, in that they not only have to understand it and use it, but they also have to cope with its effect on the people in their care. Nurses are frequently seen as the mediators, or compensators,

between the client and the medical devices (Brunt 1985; Curtin 1990; Fitter 1987; Henderson 1985; Mann 1992; McConnell 1989, 1990A & 1990B; McConnell & Murphy 1990; McConnell & Nissen 1993; Selby 1989). The link between technology and increased stress is also well established in nursing literature (Ashworth 1987; Bates & Lapsley 1987; Brewer 1983; Laing 1982; Marles 1988; McConnell, Cattonar & Manning 1996; McConnell & Murphy 1990; Taylor 1989; Yates 1983).

There is now an increasing body of literature concerning technology and the nurses who work in Intensive Care Units (Ashworth 1990; Carnevale 1991; Cassetta 1993B; Clifford 1986; Cooper 1993; Dassen, Nijhuis & Philipsen 1990; Drought & Liaschenko 1995; Fairman 1992; Halm & Alpen 1993; Herring & Rochman 1990; Laing 1982; Marsden 1991; McConnell 1990A; Medcof & Wall 1990; Quivey 1990; Ray 1987; Schultz 1980; Sommargren 1995; Walters 1994; Wilkinson 1992; Yates 1983): and patients' experiences of these units (Ashworth 1987; Clifford 1986; Ford 1990; Cooper 1993; Pelletier 1990). Paradoxically, Hickson (1992), believes that many female nurses enjoy working with technological devices in areas such as Intensive Care Units, contradicting the view that women are essentially alienated from, and by, technology.

Nursing literature highlights different aspects of the effect of technology on client care (Cooper 1993; McConnell 1990A). Following their investigation of nurses' use of technology, McConnell and Murphy (1990) state that nurses are concerned about the effect of technology on empathic, holistic care, because of its effect on nurses' work, and the nurse-patient relationship. The need to make caring explicit on high-technology units is articulated by Ashworth (1994),

Cooper (1993), Curtin (1990), Halm and Alpen (1993) and Wilkinson (1992).

While not specifically mentioning touch, Clifford (1986), Cooper (1993), Erlen (1994), and Halm and Alpen (1993), state that technology requires that nurses have increasingly effective interpersonal skills. Ford (1990), McConnell (1989), Pillar et al (1990), Sandelowski (1988) and Schultz (1980), all explore aspects of the effect of technology on how nurses touch the people in their care. Jones and Alexander (1993), explain that caring can be conceptualised as a nursing technology, if a broad definition of technology, which includes technology as a process, is used. Caring can then be defined as an interplay of technology and expressive art.

There is a tendency in our society, and amongst nurses, to equate high technology (machinery) with high status work (Bates & Lapsley 1987; Marles 1988). It is when this view is expressed that Kipnis' (1990) ideas about the effect of technology on interpersonal power need to be kept in mind. At the same time as the health care system is anticipating a high-technology future, natural medicine and childbirth are undergoing a resurgence of interest, in what could be viewed as a counter-cultural effort to resist the use of health care technology (Sandelowski 1993A). A futuristic view of technology also finds expression in the literature and warrants attention.

Cyborgs: human/machine couplings

During recent years, feminist authors such as Halberstam (1991), Haraway (1985), Hickson (1992) and Sofia (1995) have begun to explore gender and technology using post-modern theory, in order to

create new ways of analysing the human/machine relationship. They believe that it is no longer appropriate for feminists to state that they are for or against technology, but rather there is the need to *theorize their position in relation to a plurality of technologies* (Halberstam 1991:441). Halberstam (1991 citing Firestone 1970) states that many technologies are liberating for women and men (for example fertility control), unless improperly used. Again the important emphasis is on how a technology is introduced and implemented. Hickson (1992) agrees with this view and explains that nurses need to begin to clearly map out the technology of nursing.

For Halberstam (1991), technology within multinational capitalism is full of contradictions which make the gendering of technology as masculine, to be problematic. Fear of computer intelligence is based on its link with sophisticated military weapons from which it derives, and this fear has led to technology actually being gendered as seductively female and referred to as 'she' within our culture (Halberstam 1991, citing Huyssen 1986).

In 1985, Haraway wrote about female cyborgs, describing them as cybernetic organisms that are genderless couplings of machines and living organisms. She exhorted feminists to grasp the cyborg concept and use it to reconstruct gender, to the advantage of all women and men. Halberstam (1991) also discusses cyborgs, questioning the origin of the anxiety about the blurring of the machine/human boundaries, believing that this anxiety stems from the terrifying notion of the *radical potential of a fusion of femininity and intelligence* - a releasing of the female body from its bondage to nature. Cyborg imagery offers an exciting future for nurses and the people in their care.

This wealth of literature demonstrates that there is an urgent need for nurses to steer a sound path through the contradictory nature of technology and their work. An understanding is needed of how technology is culturally constructed within nursing, and the regulatory devices that maintain the separation between for example, technology and touching, while at the same time maintaining the correlation between professional status and high-technology nursing practice. How does technology impact on nurses' control of their work, exhibited as decision-making abilities? Does technology increase nurses' power and encourage collegiality with the medical profession? How is technology put into nursing practice? How is the user-context constructed?

What is particularly needed now are cultural feminist poststructuralist perspectives for understanding issues such as the power relations within the health care system about technology and gender; the attitudes of nurses towards technology; and the implications of technology for nursing practice.

Chapter 3

Methodology

> ***"In grounded theory the researcher identifies a general area which requires investigation . . engages in the everyday life of the people, listens to them . . gradually identifies issues of concern to the people and then seeks specific information to explore that and other issues as they arise."***
>
> (Christensen 1996:50)

> ***"My own experience is central to the critique and is used as the constructive element instead of something to be controlled or avoided."***
>
> (Pugh 1990:111)

This feminist research project is informed by grounded theory (Street 1996) and analyses the discourse around technology and nursing. Questions such as: what are the claims and fears about technology? what are the debates? whose interests does technology serve? who is left out, or invisible? are used as the basis of the analysis. According to Stanley and Wise (1990:39)

> ***all*** *knowledge, necessarily, results from the conditions of its production, is contextually located, and irrevocably bears the marks of its origins in the minds and intellectual practices of those . . . researchers who give voice to it.*

Here it is argued that there is no such thing as objectivity and hence this account is marked by my own personal situation. This chapter explains how I came to understand what I now understand about technology and nursing, so that others can make up their own mind about the findings. The method used is described in detail as are the beliefs underlying the method.

Feminist research has gender at the centre of the enquiry and in a recent publication (Paech 1996), I argue that both gender and sex are socially constructed and hence are interchangeable terms. According to Lather (1991), within a poststructuralist view, a person is a site of disarray and conflict and this means that they are

> *continually changing (or being constructed) according to who, where, and how they socially interact, (and) is in direct contrast to the humanist view evident in earlier feminist literature and much of the nursing literature, of a unique, fixed and coherent human subject.*
>
> (Paech 1996:151)

(T)he underlying value system of nursing has always been humanistic in nature (Paech 1996:153, citing Pelletier 1990) and this is

> *potentially problematic, because, as Poovey (1992) points out, with the personal attributes of fixed, rational knowledge, the humanist subject is actually gendered masculine. Within this humanist view, one's sex is known to be biologically determined as female or male . . . . . Gender, on the other hand, continues to be commonly accepted as "the culturally and socially shaped cluster of expectations, attributes and behaviours assigned to that category of human being, by the society into which the child is born" (Eisenstein 1984:7). . . .*
>
> (Paech 1996:153)

Presently the Western world is gendered as male or female and the politics of the institutions in which nurses work are also gendered (Paech 1996 citing Yeatman 1994). It is aspects of the gendered nature of these politics that this research is seeking to illuminate, because

> *(p)oststructuralism dramatically encourages the demise of not only the female/male dichotomy, but also the mind/body, and normal/abnormal dichotomies on which much of the health system works. The very notion of the "opposite" sex is biologically inaccurate, as there is a wide overlapping of male and female physicality, and people do*

> *not fit the rigid stereotypes promoted by biology textbooks, the media and medical journals (Kaplan & Rogers 1990).*
>
> (Paech 1996:155)

In Australia today, a person's gender is based on their sex, or biology. This is demonstrated by Allen, Allman and Powers (1991:55) when they state that many transsexual people *find it is necessary to change their biology in order to change their gender* (cited by Paech 1996:155). A poststructuralist view is different because it

> *assumes that sexuality is not biologically ordained, but rather is constituted in history and society, through cultural practices, social institutions and language. While biological characteristics are prerequisites for human sexuality, sexuality is not understandable in purely biological terms. Sexuality needs to be understood in terms of social analysis and historical understanding, because the human body is never free of cultural meanings (Rubin 1993).*
>
> *The "naturalness" of the humanist view of biology (sex) as a fixity, and sociality (gender) as changing, is (therefore) challenged by feminist poststructuralist theory. While physical bodies are undeniably relevant, biology only has meaning to the extent that bodies are already situated within discourse (Thompson 1989).*
>
> (Paech 1996:151)

I believe that the future is likely to bring about choices of sex/gender categories, just as there are now choices about indicating one's marital/living status; it is no longer a simple married or single dichotomy.

According to Schaffer (1992:29) deconstructive analysis aims to *challenge liberal humanist perspectives, and reveal contradictions in ourselves and our discourses.* However, deconstruction is not a method, but a way of thinking about the problem of what is powerful (Lather 1991). Deconstruction answers the question *"What does it mean to know something?"* (Nash 1994:66), acknowledging that

Western discourse is built on the assumption that the masculine (man) has the right to subdue or dominate the feminine (woman) (Schaffer 1992). Deconstruction of a discourse demonstrates how it undermines the philosophy that it asserts (Culler 1983), and this has *potentially radical institutional implications . . often distant and incalculable* (Culler 1983:159) and hence this theoretical approach is very suitable for this research topic.

Discourse is a term which refers to a domain of language use that is unified by common assumptions (Cheek & Rudge 1996). Discourse is also expressed in the structure and procedures of organisations and institutions, as well as in words (Scott 1988). It can therefore be described as

> *conversation, with its underlying ideas, assumptions and philosophies, or as Cheek and Rudge (1996:81) state, 'not only a linguistic construction but a particular way of talking and thinking about reality'.*
>
> (Paech 1996:151)

This research is therefore undertaken within a poststructuralist framework in which meaning is believed to be the product of language, not its source.

According to Cheek and Rudge (1996), Foucault demonstrates that scientific medical discourse dominates the health care system, thereby excluding other types of knowledge. Medical scientific discourse marginalises and limits others in the health care arena *but actively encourages similar discourses . . such as approaches to health, illness or treatment* (Cheek & Rudge 1996:82). Nicholson and Seidman (1995) agree, stating that science is a powerful social force because of its ties to institutional practices, including medicine.

Every research methodology has its problems and Culler (1983:220-1) points out that there is a critique of deconstructive analysis which states that: firstly it makes everything sound the same; secondly it does not respect the integrity or wholeness of individual works; and thirdly that the conclusions reached may be claims about structures of language and convoluted thought, *rather than conclusions about what a particular work means*. These criticisms are valid and need to be kept in mind. However, the poststructuralist view that logic and reason exist in a social system that endorses them, and therefore facts are invented, not discovered (Turner 1994, citing Watzlawickl 1984), underlies this research.

The participants

As a lecturer in nursing, I was privileged in 1995 to co-ordinate and teach the Bachelor of Nursing program for experienced registered nurses. I quickly became aware of the wealth of knowledge that these mature age students brought to their university studies. They questioned, debated and challenged the material presented to them, continually searching for its relevance to their personal and professional lives. As a result of this, I changed my original intention of interviewing nurse academics, to involving a random sample of these RNs in the project. This meant that ethics approval was needed from the University of South Australia, which was already a requirement because I am a staff member; the Head of the School of Nursing at City East; and the University of Adelaide, Women's Studies Department.

I am always very mindful of the power differential between a lecturer and student and was concerned lest it compound the power described by Campbell and Bunting (1991), Gorelick (1991) and Webb (1993 citing Ribbens 1989, and Wise 1987), as existing between a researcher and the research participants. I therefore decided to approach only those students who had enrolled in, and completed their degree in 1995 and were no longer 'my students'. This decision gave a random purposeful sample of 21 registered nurses, who were each sent a letter requesting their participation (see Appendix I). They were also sent a consent form. Eleven of them replied very quickly and they became the participants in the research. They happened to be seven women and four men, all presently working in different health care venues around Adelaide; two work at the same large public hospital, but in different areas. They have all worked for at least five years as a registered nurse.

There are considerable benefits in having an established relationship with research participants before conducting interviews, as this familiarity may allow shorter, more focused interviews (Reinharz 1992 citing Segura 1989), and the interviewee is likely to be more comfortable talking to the interviewer. As feminist research encourages intimacy, self-disclosure and trust between the participants and the researcher (Reinharz 1992 citing Oakley 1981), a friendship between all concerned is one of the desirable outcomes of a research process, and this project has enhanced my relationship with the participants. Several of them have contacted me since their interviews earlier this year, and I will be sending all of them copies of Chapters 4 to 8 of this thesis.

The participants had all briefly discussed health care technology in a tutorial, during the second semester of the Bachelor of Nursing (Post-registration). Gender within the health care system was openly discussed and the various feminist theoretical ideas had been acknowledged. The dominance of the medical profession is always obvious to the students, although some struggle to separate the sociological viewpoint from their own personal world, where they may work collaboratively with one or two individual doctors.

Interviews as 'conversations'

The participants chose where their interview would take place. Several interviews were conducted in the participants' homes but most took place in my office at the university; one was conducted at the participant's bedside because she was recovering from major surgery. Each interview was allowed to follow the direction set by the participant. The discussion depended very much on their professional lives, where they were working and where they had previously worked or were planning to work in the future. I wanted to let them talk freely about their experiences with technology in order to listen to their language, and gain a sense of their ideas and feelings about technology, beyond the exact definitions that each had given me. This correlates with Carryer (1995:182) who states that *unstructured reflexive interviews allow incorporation of feelings, exchange of information and knowledge and leave space for emancipatory outcomes.*

There were, however, six broad areas that I particularly hoped to discuss and hence the interviews were semi-structured. The manner

in which the interviews were conducted is therefore best summed up by Farran (1990:93), who says *I had a mental list of all the areas I wanted to cover in the interview and asked them in a way appropriate to each particular interview experience.* The areas were: the participants' childhood experiences with technology (thought to be a major consideration by Cockburn, cited in Wajcman 1994); their definition of technology; where they had worked in nursing; how technology is presently impacting on their working lives; any decisions that are made by nurses, regarding technology; and how technology impacts on their relationship with their clients. Most of the interviews incorporated all of these areas, but some did not because the participant had other information that they wanted to impart.

The interviews were audio-taped and were carried out over a period of five weeks. Between times I continually went back and forth to the literature, re-reading it and understanding it differently. My interpretation of its significance changed as the research process unfolded. I looked for different points, issues, similarities and differences and was very conscious of the *dynamic tension between the researcher and the researched, struggle and science, action, experience, method, and theory* (Gorelick 1991:474).

It is important that meaning is constructed through participatory dialogue, not imposed by the researcher (Carryer 1995, citing Acker, Barry & Essveld 1983; Lather 1988), and because I had known the participants for 12 months, the interviews became conversations, with a major input from the RNs. I was finding out more about their personal and professional lives and hoped that they would gain some new ideas about technology from the nature of the topics covered. Just as Oakley (1990) refutes the notion that an interview is a one-

way process with no personal meaning regarding the social interaction, I felt a deep interest in the participants' working lives and the effect of their undergraduate study on their careers. Several are in the process of changing their employment or applying for promotional positions and it was particularly interesting to hear how technology had impacted on these choices.

Each conversation was a unique experience with participants varying as to their desire to lead or shape the interview process. Several participants required very little prompting, appearing to want to tell me a great deal about their present experiences, speaking comfortably for at least an hour. Most were thoughtful and required some prompting with open ended questions and one particular participant who gave very brief, quiet, answers shortened the interview to 35 minutes. In this instance I was reluctant to keep asking questions and felt that this participant was in a hurry to be finished. While this participant was speaking I debated whether or not to ask them to speak more slowly and distinctly, but decided against it, preferring rather to conduct another interview if this was necessary. This turned out to not be necessary.

Only one participant stated that they had given the topic a lot of thought prior to the interview, the others were happy to wait and see exactly what I wanted to know. In order to shape the interviews as conversations, I deliberately responded at times to participants' ideas, because I did not want to be seen as 'the questioner' or 'the listener'; I wanted to converse with them. This behaviour also encouraged a more relaxed discussion, rather than a situation where the participants may have felt that they were being interrogated. I frequently asked a question in several different ways ('How do you

define technology? What does the word mean to you?') to give the participants time to think and also to relax the atmosphere for both of us.

I believe that the interviewer should not be afraid to be seen as a real person during the interview process, agreeing with Oakley (1990:58) that personal involvement does not create bias, but allows people *to know each other and to admit others into their lives.* These semi-structured in-depth interviews, or conversations, required deep concentration on my part, as questions had to be worded in such a way as to make them relevant for each individual participant. There is no escaping this manipulation if the researcher is to hear information that focuses on their research topic. Also, my decision to encourage the participants to talk freely, resulted in changes to the order of the topics covered in each conversation.

Given that gender is at the heart of feminist research, it is worth noting that gender would have impacted on the nature of the information discussed during the conversations (Layland 1990). We all spoke as gendered women and men, and as registered nurses, working within a gendered health care, or education system. Williams and Heiker (1993) researched the impact of the interviewer's gender on a research process involving male nurses and concluded that the participants used the interviewer's gender to gauge the interviewer's orientations and opinions. These then framed the gendered context within which the participants developed their responses. According to Williams and Heiker (1993), the gender of the interviewer does impact on the nature of the information given, but in-depth interviews have the advantage of allowing the participants to clarify their positions and

frame their responses diplomatically, constantly checking on the development of mutual understanding.

I am sure that while the participants for the most part felt comfortable talking with me, they were also aware of trying to give me the answers that they thought I would like to hear. I was conscious that they wanted to help me by giving me the data I required and several had to be reassured at the conclusion of our conversation, that this was the case. I hope to clarify with them whether they experienced the interviews as conversations. How do they remember the process? This will guide my understanding of whether this is a realistic possibility, for future research. I was certainly very relieved that I was no longer in a lecturer-student relationship with the participants, as I am sure that this would have created further anxiety for them regarding their desire to please me.

Transcribing the data

Each participant was assigned a pseudonym, in order to maintain their anonymity and data were transcribed with every 'umm', 'err', pause, and laugh included, as these can indicate social tension or deep thought. Personally transcribing the taped interviews also gave me a very detailed memory of what had taken place during each interview, which was helpful during the analytical stage of the research. When directly quoting the participants in the following chapters, I have made occasional alterations to some of the sentence structure in order to improve the fluency of the quotes. The participants' meanings have not been altered in any way by this editing.

Analysis of the data

A researcher listens to others and then interprets their stories into another story that changes the researcher, giving the researcher ownership of the story (Fine 1994). As this was my first experience with independent qualitative research, I was surprised by the time and mental energy involved in the analysis of the in-depth interviews. The participants had been allowed to talk at length about the topic in any way that was meaningful to them and it required an immersion time in the data of some weeks, in order for the common themes and ideas to be crystallised and reportable.

All qualitative analysis is partial and cuts down the richness of the data (Farran 1990). Facts do not exist to be gathered up and hence data collection is actually data construction (Farran 1990; Pugh 1990). During my analysis of the data I considered the following questions suggested by Farran (1990): what is informing my opinion of what is the same; or important; or irrelevant? The participants' ideas were measured against the ideology in the literature, and my own professional views, and as themes were revealed, chapter headings became obvious.

Nicholson and Seidman (1995) make a case for social postmodernism as a theoretical framework, as it incorporates deconstruction with some of the analysis and synthesis of the modernist tradition of social theorising. This seemed to suit this project the best and I focused on a deconstructive narrative analysis which looked at technological social relations rather than the discourse of technology: an analysis of the creation of struggles around hierarchies of power and legitimation; inequalities in behaviours and relations; issues of constraint and scarcity. Does technology, in the form of new equipment, change

power relations and work practices in worksites, to the advantage of employers and at the expense of workers? What local power relations are at work? Are the nurses experiencing themselves as post-humanist cyborgs? (Lather 1991).

Some of the issues that appeared after the first two interviews were control; status; occupational health and safety; workload; stress; who benefits?; who makes the decisions? Over the weeks that followed, these issues were framed and reframed within the participants' narratives, until they evolved into the chapters ahead. My own view of technology as helping to achieve goals, but always at a human cost, went with me in this process. My professional experiences of seeing technology as an expensive tool of management and the medical profession, rather than always of benefit to nurses and clients, was my biased starting position for the analysis.

Hodge (1995) argues that I am one of some 9,620 academic staff at newly formed universities throughout Australia, who need to undertake higher degrees. He believes that a significant number of us are *highly motivated but marginal (mature, academically experienced, part-time) students, following marginal (transdisciplinary, applied, unique) courses of study* (1995:39). We may be undertaking study in the 'New Humanities', within a postmodern framework which is responsive to *new ways of thinking, writing and producing knowledge* (Hodge 1995:38). According to Hodge (1995), a postmodern thesis is a piece of writing rather than a piece of research; may have a dispersed theme, rather than a focused topic; describes a fragmented world rather than a coherent world; and does not summarise an argument, but rather strings quotes together, possibly being seen, therefore, as unoriginal.

The next chapter certainly contains many quotes, because the participants are introduced and they speak of their backgrounds and their attitudes towards technology. This chapter affirms that the participants are central to the research process and precedes the detailed exploration of the term 'technology' which takes place in chapter five.

Chapter 4

Gendered participants, gendered knowledge

> *"In virtually every culture, gender difference is fundamental to social organisation and personal identity."*
>
> (Wajcman 1991:11)

In order to better understand the participants' attitudes towards technology in nursing practice, the gendered nature of their childhood experiences warrants exploration. All eleven participants are presently employed in a variety of health care facilities throughout the metropolitan area of Adelaide. Six of them, 4 women and 2 men, work part-time; Sonia, Tania and Lyn because of parenting responsibilities, and Jane, Adrian and Glen, for a variety of reasons including full-time study, and permanent night duty shifts. These employment situations reflect the relative ease with which RNs can often negotiate full-time and part-time work.

Three participants, Adrian, Ann and Laura work in adult Intensive Care Units, in either a private or a public hospital, while Eve works in a Neo-natal Intensive Care and Midwifery Unit. Glen works in a Coronary Care Unit; Sonia in an adult surgical ward; Andrew in an adult medical ward; and Tania in a mixed medical/surgical ward for adults. Jane is employed in a nursing home; Lyn in a private medical practice; and Peter in a community mental health service. This variety of professional backgrounds informs the research from a wide cross-sector of nursing discourse and also gives an informative look at contemporary nursing practice in Adelaide, highlighting the wide variety of employment possibilities within nursing.

Three of the participants, Tania, Eve and Andrew talked of travelling and working within Australia and overseas in places such as England and New Guinea; while Ann, Glen and Sonia, were all born in the United Kingdom and now live in Australia. Many of them, both male and female, commented on how nursing had given them the freedom to leave home, and the option of international travel and work. This had been a major contributing factor in their decisions to become a nurse.

When responding to questions about their childhood experiences the participants talked of a variety of role models and gender expectations within their families. Jane and Glen both had mothers who fixed cars. Jane, describing her childhood in Australia, said

> *(M)y mum is very . . . she sort of I suppose, wore the pants in the family. And my dad's a motor mechanic and he was always busy - and would just tell mum over the phone if our car wasn't working - how to do it . . and she'd have to get out; and she'd do it!* (laughing). *So she was my role model, and she - so I always had that feeling that you can do it, if you have a bash.*

Jane gave a picture of her mother as capable and assertive, and able to carry out repairs on the car, in consultation with her husband. This contrasted with Jane's present gendered life experiences with her husband.

> *(O)ur washing machine did stop the other day, and it was just unbalanced, and I fiddled with it. But then when I just didn't know . . . it kept on unbalancing. Immediately I went and asked* (her husband). *He wouldn't necessarily ask me . . . . I know he wouldn't actually. He'd just do it, and if he couldn't find out he'd perhaps get a repair man. And while I could fiddle and see what I thought* (pause) *but he wouldn't ask me. . . and I'd call him a feminist male, but I know he*

wouldn't in that instance. And with the car, he wouldn't expect that I would know (pause) *he wouldn't consult me on the same level about what was wrong.*

The comment about being consulted 'on the same level' is an oblique reference to the power and status that accompanies technological expertise and knowledge, which is frequently gendered masculine. Jane went on to talk of the gender demarcation in her present household, regarding kitchen appliances.

I'm just thinking what else . . . we've got a Breville mixer that is fine. But (husband) *doesn't know how to work it, and he would* (pause), *he'd consult me in that. He does a lot of cooking, and I say, you know, "Why don't you use the mixer?" And he'd consult me and listen to me, for me to tell him how to use it.*

Jane's present married life is more rigidly gendered regarding technology than was her childhood.

Jane believes that some technology, for example intravenous pumps which deliver drugs continuously to patients, do benefit the patients, but also believes that the pumps can be a source of stress to RNs.

I just felt, being the only RN on, looking after 28 (residents), *it was just another thing. . . . another responsibility. But certainly, from a pain perspective, it was wonderful . . . but initially I was thinking 'Oh no, not someone coming with a pump'. I just had a negative image. But as time went on you just got used to it, and I saw the positives outweighed the negative feeling.*

Glen, who enjoys working in a high-technology nursing environment,

laughed about his childhood experiences with machinery, saying

> *Bikes, yes! I can do bikes! Push Bikes!* (laughter) *But not cars, no! I've never been into cars! . . . I used to break them!* (laughter)

Glen's father was not involved with cars, but his mother was.

> *My father would try, but my mother just got in there! So my mother and my uncle used to fix the motor car - motor engines in cars. She was into cars because her father was an engineer, and she was at the - like at the elbow all the time, and he would teach her stuff and she usually taught my father things. But we were never allowed in the garage, because we might get into trouble or break something. I never got into cars. My wife's done a mechanic course for the car!*

A picture was given of a capable woman, working alongside a man to repair cars, but not encouraging her son to participate. Glen, however, was interested in seeing how things worked, and used to break watches and clocks in order to do this, and then put them back together again. His first employment after leaving school was with a computer firm

> *costing and accounting and stuff like that . . and even now - I don't mind fiddling with - Words for Windows and stuff like that.*

Another participant, Ann, was raised by her mother, who was also a nurse and Ann described her as very technologically competent, referring to her as

> *the practical person in the house. . . . she was a single parent, so she had that practical bent. She always had to . . do all those sort of male chores, or anything in the*

household. So I think I got that from my mum. Definitely. She was good at tackling problems of a practical nature. . . . . I'm the person that tunes the video in my household and I - I enjoy - I find it a challenge.

Both Ann and her mother do not fit the gendered female stereotype. Ann's personal comfort with technology carries over into her nursing work, where she also enjoys the challenge of being confronted with new machinery, and having to work it out for herself. She said, *I don't tend to get fazed . . . . I'm not a technophobe.* She presently works in an ICU and spoke of her feelings about the high-technology environment.

It's something that I forced myself to do, because I wanted the challenge. Initially it was definitely - the scare factor was large - but it was something I wanted to overcome, and I did. So I <u>love</u> it, you know, I really enjoy it!

Ann's enthusiastic words combined the acknowledgement of the challenge of machinery, evident from the other participants, with the practical gender role model of her nurse-mother.

I always think to myself, 'Well, it can't be that hard', because . . we've got to use it, it can't be that difficult. (pause) *So that's how I look at - approach, the machine - it's not going to beat me!*

There is a notion of nurse versus new machine, in Ann's words, with herself as the determined and inevitable victor. She talked of information *coming at you*, from the machine, conjuring up pictures of a bombardment of facts. For Ann, rising to the challenge of technology, has resulted in a love of it, although initially *the scare factor was large.* Her face lit up when she talked of her work environment, and the people in her care. One comment she made was

that she works in an ICU, so that she can maintain excellence in her nursing care, because on each shift she is only required to care for one, or perhaps two, people.

Eve presented an entirely different picture of her childhood because she was raised on a farm.

> *(W)e all had to learn to drive because our local exchange was only open for an hour in the morning and an hour at night, so if we ran into trouble we had to get to our exchange . . . . I've always mucked around on the farm, I suppose. I've always been able to drive a ute, a tractor, a motor-bike, but other than that, not much machinery . . . . I think we just learned by steering when dad was chucking out hay to the sheep, or whatever. It was our responsibility to steer the vehicle, and as soon as we could touch the pedals we just all naturally learned to drive. So I've been doing it since I was about 10, I guess.*

Eve's attitude to technology is summed up by her words that *(I)t all boils down to logic and sensibility*. Her pragmatic approach allows her to feel comfortable with new equipment, once given an Inservice on it. She can then *understand the whys and the wherebys for it.*

Eve did not talk about childhood experiences with her mother, perhaps assuming that technology only refers to equipment gendered masculine in our culture, or perhaps because she found being outdoors more enjoyable. She has worked as an RN in several outback venues including as a First Aid and Safety Officer on a gold mine, and in the Nurrinjarra Health Service.

Tania, Lyn, Laura and Peter all experienced a more stereotypical suburban childhood, with the women doing chores inside the house, and the men fixing the cars and tinkering in the shed. Both Tania

and Laura had mothers who worked full-time, which limited the time they had available for activities around the home. Laura's mother is a textile studies teacher, and Laura referred to gender roles when she spoke of being *taught all the girlie things like how to cook and how to sew . .* (and) *how to knit and crochet.* Laura did not think of these activities as technological, and laughed about how she moved into science subjects at secondary school, because she found them easier.

> *It was easy for me to do chemistry, biology, and physics and maths . . and I enjoy that sort of work. I'm a very 'left-brain' person! It's almost like - I feel like my corpus callosum is severed because I'm so left-brained!* (laughter). *So sort of scientific in my thinking! I think that's why I've . . been attracted to . . high-powered technology sort of areas.*

Her personal enjoyment of technology was not something that Laura was aware of when she decided to become a nurse. Her response to this suggestion was a definite *No! Not at all. We had one computer at school when I left . . . . (s)o I really didn't see anything of technology until I started nursing.* Laura agreed that the domestic appliances with which she has been familiar, all her life, are not understood to be 'technology'. *It's interesting that men don't often know how to work a microwave. But as you say, people don't think of it as technology.*

Laura is one of the younger participants and was very enthusiastic about technology. When asked whether she enjoys it, she replied

> *I do! I do actually! . . I find that I - if I just relax - and I find if I just have that attitude, if I push enough buttons, I'll find what I want. And I generally do find what I want! . . . I'm not afraid to ask questions of people, if I don't know what I'm doing . . . . I enjoy a challenge every day.*

Tania's childhood was one where tinkering with cars, in the shed with dad, was only for her brothers. Her experience of machinery was *only a sewing machine*, words which negate the complexity and skill involved in sewing. When Tania was asked whether she presently enjoys technology, she replied

> *Yes and no . . . I think perhaps the worst thing is that you tend to be just thrown into it. I mean officially you get someone looking over your shoulder, and all this, but in real life, you know, it's often the case of 'Oh my goodness I've got this!' Especially if they've* (a person in hospital) *been transferred from another ward . . . you're the senior on, and you think 'Whoops! I'm supposed to know this!' . . . . It's a bit hair-raising!*

Lyn's early childhood experiences with technology also fitted the cultural gender stereotype. She grew up living in a suburban house with her parents, 2 sisters and 3 brothers.

> *(T)he boys mowed the lawns with the lawn-mower, and the girls cooked in the kitchen with the Mix-master. That was very much so. The boys didn't have to do the dishes and the girls did. I mean that changed over time, but certainly when I think about when we were . . late primary school, that was still the case. I have a bone to pick with dad because the boys were given a car when they learned to drive. Dad <u>bought</u> a car so the boys could drive! And when the girls got their license there was no car bought for the girls to drive . . . it was a very sexist household for sure!* (laughter) *<u>Completely!</u> . . . There was a real <u>definite</u> split of expectations - and I think that came from dad . . things have changed now. Dad does a lot more around the house . . . now that we've left home. . . . Although I'll always give him credit; he did shop - I mean he always shared the shopping. There were chores outside the house that he did, and there were chores inside the house that were mum's domain. I*

guess that's how they split it up - that's the way they worked.

I was interested to hear Lyn's present feelings about the technology with which she works, and in order to clarify this point, asked her whether she enjoys using the equipment. Her reservations about it were linked to the stress involved with having sole responsibility for the cleaning of equipment worth many thousands of dollars.

Yes! And that's always the stress! And it's very expensive equipment, very delicate equipment, and if something goes wrong, it usually goes wrong in a major way.

Lyn explained how any malfunction of this equipment would impact on everybody.

The patients, the doctors, and me. And that - yes - I have a responsibility and I take it very seriously, as far as keeping those instruments the way I believe they should be kept.

One younger participant, Peter, was quietly amused about his complete fulfilment of the male stereotype, commenting laughingly, *I'm right into toys!* Peter at first did not relate his enjoyment of gadgets to his childhood, saying that as a child there was no gender emphasis in his family about the males liking machinery, but went on to say

Well my father, I guess my father has a mechanical background . . so we always - he always fixed the car himself, so I was always out there with him fixing the car, and pulling motor-bikes to pieces, and push-bikes and all that kind of stuff - building go-carts and so I guess (pause) *that could have been a start I guess with technology. Although it's different to what I'm involved in now. Mechanics I guess, started me.*

Peter spoke of a childhood interest in music, which he shared with his younger brother, and how they had electric guitars and amplifiers. From there he went on to consider his mechanical work with his father, as though the gendered nature of these experiences had been so natural, that they had never appeared as a significant part of his present enthusiasm for technology. The fact that his experiences in the shed with dad had revolved around the pursuit of leisure, or pleasurable activities such as riding bikes and go-carting, was also interesting. This pursuit of leisure would perhaps contrast sharply with those of the women, whose interactions with technology may have been related to chores, or creating something useful for the family, by cooking or sewing.

Adrian, the most experienced male RN, also spoke with unreserved enthusiasm about the technology in his personal and professional life. His tone of voice and facial expression reflecting his enjoyment. *It's fantastic!! Great!!*

When describing his childhood years, Adrian reflected on the lack of technology he experienced and how the last twenty-five years have seen an explosion of technology in nursing practice.

> *We came from a poor background where we didn't have access to anything like that* (machinery and gadgets) *- even a Mechano set. So it's all new for me - through nursing. We didn't have a car, and the washing machine was very simple but we're talking about* (pause) *quite some time ago - 35 or 40 years ago - a very long time ago. Things have changed dramatically within that period. . . . . It all happened for me, over the span of probably the last 25 years. Definitely* (speaking slowly). *And more so in the last* (pause), *the changes have been so dramatic over the last* (pause), *5 years, and I think it's getting faster and faster. I mean I look*

at it with a view of anticipation and excitement, but at the same time it certainly comes with some sort of personal cost, because to assimilate the amount of changes, particularly in nursing, that are happening - and I think for new people coming into nursing and using technology, it's fine, because they don't have to 'unlearn'. But with anyone that's been in nursing for quite some time, it's very hard to unlearn old practices and adapt new ones, especially with technology.

This concept of 'unlearning' and adapting to new technologies in nursing practice, mentioned by Adrian, was also a concern for Sonia who spent her childhood in England. She commented that the nicest thing about training as a nurse in the 1960s, was that it was really prior to technology. Sonia did not reflect on her own childhood during the interview, but spoke at length about her concern that present technology is impacting very significantly on nursing practice. She talked of her shock when she discovered the technology associated with present acute care in hospitals, following some years out of the workforce because of parenting responsibilities.

(T)hat was when the shock really impacted! . . . as to what clinical work was going to be all about. So I had the choice after that as whether I would resign; whether I would go into Aged Care - which most people thought you should do if you did a Refresher back into nursing after 5 years absence. Everybody thought that perhaps you should go into Aged Care, because that would be where you'd fit. . . . So (pause), *once issued the challenge I thought 'No way!' So I've stayed in the acute care setting since.*

Sonia spoke of her determination to cope with the machinery involved in modern post-operative care, seeing it as a matter of proving her professional ability. The expectation that older nurses could only look after older clients in a low-tech environment, she believed to be

derogatory, and Sonia was determined to update her skills, to give herself choices about where she could work.

The fourth male participant, Andrew, does not share Glen, Peter and Adrian's enthusiasm. In fact he feels the opposite about technology.

> *I'd have to say that it probably scares me more than anything. You know, going back to my own schooling, well there weren't things like computers . . . I think about the most exciting thing we got when we were at school, was a calculator!* (laughter) *So I suppose over the years, the exposure that I've had to technology in my nursing profession, and then especially last year* (at university) *- I was very apprehensive . . . I mean like CD-ROMs and computers in libraries and things like that - it was just overwhelming! . . . Technology in my own life - as I said, I think computers still do really quite scare me.*

When I asked "Thinking back to your childhood, were there role models in your family? Were mum or dad particularly good with machinery, or fixing things if they broke down?" Andrew replied

> *No! It's funny you should say that. We were very (pause) it's still a standing joke between all of us - there are three boys in our family, and like - my father - none of us - we couldn't even hammer a nail in! We're not handymen at all! So I think perhaps . . I certainly had role models, you know, that I was exposed to - had opportunities to either go and do woodwork or mechanics or whatever, but it just never appealed to me! And I think that probably looking at my own family situation, it really makes me think about genetics I suppose. That all of us - none of us have any desire - none of us are at all 'handy'. And we're not tinkerers.*

Andrew spoke confidently and vigorously, comfortably accepting his feelings and the knowledge that if he has to, he can interact successfully with computers and other technology. He just does not

find the prospect appealing. Andrew is the only participant to describe a fear of technology in both his private and professional life. Time did not allow for an exploration of whether he enjoys using domestic appliances such as a microwave oven or kitchen blender.

Household machinery was not talked about as technology by any of the participants except for Ann, when she described her mother as doing *all those sort of male chores, or anything in the household.* This clearly illustrates that for Ann there is a distinction between chores gendered female and chores gendered male. This raises the issue of the gendered nature of technology, and whether it is seen to be things used by men. This would explain why the discourse of nursing in our culture omits any reference to technical nurses, or technical women. Not one of the participants entered nursing understanding that it involves technology.

The varied responses from the participants individually prove, and disprove the notion that males are likely to find technology more attractive than females. While it is possible to hear the influences of their childhood in their present approaches to technology, it was also clear that attitudes can, and do, change over time, and that fear of technology can be overcome. Five participants, Ann, Peter, Adrian, Laura, and Glen, verbalised their enjoyment of the challenge of new technology, while another five, Jane, Sonia, Tania, Lyn and Eve, have mixed feelings about it. They know that technology has advantages and disadvantages for them, as well as the people in their care.

Both Sonia and Tania, who have been nursing for longer than the other female participants, have reservations about the impact of technology on the work of registered nurses in general surgical wards. Their experiences may reflect Adrian's view about the difficulty of

'unlearning', as well as their knowledge that mechanical devices absorb nurses' time and attention, adding to their workloads and diminishing the time available for other aspects of clinical care.

Several of the men, Peter and Adrian spoke of men being attracted to technology, more so than women, and Adrian made some very interesting statements about gender differences he believes exist in the way RNs work in a high-technology unit. He believes that male RNs are less likely to share their knowledge than are the females, using it as a source of power.

> *Men, as far as I've observed, tend to be - it's more of a power base for the male to have control of the equipment; and to tend to extend his knowledge when women aren't - the females don't function like that within those units; they tend to want to share their information . . . which is interesting, when men don't. They tend to be - they'll <u>research</u> a new piece of equipment and get the knowledge on it, but they're more <u>reluctant</u> to share their information, where females do.* (pause) *I think the quality of expertise is certainly equal. Neither sex is any better than the other. The way* (pause) *that they use their expertise is different . . . . . this might sound a bit horrible, but I think they* (men) *also like other staff to be dependent on their knowledge.*

Adrian went on to say that in his experience, male RNs in high-technology areas do not network amongst themselves, but work in an insular manner. He also believes that in the future, more women will want to work in these areas

> *because they're <u>equally</u> as bright with equipment; and they're fantastic; they're doing really well . . . I think you'll find that men will start - the numbers will be <u>less</u> in high-dependency areas and men will go - will try and get into management more.*

This comment raises many issues about gender and power, reflecting Cockburn's view (cited by McNeil 1987A:192) that technological innovation does not create opportunities for women, because the sexual division of labour may change, but it persists. As more women enter any particular strand of technical work, it tends to be re-classified and reduced in status, with men moving on to another area.

The complex relationship between gender, knowledge, power and technology in nursing work, is compounded by nurses' relationships with medical officers. In order to discuss this further, it is first necessary to clarify the meaning of the term technology.

Chapter 5

What's in a name? "Technology"

"(T)he concept staggers under the interpretive load."

(Laudan 1984:5)

"(T)he very definition of what is technology is problematic, reflecting the gendered values of the definers."

(Karpf 1987:160)

When one searches for a definition of technology in health care literature, the gendering of history referred to by Stanley (1983) becomes obvious because technology is defined in medical terms. A commonly used definition is from the United States Government Office of Technology Assessment (1978), and states that technology is the *drugs, devices, and medical and surgical procedures used in health care, and the organisational and supportive systems within which such care is provided* (Banta & Luce 1993:9). This definition clearly implies that health care technology involves doctors, usually gendered male in Western culture, who are supported in their work by other systems - not even people. This definition reduces nursing to, at best, a supportive and hence subservient role, but really renders nurses invisible. If language creates people's reality, then nurses are not a part of this health care reality except as un-named dependent supporters of the medical and surgical procedures.

In nursing literature, a more recent definition of technology from this same source (US Government Office of Technology Assessment 1982), is cited by McConnell (1994:815) as being *the set of techniques, drugs,*

equipment, and procedures used by health care professionals in delivering medical care to individuals and the systems within which such care is delivered. This later definition focuses more obviously on the medical profession, asserting that all health professionals actually deliver medical care, or at least, if they are using technology, then they are giving medical care. This linking of technology and medicine gives power, status and control to the medical profession, relegating all else to a supportive role. Technology is indeed a political instrument (Kipnis 1990) and within the health care system consolidates medical power. Defining technology in this manner not only reinforces the idea that technology is medical, but also asocial, existing outside of people's bodies. McConnell, a visiting Professor of Nursing at the University of South Australia, added the words *'and nursing'* in her 1994 paper, but this does not negate the fact that the political source of the definition, speaking on behalf of the United States of America, does ignore all other health professionals, particularly nurses.

The power and influence of the medical profession is very obvious, as is the fact that the invisibility of nurses is caused by deliberate, structured silencing in this discourse of technology. McConnell (1990A; 1990B; McConnell & Nissen 1993; McConnell, Cattonar & Manning 1996) has used a variety of terms including machines, medical equipment and medical devices, all of which could be seen to reflect and reinforce medical dominance and nursing's invisibility. Other nurses such as Jacox (1990) and Carnevali (1985) have done likewise.

Collyer (1996) outlines the description of technology in Australian Government publications during the 1970s and early 1980s,

explaining that technology was defined solely as devices, instruments and machines, not pharmaceuticals, processes or systems of knowledge (for example computerised patient information systems). This object-centred view of technology tended to keep it ***external*** *(sic) to social relationships and consequently outside human control* - not a product of social process, but affecting them (Collyer 1996:241). During the 1980s, in contrast to this medical view, Australian feminist writers began writing technology into discourse as a social construct (Collyer 1996 citing Wajcman, Daly & Willis 1987).

McGaw (1982) and Bush (1983), two feminist writers, define technology very differently. For McGaw (1982:802), it is *the system of tools, skills, and knowledge needed to make or do things*; while Bush (1983:155) says that technology is *organized systems of interactions that utilize tools and involve techniques for the performance of tasks and the accomplishment of objectives.* Both of these definitions acknowledge the human involvement in technology, and the fact that technology is purposeful, and frequently linked to systems. These definitions offer a very different orientation and if translated into the health care literature, would offer a far more inclusive prospect. The concept of health care technology as organised systems of interactions that utilise tools and involve techniques for the performance of tasks that improve people's health, is a view which does not favour any one group of health care workers.

Wajcman (1991:165) believes that unmasking the supposed neutrality of technology *demystifies the layers of expert knowledge that are pivotal to the power of various professions.* The medical profession, in particular, uses technology to maintain power and status and also to maintain society's reliance on them (Bates and Lapsley 1987).

This strong link between medical care and technology is exemplified by a response from a representative of the Australian Medical Association, quoted in the Marles Report (Marles 1988:27). *Technology is the life blood of improvements in medical care and failure to continually incorporate such technology will result in a decline in medical standards.* Technology is claimed as the property of medical practitioners, and this is a political stance. Linn believes that it is useful to ask *what gets called technology and . . what constitutes a* ***challenge*** *(sic) to definitions of technology?* (1987:135). Linn uses the example of hairdressers' use of chemicals and devices, as frequently not being seen as technical, and yet television repair is believed to be technical. Linn (1987:151) talks of technology stereotypes, based on gender, that see some processes as technical, and others as not. For example, cooking and dressmaking are seen as 'soft' technology, and given low status. Similarly nursing is seen as non-technical, in fact it is invisible, and given low professional status within health care discourse (Darbyshire 1987; Street 1992).

Linn (1987) talks of living labour and dead labour, in her discussion of technology: people are living labour, while technological hardware, or artefacts, are dead labour. Linn (1987) believes that technology does not exist in a vacuum, or in an asocial sense, as it is a cultural product, and yet the view persists that technology is about things. Linn (1987:134) poses the question: *Why are some forms of dead labour designated as technical? . . . The approval in the label 'technology' has more to do with who is using it, in what statused* (sic) *context. . . . .* and goes on to question whether dead labour becomes technology when men use it. In nursing literature Sandelowski's (1993A:36) definition closely reflects feminist literature, when she

states that technology is *people, tools and techniques in organized systems of interaction to achieve human goals.*

The word "tools' tends to be gendered masculine in our culture, and because of the strong association in nursing between the word "devices" and the medical profession, I prefer to use the word equipment. Hence nursing technology can be defined as the equipment, techniques and social arrangements used by nurses in their care of people; with the understanding that the word technology, is commonly understood to mean equipment only.

Whenever the term 'medical device' is used, it promotes the invisibility of nurses, therefore the decision to talk about nursing equipment is an intensely political activity, because changing language is the beginning step towards changing the political reality. The association of the term 'health care technology' with the superiority of the medical profession also renders it unsuitable for use by nurses, as we struggle to redefine our relationship with doctors, and other professionals within health care teams.

Just as nurses are moving away from defining the people in their care as 'patients' or 'clients', careful thought is needed about the language used to describe the equipment with which nurses work. Mary Snively, a nurse activist, recognised last century, in 1895, that doctors' reputations depended on registered nurses' knowledge of asepsis and surgical procedures (Ashley 1976), and nurses today must recognise that their knowledge of the equipment used to monitor and treat the people in their care, continues to maintain doctors' status. Power and status resides in the control of equipment and interdisciplinary politics need to be recognised, so that the competent technical nurse can be inscribed in health care discourse.

In nursing's history, loyalty and obedience to both employers and doctors (physicians) is very evident (Nelson 1988 citing Parsons 1916). In fact, *(h)ospitals and nurses were seen to exist to facilitate the doctors' work* (Nelson 1988:205). While doctors continue to control every client's admission, diagnosis, treatment and discharge, the independent function of nurses is likely to continue to be devalued. Many doctors actively resist the notion of collegiality with nurses (Jolley 1995) and this is evident in the words of some of the participants when they discussed how they define technology and their feelings about it.

The various definitions of technology offered by the participants in this research, give very different meanings of the term technology, reflecting the political reality of their individual working lives within the health care sector in South Australia. Questions that need to be kept in mind when discussing definitions of technology include: Is the meaning of technology overtly or covertly gendered?; and does the definition marginalise nurses, and nursing care?

Medcof and Wall (1990:52), who are not nurses, believe that in *ordinary speech, when we use the word technology, we usually mean some piece of hardware, such as monitoring equipment or a personal computer.* This has been born out by the participants, whose responses fell broadly into two main groups: those who included computers in their definition (2 men and 2 women), and those who did not. Jane, Ann, Glen and Andrew all mentioned computers in their definitions.

> *. . my immediate response is computers; Internet - how to use it; videos, pacemakers, computers by the bedside, ECG machines.*

. . computers (pause) *infusion pumps; monitoring equipment, telephones, faxes. It just sprouts from nowhere really. It just seems to be endless.*

I think of computers, and the machines that we use . . . anything electrical, mechanical, computerised; anything like that. The sorts of systems that we use.

. . equipment or other modes to collect data, to store data and to be able to recall it, i.e. computers

These responses reflect the information-rich culture of the 1990s, where communication is facilitated by electronic equipment and health care institutions electronically monitor people's physiological functions. *How to use it* was a concern for Jane, who gave the impression that she views technology as potentially beneficial, but not necessarily so. *"I'm always wary"*, she said. Technology is *"foreign and scary"* for the patients and stressful for Jane, until she knows exactly how to use it.

Jane spoke of technology as challenging, attention-seeking, and an additional part of her work-load. She talked of going on duty in a nursing home, and looking after twenty-eight residents *"and a pump"*, and of her determination to focus on the benefits of the pump for the resident in her care. Once she understands how to use a particular piece of equipment (for example a computer), she finds it exciting, but she is always initially wary of anything new. Jane believes that technology needs to be controlled by nurses, and must serve both the patient and the nurse.

Ann was more positive about technology, saying *"I love it"*. Both Jane's and Ann's attitudes refute the notion put forward by feminist authors such as Griffiths (cited by Karpf 1987:164), *that women both*

reject and have been rejected by the masculinity of technology. Ann used action-oriented language throughout the interview, saying that technology *"drives the nursing work"; "distracts your train of thought"; "forces the nurse to attend to the patient more readily, more quickly";* and *"information comes at you".* The image of the nurse as engaging in hand-to-hand combat with a benevolent external force, was vivid.

Ann is determined that *"it's not going to beat me"*, and knows that she has the ultimate power because she can turn off a particular piece of equipment, or disengage herself from it, if necessary, by calling on the expertise of others around her, in the Intensive Care Unit (ICU) where she works. Her determination and ability with technology is reflected by her management of technology within her home.

Glen also enjoys technology, but is very aware of the economical and political ramifications of the sophisticated cardiac monitoring equipment with which he works. He articulated many frustrations and problems caused by various medical consultants' reliance on technology. He believes that the monitoring equipment reduces the significance of nurses' assessment of clients, and their role within the Coronary Care Unit. Being gendered male does not necessarily prevent nurses from being subjected to interdisciplinary power games within the health care system. The technical male nurse may be treated in the same manner as the technical female nurse. The gendering of nursing work as female, is strong enough to resist change even when carried out by a male - or perhaps the technical male nurse is a particular threat to the power of the male medical profession.

Glen's words give clear evidence of the way technology can medicalize nursing care, encouraging a reductionist (How are you in the heart?)

physical focus. Glen presently associates technology with interdisciplinary conflict, power and control, and believes that technology is making the role of the nurse redundant. Glen gave the example of his assessment of a client with asthma who was having difficulty breathing. Glen assessed that this was because the man was extremely distressed and anxious, but the doctors thought that he was having an acute attack of asthma. The doctors refused to believe Glen's assessment of the patient *without the machines to back it up*, and so a battery of blood tests was ordered. *"That made me angry at having all this technology"*, said Glen. The results of the blood tests subsequently corroborated Glen's view that the client was emotionally distressed, not acutely physically ill.

Adrian also loves technology, finding it exciting and challenging. In his workplace he is aware that it causes interpersonal and interdisciplinary competition about *"who (can) use it, and who (can) interpret the results"*, but he is *"always very optimistic about it"*. Adrian, while seeing that technology is gendered masculine, fitting comfortably with the Australian macho image of what it means to be a man, believes that technology has the potential to unite people across social classes, in a way that education does not. Adrian is also aware that technology changes interpersonal power relations, and often wonders who benefits the most from it? The patient, the nurse or the doctor? When he uses technology he always checks it closely, maintaining surveillance of the machinery, because he knows that it is fallible. Adrian happily accepts that in Western culture, technology is affecting everyone, everywhere.

Four other participants, Peter, Laura, Tania and Lyn also included computers in their descriptions of technology, but thought of machinery first.

> *. . being electronic . . controlled by people . . usually to help them do their job better. Mobile phones, computers.*

> *My immediate thought is of machinery . . computers and machinery* (pause) *be it medical machinery like ventilators or pumps, or pulse oximeters, or* (pause) *monitors.*

> *I guess basically you think of machinery don't you? There's computers and infusion pumps and those sorts of things.*

> *Generally - machinery. Things to make life easier; things to use - devices and things that you use in your job to make your job easier.* (pause) *I guess in nursing particularly it's systems and drugs and the equipment that you use to treat people. I guess it's equipment and computers and also the machinery and things.*
> *. . . . And I mean the <u>way</u> you do your work, I guess that probably your work is planned and* (pause) *<u>organised</u> in a particular way.*

Peter has the most positive view of all the participants, speaking of it with affection, as something that he knows, understands and trusts. Technology helps him and he relies on it. Peter is not aware of any instance when technology has been wrong, and believes that he could not have managed to nurse unconscious patients in an Intensive Care Unit, without the technology. It is therefore a necessity and is presently helping to expedite the work of community health nurses. *"I pick it up pretty quickly and understand how it works pretty quickly"*, he said. For Peter, technology is a toy which is under human control, and facilitates and improves the quality of nursing care. It is

gendered masculine, and the Intensive Care Unit is a macho area which men therefore find a comfortable place to work.

Laura also enjoys technology and works comfortably in an ICU, but believes that technology is not always reliable, and must therefore be controlled and watched closely. She referred to it as *"invading"* the patients, but only finds it scary when doctors use it to prolong people's lives. Bates and Lapsley (1987:7) state that medical technologies cause social change *because they affect the length, nature and quality of human life*, thereby possibly causing long-term problems such as marital strife and poverty. Laura shares these concerns about technology because of the possible impact on families, and on the health budget, of prolonging people's lives, when their quality of life may not be good.

Laura readily described herself as a *"very left-brain person, very scientific"*. She also talked freely of the importance of including a lot of touching of clients in her nursing care, in order to facilitate the healing process. She is living proof that the scientific/artistic aspects of nursing need not be dichotomised, but rather, can be reconstructed into a combined approach to client care. Laura is the only participant who included the word *"medical"* in their definition of technology, referring to *"medical machinery"*.

Tania and Lyn have overall, very positive views of technology also, although Tania expressed some reservations, emphasising that nurses must control it. The language she used gives the impression of motion; the nurse being propelled along by the technology. The technology is . . *"ticking along . . chugging along"*. Machinery can *"trip along happily"*. In contrast to this, Tania described how machinery

can be stressful and sometimes frightening, referring to the machinery in an ICU.

Lyn's current work in a diagnostic health service, gives her a particular view of technology as providing people with a good service that is personal and cost-effective. Lyn clearly controls the pace of her work, and is responsible for cleaning and maintaining complex and expensive equipment, as well as caring for the people who use the service. Her view differs from the others, as her work does not include a variety of equipment. Her familiarity with the equipment benefits the clients and the doctors, who are her employers. She is able to give her clients detailed explanations of the procedures, while working quickly and efficiently with the technology, because of her knowledge and skill.

One participant, Andrew, did not mention computers, focusing his definition instead on machinery and knowledge.

> *. . the mechanical equipment I suppose that's used in diagnostic purposes, for* (pause) *diagnosis of patients. So either pumps or oximetry and machinery that we tend to rely on now more so, to get an interpretation of a patient's wellness or well-being . . .*

When talking about computers, Andrew stated *"I just have no concept of what intrigues people so much"*. He has no desire to *"become more familiar with what's available"*, in the way of computer hardware and software. He spoke of the chaos that occurred within his ward, when the institution in which he works instigated a change in the equipment for feeding patients via a naso-gastric tube. Lack of communication and co-ordination between various departments had created difficulties for nurses. Andrew firmly believes that technology

is *"there to make life easier"*, and he is only comfortable with it when he completely understands it.

Sonia did not give an actual definition, but talked of *pre-technology days* working as a District Nurse in England, without even access to telephone communication. Technology (machinery) was the biggest challenge faced by Sonia when she re-entered nursing after some years away and she spoke at length of her concerns about therapeutic technology, in particular, Patient Controlled Analgesia (PCA) machines. Sonia described how her feelings of inadequacy with machinery lead her to always think *"What have I done?"*, when a problem occurs with a machine. She notices, however, that younger RNs do not usually blame themselves, usually saying *"What's this machine doing?"* They appear to be more in control of the machinery than Sonia says she ever feels.

Not one of the registered nurses who took part in this research had become nurses because they expected to be using technology. The technical side of nursing had only become obvious to them when they began to perform nursing work. The idea of technical nursing was not a part of their pre-nursing days, just as the concept of technical women or women controlling technology, requires an ahistorical leap (Linn 1987). This is in spite of the fact that women actually invented all of the peaceful arts of life, and the earliest forms of most of the mechanical devices now used in industry (Stanley 1983 citing Mozans 1913). This historical fact is silenced in our culture, just as the technical nurse is invisible. The label of technology would appear to depend very much on who is using it and in what social context.

Many of the participants talked of the clear link between technology and knowledge, and technology and work practices, making it obvious

that their ideas included the understanding of the links between theory and practice, and of technology as more than devices. Eve was particularly illuminating in this respect.

> *Technology can be seen in all different forms and facets. Technology is knowledge - would be one way of putting it. Whether that's knowledge of practical workings and the understandings of why things are done and how they're done, or if it's just your basic understanding of machinery and what machinery we use, why we use it, and to be able to put the results into practice.*

This definition mirrors most closely that of Bush (1983), who referred to systems, tools and techniques used to accomplish objectives.

The focus on computers or other machinery, by most of the participants, concurs with the view of Jones and Alexander (1993), who state that nurses still understand technology narrowly, as hardware. It is important to not be critical of this because the view of technology as hardware, is very common in Western culture and has its foundation in the view of historians. The female and male RNs in this research acknowledged that technology is commonly thought to mean machinery and in particular, medical therapeutic machinery, but were also very aware of the work practices and nursing actions necessary for the machinery to be used in client care.

Whether or not they enjoy working with machinery, the participants accept that it is part of nursing practice and know that they must be technically skilled. It is the lack of medical and administrative acknowledgement of their skill that maintains the invisibility of this aspect from the public. The public face of health care technology is gendered masculine, although the reality is that nurses use most of the technology and are expected to look after it, just as women within

the home also use technology, but are not inscribed as technical within our culture.

Health care technology would appear to be gendered to the extent that nursing work, even when performed by a male, will still be seen as non-technical. Perhaps instead, the male is perceived as having a strong female side to their nature - that is stereotyped as homosexual - because they are doing nursing work. The technical woman remains invisible as does the technical nurse.

The notion that technology is machinery or machinery used to achieve a specific purpose, will be used throughout the remainder of this thesis. What is needed now is a further analysis of the effect of technology on the work of registered nurses.

Chapter 6

Technology and nursing practice. Is the nurse the problem?

"You don't have to document how the patient felt today, or if you counselled the relatives, but you do have to document that you checked the pump every hour."

(Peter 1996)

The participants spoke freely about the impact of new equipment on their working lives, and several themes became apparent about local power relations concerning nurses and technology. The over-riding theme is the very strong link between technology and the medical profession, and therefore technology and male medical power. This clearly illustrates Wajcman's (1991:21) point that *the masculine culture of technology is fundamental to the way in which the gender division of labour is still being reproduced today.*

While not every doctor is male, the majority of senior specialists or consultants certainly are men and hence the controlling medical role is masculine, even if a woman is in that position; just as the nursing role in the health care system is feminine, even if a man is in that position (Street 1992). Street (1992) notes that nurses are expected to remain passive doctors' helpers, while coping with technology and its problems and according to the participants in this research, this handmaiden mentality still exists in the minds of doctors and continues to impact on their working lives.

Cockburn (1992:28) believes that technologies in western culture need to be viewed in the wider context *of a current restructuring of*

economies on a global scale, affecting both the capitalist and non-capitalist worlds, and she offers two feminist insights into technology. Firstly that it enters into gendered identity (masculinity equating with competence, and femininity with incompetence): and secondly that technology is implicated in power and domination; particularly men dominating women. Cockburn (1992:89) believes that *women are more impacted upon than influential when it comes to technology*, and it is therefore not surprising to find the participants, including the male RNs, articulating this domination. According to Glen:

> *They* (doctors) *use it to their advantage. They won't* (pause) *let us be what we think we should be - or give us the credit that we should have.*

This was the most overt acknowledgement of doctors' continual refusal to acknowledge nurses' - female or male - technical expertise and professional skill, and was also experienced by the other participants who work in private hospitals. Glen believes that doctors deliberately use technology to their political advantage.

Doctors rely on RNs to use technology and deal with any problems, but now insist on the technology as being the most accurate source of information about a client's condition, discounting nurses' assessment. This relegates RNs to the role of a technician. Laura and Adrian also spoke of the tension between their expert knowledge, and data from the machines, commenting that doctors may no longer value, or even show an interest in, RNs' assessments of their clients, but want to know *what the machinery is saying*. This is despite the fact that many of the participants acknowledged that the machinery can give incorrect data, and itself needs close monitoring to ensure its accuracy. Only Peter thought that the machinery could always be

trusted, while Laura, Eve, Adrian, Ann, Glen and Andrew all stressed the fact that monitoring equipment can give incorrect information, and must be closely watched; and that the most accurate source of information is always the client themselves.

Cooper (1993), and Erlen (1994) state that technology is designed to be invincible, objective and predictable as well as accurate and correct, and many of the participants believed that the doctors view it in this manner. The technology is therefore seen as superior to RNs' clinical expertise, and becomes another way of denigrating the nursing profession. And yet, as Paige (1990:420, citing Hodgman & Cabal 1986) states, *monitoring equipment is only as good and no better than the individuals who use them.* The most remarkable report of denigration of the significance of the assessing role of RNs was given by Glen, who reported being told by an anaesthetist that RNs are not necessary to care for a patient on a ventilator, because *a trained monkey could do it.* This implies that Carter's (1990) view is correct, that technology can be a means of de-skilling and weakening workers, rather than increasing their skills, as is suggested in management literature (Carter 1990).

In public hospitals where there are junior, inexperienced doctors (interns), the participants noted that they are sometimes informally credited with having more knowledge than these beginning medical practitioners. Adrian however, sees this knowledge differential as problematical saying:

> *(S)ome nurses enjoyed the power that it gives us over interns . . We definitely had far more power than the interns had, which wasn't always . .* (pause) *healthy, because we were playing the same doctor-nurse game, but in reverse. And that doesn't command respect by anyone.*

Adrian expressed discomfort at the idea that nurses could use their knowledge as power while acknowledging that in his present workplace in a private hospital:

> *the more advanced the equipment's getting, the less time we're actually seeing the medicos. There's more responsibility placed on the nurse, but if something went wrong . . . then the walls would come tumbling down, and they'd come in and, you know, kick a bit of butt then.*

In Adrian's account there was tension between the illusion that technology gives RNs increased power, and the reality that doctors have power over both the technology and the work of the RNs, and would wield this power if necessary by *"kicking butt"*. This correlates with Street's (1992) view that any status that nurses may believe that they acquire from the use of technology, is second class, because the doctors retain control of the work done by these nurses. Adrian spoke of how technology is shifting work and responsibility away from the doctors and onto registered nurses.

> *So the lines are crossing over. And they're* (the doctors) *quite happy for nurses to do that - the lines are getting very cloudy and the ethics of it are really quite difficult.*

Another participant, Eve does not believe that technology is necessarily blurring the roles of doctors and nurses, but rather that the power in the relationship depends on the relative experience of the nurse and doctor. When referring to her relationship with interns, Eve said:

> *It's more an equal part of acceptance I suppose - of knowledge. . . . . Frequently it's up to the nurse to tell the doctor what needs to be done, rather than the other way around.*

Marles (1988) expresses concern that this ad hoc delegation of medical responsibility to nurses occurs and that nurses typically acquiesce, implying that the passivity of nurses is problematical. Dreyfus and Rabinow (1982), however, describe passivity as the opposite of aggression and hence passivity need not be a problem characteristic for nurses, but actually be very appropriate. Power does not exist by itself, but is exercised or exists when it is put into action (Foucault 1982) and the question to ask is therefore 'How is power exercised in this situation?' (Foucault 1982). Street (1992) believes that doctors and administrators encourage nurses to undertake an expanded role of practice for the sake of convenience. This may mean that nurses are subjected to political pressure within their workplaces, to accept this 'expanded' role, which, according to Street (1992), at times includes possibly illegal and unethical tasks.

Nurses embody caring in a health care system which values economic efficiency and high-technology care (Mason et al 1991; Walters 1994) and hence are the most marginalised workers within this system. Jane commented that it was her university study in 1995, which first gave her insight into gender issues in the workplace. Her discomfort with the sexist attitude of the men in management when she was working in a nursing home was expressed as

> *You did not touch <u>the computer</u>! That was the male Admin's domain! . . . the nursing home was very archaic I believe . . . in their perception of what you could and couldn't do as a nurse .*
> *(T)here was a lot of feeling there that they* (the RNs and nurse assistants) *felt like a bunch of devalued women.*

The sexism in the nursing home was overt, and the RNs were not allowed to demonstrate competence with the single computer, bearing

out Weedon's (1987) assertions that subjectivities which challenge the dominant discourse can be marginalised, or constructed as mad or criminal. Sexism within hospitals may be overt and covert, and a feeling of camaraderie may sometimes exist between individual RNs and individual doctors. Brown (1992:16), a Canadian nurse, comments that good relationships between nurses and physicians develop when nurses *have learned how to speak the language of medicine, have mastered highly technical skills and prioritize dependent over the independent functions.* The dependent functions are those done for another health professional (Brown 1992). Marles (1988) expresses this same view, but talks of a delegated medical role, rather than dependent functions of RNs. Marles (1988:24) also believes that *medical staff perceive the specialist nurse as having superior skills to those possessed by the generalist nurse . . . .* because they believe that *the most important function of nursing is the delegated medical role.* This would indicate that nurses have perhaps compromised a great deal in their pursuit of technical work, by de-valuing their independent function and the control of their practice. This may mask the enormous power of the medical profession within any given institution and perpetuate the notion that it is the nurse who is the problem, if they do not readily comply with medical or administrative ideas. Inadequacies may be widely felt by nurses who are inserted in this discourse which exposes them to demands that are structured by the social relations of the patriarchal health care system.

Many of the participants were enthusiastic about technology, welcoming the challenge of the extra responsibility it brings. Their expert knowledge makes them comfortable with the delegation of medical work and responsibility, but lack of public acknowledgement

of this delegation, however, allows the handmaiden image of nurses to prevail, and the perception of expertise, knowledge and power, to largely remain with the medical practitioners. *This sexist domination of nursing by medicine* (is) *not accidental but structured and institutionalised* (Darbyshire 1987:32, citing Ashley 1976 & 1980).

In South Australia today, there is an openly expressed expectation that RNs working in some private hospitals must consider the medical officers to be their clients, ahead of the needs of the people who require nursing care. As Glen says *"(t)he client is the doctor plus the patient. The nurses lose out in the middle."* Laura agrees with this sentiment. There is evidence in the literature that historically *(d)octors have regarded the nurse as occupying something akin to a servant role* (Jolley 1995:100). Street (1992:227) refers to this as the *cultural legacy of nursing the doctor rather than the patient,* which is perpetuated today because medical students continue to be *educated to act as a member of the dominant medical elite class* (Street 1992:34). This relationship between the nursing and medical professions makes collegiality impossible, as nurses are ordered to subjugate their wishes to those of the doctors and then perhaps are labelled as submissive, because they do so. Questioning and challenging the gendered relations in the health care hierarchy and structure however, is a very difficult and daunting task for even the strongest person (Jolley 1995:76).

The financial viability of private hospitals is directly dependent on doctors' whims and wishes - but perhaps this is not new, it is just presently being openly expressed. Marles (1988:xix) states that the expected submissive behaviour from nurses, reflects a value which is *contrary to the direction in which women generally are moving* and

predicts that unless this insistence on obedience changes, recruitment and retention of qualified RNs would continue to be a problem in Australia. This is certainly the case here in Adelaide, in 1996. As Peter said:

> *A couple of weeks ago we had a lecture from the CEO at one of the big private hospitals, and - he was talking about having to attract doctors to the hospital, because they bring the dollars with them. They do the operations and bring the patients in, and all that.*
> *There was no talk of attracting good nurses to the hospital, or attracting nurses with certain skills that they wanted. It was all attracting doctors who bring money . . and part of attracting doctors was finding out what equipment they wanted, and what was new in techniques in surgery - and spending hundreds and thousands of dollars on equipment to attract doctors in. So I'm sure there'd be no mention of how nurses feel about that equipment . . .*

Sonia, Peter and Glen all spoke of technology being used to attract doctors to particular private hospitals. Hospital administrators therefore strengthen the medical-technology links in the health care system. Doctors themselves demand equipment of hospital management, who know that doctors' wishes are financially important for the viability of the hospital. According to Sonia and Ann the acquisition of technology becomes a competitive status symbol between hospitals and within the medical profession, regardless of whether or not the technology actually benefits the patients. In Ann's words:

> (Technology) *is viewed as a competitive thing. "We've got the best monitoring equipment compared to other units" - and I don't necessarily know whether it really benefits the patients.*

Ann, Sonia and Peter expressed unease with this medical control over health care technology, stating firmly that technology should benefit the patient rather than the doctor. Sonia expressed the concern that technology may complicate a person's care, and is not necessarily in their best interests, as it limits their movement and hence their ability to perform activities of daily living. Patients may have *"nothing to do but lie there and worry"*, she said, and this increases their stress. Doctors order the PCAs, and patients are not given a choice - again the issue of power and control is raised - and nurses then *"run after the machines"*. An individual RN may have six patients, all in single rooms off a long corridor, all with PCAs requiring hourly checks. By insisting on the PCA machines, the doctors are impacting very significantly on the structure and nature of nursing work, and the nurse-patient relationship. *"Nurses run to machines rather than run to clients"* Sonia said. Having experienced nursing prior to these PCA machines, Sonia questions whether she wants to continue in an acute care area, and is presently intending to make a career change, to community health nursing.

Fairman (1992:58), believes that the increased status given to RNs who work in ICUs, began in the 1950s when RNs accumulated *the knowledge and skills that belonged to the higher status medical profession.* According to Fairman (1992) this led to the obscuring of the original purpose of an ICU, which was to allow people the watchful vigilance of expert RNs. Originally ICUs had the same technology as the wards, but medical enthusiasm for the machines led to ICUs becoming technologic repositories and data from machines supplanted nurses' intense observation and expertise. Perhaps inevitably, given the hierarchically structured control of hospitals by the medical profession (Street 1992), the medical influence over ICUs has now

been formalised with the creation of the new medical speciality of Intensivist, which can be seen to be a clever political move.

The status given to RNs who work in high-technology areas is exemplified by Adrian's comments.

> *Sure there's a certain prestige. Having a Crit. Care* (Critical Care) *certificate means that I can walk into any hospital and get a job - interstate, overseas . . .*

Glen stated that this status is a source of division amongst nurses, but Jane commented that the status comes from the community rather than other nurses - *the more beeps and buzzers around, the more important you are.* Sonia, Andrew Peter and Tania all agreed with this sentiment. Laura made the comment that even within an ICU, there is evidence of the power attributed to technology, because there is status in *looking after somebody who's got the most machinery on them.*

According to Dassen. Nijhuis and Philipsen (1990) the actions of nurses in ICUs are gendered with male RNs performing medical activities more often than female RNs; and being more likely to believe that ICU nursing is becoming similar to medical practice. This view was only mentioned by one male participant, however they all agreed that there are more men working in ICUs and in nursing management, than in other areas of nursing. Only Eve disagreed with the technology-status link amongst nurses, believing rather that certification and university qualifications give status.

Postman (1992:9) says that people *who cultivate competence in the use of new technology become an elite group that are granted undeserved authority and prestige by those who have no such competence.*

According to Postman (1992) this link between status and technology inevitably leads to winners and losers, and frequently it is poignant to see the encouragement of the winners, by the losers who are ignorant of the effect on themselves. This may not be the case within nursing, as the participants made it clear that they are very aware of the prestige of visible technical competence in ICUs, although perhaps less aware of the overall control of technology by the medical profession.

Many nurses are aware that there is less medical dominance of their practice outside of hospitals, in community nursing, and both Jane and Sonia are intending to move to community nursing positions, for this reason. Peter's present community position is one where he is involved in decisions about major technology expenditure - the only participant to do so. He talked enthusiastically about the introduction of laptop computers for community health nurses, to replace the large, heavy documents previously carried around. He also mentioned the great benefits of the personal alarms worn by elderly people in their homes, in order to summon help should they need it. Peter made the observation that in community nursing, technology has a different emphasis and is more likely to benefit clients and nurses.

> *I think there's a different emphasis . . where you're not actually monitoring patients - medically . . . and I guess apart from the staff benefit, there has been some benefit for clients as well . . technology is helping people as well.*

The participants' accounts reflect Parker's (1987) assertion that the biomedical model is less directly powerful in the community. Health care technology reflects the politics and spending priorities of the various institutions, and is likely to only benefit nurses and clients in

situations where their needs are the main priority, rather than the wishes of the medical profession.

Holmes (1990:65), the Vice-President of the Hewlett Packard Company, says that *it is only recently that attention has been focussed on using technology to improve the nursing profession*, acknowledging that the focus of technological developments has been on medical care. His choice of words about improving the profession of nursing is interesting because it may allude to the cultural status given to those who are technically competent. Does Holmes expect nursing's status to rise as a result of the work of his company? Hopefully what this statement may mean is that Hewlett Packard may start to seek nurses' opinions about the nature of the technology that is being produced, and hence the technology-medicine link may start to slowly change. Nurses are largely unaware of the gendered assumptions about, and use of technology, but it all has a history concerning whose gendered interests it serves (Drought & Liaschenko 1995; Wajcman 1991). As Green (1994:xxx) says, a piece of equipment is *framed by the discourse within which it is discussed* and so further research about the effect of a piece of equipment needs to be undertaken in each area in which the equipment may be introduced.

Technology is a highly visual activity and is therefore isolated from other forms of cognitive activity (Laudan 1984) and Peter talked about this at some length, linking it with the status given to nurses who have this visible expertise. According to Ann, Andrew and Tania, machines also give an indication of the severity of a person's illness and the removal of technology signals that a person's health status is improving.

Tania, Adrian and Peter expressed concern for the relatives of people who are in high-technology areas, believing that the relatives experience enormous stress about the amount of machinery attached to somebody they love. Conversely, Ann and Sonia remarked that a relative may find the equipment reassuring, as it is evidence of active medical treatment, and keeps nurses frequently at the bedside - again evidence of the impact of technology on nursing work. This threat/reassurance dichotomy exemplifies the impossibility of making any sweeping statements about technology.

Another issue to arise was the participants' concerns with the accompanying documentation required of the RN. Again, there is evidence of the legitimation of medical power over nursing practice, as Glen observes:

> *(Y)ou write in the notes all the stuff that the doctor needs to know - there's no patient care or whatever you've done in there at all really - and it's a shame!*

> *You'll have nothing to look back on to say "This is what nursing has done over the years!" There'll just be a blur. There'll be nothing. All this medical information but nothing else.*

The documentation appears to demonstrate that nursing practice is a series of dependent tasks related to checking the technology. As Tania says:

> *You tend to think "I must check the machine", rather than "I must check the patient", because that's what you've got to write down.*

The machinery dictates hourly recording of observations, even if the patient is stable, and according to Jane, this focus on tasks can lead

to nurses *sitting at the end of the bed, just reading numbers.* This diminishes the personhood of both nurse and patient, making the technology and the medical condition the focus of hospitalisation. As Ann said, *So few nurses now examine the patient. They just look at the monitors and look at the charts - so the patient becomes less* . . and the significance of nursing practice is also diminished by this work. Walters' (1994) Australian study found that ICU nurses do focus on the clients rather than the machinery, but while this is reassuring, post-discharge follow-up of clients is needed to gauge the clients' views about this.

The documentation linked to the technology drives the focus and the pattern of the nursing care. Therefore by selecting particular machinery, doctors are controlling many aspects of nursing work and given the gendered nature of the professions, and health care institutions, men are therefore controlling women. Glen comments that much of the documentation is physical assessment data of the clients, which would otherwise have to be done by the doctors themselves. So this documentation may actually be saving the medical staff's time, while rendering nursing invisible and unimportant. This illustrates Street's (1992) point that the norms of the dominant medical profession have become the normative values for the nursing profession and the community.

Adrian agreed with the idea that monitoring equipment decreases doctors' workload, while saying that, at the same time *in a funny sort of way,* (it) *has increased the amount of nursing hours that are required to care for a patient.* In nursing literature there is ambiguity about the issue of technology and nurses' time. In a research project carried out in South Australia at Flinders Medical Centre, 526 RNs were surveyed

about technology by McConnell and Nissen (1993). The responses varied with some RNs saying that technology saved them time, and others that it was time consuming; some saying that technology increased the quality of their care, and others that it decreased the quality.

Technological change inevitably stimulates social change (Bush 1983) and the gendered technology in high-dependency units would seem to be increasing the power and status of the medical profession. The link between technology and power is clarified by Cockburn (1985) who states that there are two powerful relationships mediated by technology. These are firstly, ownership of tools and equipment, and putting people to work; and secondly, possessing special knowledge and competence with technology. While the discourse of nurses in this research clearly shows that they fulfil the second criteria, it also demonstrates that they rarely fulfil the first.

Nurses are put to work with the technology chosen by doctors, who would very probably feel a degree of ownership of the equipment, because they have had a say in its selection and use, thereby fulfilling the first of Cockburn's (1985) criteria. This probably explains why *the egalitarian promise of technology often fails nurses* (Sandelowski 1993A:4). Nurses are the users but not the selectors of, or decision-makers about, technology. As Kipnis (1990) says, people who control technology have the most influence.

The control of technology in hospitals would seem to be the same today as it was in 1983 when Brewer identified that rarely, if ever, were nursing personnel involved in *the initial decision-making process regarding the introduction of new technology*. Even top administrative nurses were excluded (1983:18). Marles concurred with this when

she identified in 1988, that the most significant problem identified by the RNs in her study was *their perceived lack of control over the application of advances in medical science and technology to their work and their work environment* (1988:24).

RNs in fact have to nurse the equipment as well as the clients (Schultz 1980), which adds to their workload. They are responsible for the machinery's well-being and smooth functioning, and have to maintain it in a manner which allows it to perform its usual functions. This was verbalised by Tania when she said *"You tend to nurse the machines you know . . . the patient tends to come second"*. Peter agreed with this observation, saying *"I think there's a real risk with technology, that you can forget the patient."* The technology, in fact, demands attention as was verified by Peter, Sonia, Ann, Glen, Tania, Eve and Laura. The alarms and other persistent noises the machinery makes, means that it cannot be ignored as easily as a single ring on a call-bell from a patient who may need attention also. RNs know that they are responsible for both the client and the machines, and according to Tania, Ann, Glen, Sonia and Laura, frequently find that their client care is interrupted by the machines which demand attention, and cannot be ignored. Machines will therefore prioritise RNs' work for them, and it is not surprising to hear concern expressed that the machines make RNs forget the patient. The issue of quality care for clients then becomes one of considering how to factor technology into nurses' workload. Is it the number of machines that makes the difference, or is it the number of machine/client combinations?

The participants working in the "lower-tech" areas (wards and a Nursing Home) verbalised more concerns about technology affecting

their workload. This was related to the lack of visibility of the technology on the so-called ordinary wards, where clients may be in individual rooms, spread out over a complete ward area. In Sonia's words:

> *(I)t's a question of how you're going to get through your day. "Oh! I've got four PCAs!".* (Patient Controlled Analgesia machines) *. . . (E)verybody's constantly on edge, listening; listening and trying to define whether that was your room, or somebody else's room. And if it* (the alarm) *was still going, should you go and intervene? We spend our whole life running after the machines!*

And Tania, who may be on duty with an enrolled nurse said "*You've got 12 patients . . I don't think it's a timesaver at all.*" Both Sonia and Tania spoke of the tyranny of the hourly care that is dictated by the machines, and the manner in which the machines limit their clients' mobility, impacting on the manner in which attention can be given to clients' routine activities of hygiene, nutrition and elimination care. Jane summed up the effect of machinery by saying she was responsible for "28 residents and a pump". A single machine, when added to the responsibility for 28 clients, assumed great significance. Jane did not have the luxury of sitting at the end of an individual client's bed, calmly in control of this piece of equipment. She had to also watch out for 27 other clients, while being accountable for the work of the nurse assistants who shared the shift with her.

The present trend towards accommodating clients in single rooms, with the exception of those people who are in an ICU, may need to be re-considered. While clients may want the seclusion and quiet of their own private room, with the spread of technology into every ward, this should not happen at the expense of the RNs who work in those

areas. Hospitals are now being designed to resemble luxury hotels, while at the same time, increasing amounts of complex machinery are being incorporated into client care. Geography does impact on nurses' workloads. Nurses have to nurse the machinery as well as the clients, whether they consider the client and equipment as a single unit, or as separate entities. The real value of having RNs looking after clients, is their expertise in the assessment of clients' physical, emotional and spiritual needs and their ability to prevent complications from occurring. Not facilitating this role is contextual evidence of systematic, gendered, undervaluing of the work of RNs.

When considering the workload of individual RNs perhaps it is the number of client/technology combinations that is the most significant factor, with the ease of visibility of the machinery, the second factor. In ICUs there may be a great variety of equipment, but RNs look after one or two clients only, and hence the equipment is constantly visible and easier to look after. Ann said that workload is the reason why she prefers to work in an ICU. Looking after one or two patients satisfies her altruistic goals, which had attracted her to nursing as a career, rather than doing what she described as the *soul-destroying shifts on a medical ward.*

In contrast to this, Adrian's commentary included the notion that while technology has taken the pressure off doctors, it has increased nurses' work, and over-ridden the importance of such nursing actions as massaging people's feet, or talking to them. Adrian believed that technology is sometimes making it difficult to give excellent care to even one client in an ICU. Again, the dependent nursing functions are taking priority over the independent functions and because technology

avoids the complexity of the whole body (Drought & Liaschenko 1995), this is problematical for the nursing profession.

Each piece of equipment therefore needs to be considered in the light of how it affects the structure and nature of nurses' work in any particular ward or unit. The local user context must be considered rather than the over-reaching question of the effect of a particular machine in a hospital, or institution. Bush (1983) agrees that it is this user context that requires the most attention from feminist researchers.

The politics of hospital design may also need investigating because it appears that the needs of nurses, a largely female workforce, are not being considered, nor is the importance of nurses' work. If the importance of nurses' assessment was openly acknowledged in health care institutions, then clients would be told that they cannot be accommodated in private rooms because they need to be easily observed by RNs in order to ensure their safety and comfort during their hospitalisation. This would articulate the importance of nursing work, in direct contrast to its present invisibility and marginalisation which is described by Carpenter (1993), Oakley (1984) and Street (1992). Carpenter believes that nurses' invisibility underlines their subordination, unlike in fairy tales, where invisibility usually results in formidable powers for the heroes. Perhaps the difference between fairy tales and the health care system is the patriarchal social context of health care, which is clearly articulated by Cheek and Rudge (1994). Patients' lives can depend on the vigilant assessment of an RN and public acknowledgement of this would be likely to impact on the power relationships within the health care system. Historically, nurses have always wanted their sickest clients closest to the nurses'

stations (offices), where they and their equipment were easily seen, perhaps through a glass screen.

McConnell, Cattonar and Manning (1996) cite previous work by McConnell and Fletcher (1995) and McConnell (1995), which confirm that the use of any medical device is likely to cause stress for between 39% and 78% of nurses, citing the nurses' need to hurry as one source of this stress. Perhaps this stress could also be related to the layout of the particular ward or unit where the nurse works, and the visibility and availability of the equipment.

Sonia and Adrian were both of the opinion that younger RNs cope better with technology, but this was not borne out by Pelletier's (1995) research which showed that younger RNs and those who had lacked confidence in using technology at tertiary institutions, were more likely to be uncomfortable with technology in the clinical areas. Pelletier (1995) demonstrated that age impacts positively on equipment use, and that some people enjoy technology or relate to it more easily than others, as has been found in the participants' descriptions. The newness of machines does not necessarily mean increased nervousness for RNs but there is evidence within nursing literature that RNs would like more education about technology (Golonka 1986; McConnell 1994; McConnell & Nissen 1993; Pelletier 1995).

It is interesting to consider the effect on nurses and clients of the use of machines that allow patients to control their analgesic level (PCA machines). Sonia commented that where she works, PCAs are used at the discretion of the anaesthetists; clients and nurses are not consulted about this use. Sonia believes that these doctors consider the PCAs to be status symbols in their practice. In nursing literature,

PCAs have been thought to be good mechanical servants for both nurses and clients (Ashworth 1987), however, in a recent research project Koh and Thomas (1994) found that while PCAs were reputed to save nurses' time, they did not necessarily increase the clients' satisfaction with their care. According to Koh and Thomas (1994:69) *(t)he lower satisfaction level with overall care found amongst the patients using PCA is a finding contrary to expectations.* This finding resulted in their recommendation of caution about marketing PCA as a method of saving nursing time, because *basic nursing care and personal contact are still of paramount importance to patients and this should not be forgotten with PCA* (Koh & Thomas 1994:69). Perhaps this client dissatisfaction is related to Beaumont's (1995) finding that clients take less medication for pain relief when using a PCA machine. One participant, Tania, agrees that PCAs do not save nurses' time, because administering injections every four hours is a quicker method for nurses to use. With this sort of conflicting evidence, there is obviously a great need for further studies about the user context of PCA.

Carnevale (1991) wisely states that technology is fundamental to medicine while time is fundamental to nursing. In order to have this time to nurture clients and not be forced to function as a mere technician (Carnevale 1991), the effect of technology on workload needs to be addressed in creative ways. Presently workload is based on client numbers and the nature and degree of their dependence. Other factors which need consideration are the amount of machinery incorporated in their care, and the clients' locations. An example of how this might be calculated is included as Appendix II.

The power of the medical profession over the user context of technology in nursing, is evident in their ability to make decisions about the purchase of new equipment. In Eve's words:

> *I don't think nurses get much choice of what technology comes into the place. The doctors decide what we want and that's that. They get what they want, rather than what nurses feel is relevant or appropriate . . . unless the nurses have raised funds and they want to buy a piece of equipment. But then nine times out of ten, they'd buy a piece of equipment that would benefit . . . it would be more a set of headphones and music for a baby, or something like that.*

In the neonatal unit where Eve works, nurses have to raise any money that they want to spend on equipment to enhance the quality of life for the infants in their care.

Presently, Intensive Care Units reflect this medical spending and are considered very abnormal environments - or such was the comment by many of the participants. Twenty-four hours of the day some ICUs in Adelaide are well-lit to facilitate the nurses' surveillance of the machinery and the clients; music is played; and staff converse without lowering their voices. Andrew described this ICU environment as "daunting"; Ann as "abnormal"; and Jane, Laura and Adrian as traumatic for the relatives; and yet this is the healing environment of the sickest people in Adelaide. This is also where *(r)outinisation of care . . . threatens to distract the nurse's focus from the life of the patient* (Drought & Liaschenko 1995: 301). Laura believes that people expect to see the technology, but as Sonia says, technology alters the atmosphere of any environment, and this impact is clearly articulated in nursing discourse.

All of the participants expressed concern about the effects of technology on the people in their care, either directly on their bodies, or indirectly by taking nurses' time away from the independent aspects of their nursing practice. The stress associated with both the lack of control of the selection and use of technology, and its impact on their workloads, was clearly verbalised by the participants. This reflects the privileged position of the medical profession within the technological social relations of the health care system.

Consultation with nurses about the nature of the technology which is going to be produced could certainly change the technology available for use in the health care system. The next point to consider then, is how might technology be different in the future?

Chapter 7

Into the future: gender-bending cyborgs?

> ***"Why should our bodies end at the skin?"***
>
> (Haraway 1985:97)

> ***"The technology and the baby is a single unit because you know the baby's not going to survive without that technology."***
>
> (Eve 1996)

The participants commented on their struggle to maintain a hierarchy of priorities, with their patients as their main focus and the machinery attached to them, a lesser priority. Ann eloquently explained this practical dilemma.

> *You're torn. Often I want the patient to be the focus of my attention and the technology the secondary thing. However, often the machines are demanding attention because they're alarming, or they're trouble-shooting . . . and you often find yourself - being interrupted by a machine that's demanding to be looked at or attended to; and so it fragments the care. I find it quite intrusive at times and I resent it. You've got to attend to it right there and then.*

Glen, Adrian, Ann and Laura talked about the importance of always perceiving their clients to be the centre of their care verbalising the difficulties inherent in maintaining this view, and how the client and machines sometimes merge into one. Eve, Jane and Sonia spoke of deliberately striving to see the client and their technology as a single unit, believing this to be important. Including the client and their machines as a single entity would allow nurses to begin to document the reality of their clients as cyborgs - part human and part machine.

Modern health care is full of cyborgs - couplings between organisms and machines; for example people undergoing renal dialysis, or people with cardiac pacemakers inside them.

Within feminist discourse exciting and imaginative ideas about cyborgs (cybernetic organisms) are evident. Writing in 1985, Haraway listed the transitions she saw taking place as the world changed. These changes include: from understanding physiology to now focusing on communications engineering; from sex to genetic engineering; from labour to robotics; from human mind to artificial intelligence (Haraway 1985). Haraway (1985) talks of late 20th century machines as disturbingly lively, while humans are more inert, and perhaps this is what is so clearly demonstrated in an ICU, contributing to some people's dislike of this environment. Unconscious clients are totally inert, as in death, while the machines make a variety of sounds and pictures appearing very lively and as Ann put it, *distracting your train of thought.*

The 'busy-ness' of the machines is presently linked only to clients' physiological needs and this focus is perhaps what needs to change most urgently. What if machines monitored clients' emotional state and thoughts - perhaps analysing conversations, electromagnetic auras, restlessness or body movements allowing RNs to then implement other technology to help meet these client needs. Virtual reality relaxation could replace the simplistic music therapy presently in use. Meditation could become a normal part of nurses' healing practices within institutions. Perhaps an intelligent machine could automatically chart the clients' physiological data and responses to the machinery and their surroundings, as well as their diagnosed illness.

Many machines that are presently used are perhaps accurately called medical devices, as McConnell (1990A; 1990B; McConnell & Nissen 1993; McConnell, Cattonar & Manning 1996) suggests because they give physiological data; are ordered by doctors; and focus on medical treatment or surveillance of parts of clients' bodies. If nurses do not also document their concern for the emotional and spiritual needs of their clients, particularly in relation to the technology, they may well risk being replaced with technicians who serve the machines; and other untrained staff who will carry out basic care. It is possibly only by insisting on their role as holistic practitioners, concerned with the entirety of the cyborg (body, mind, spirit and machine), that they can be assured of a future in health care institutions into the 21st century. Holmes (1990) believes that holistic nursing care and technology can thrive off each other's strengths, but given that ineffective and often harmful medical products are increasingly available within the health care sector (Collyer 1996), it is urgent that nurses begin to collaborate and work with companies and people who produce these products (Holmes 1990; Laing 1982; Pauly-O'Neill 1991; Pickler & Munro 1994). In 1992, Jacox wrote that because nurses are the primary users of health care technology, they should be employed as full-time consultants to product development task forces. This should probably be the case for all technology, given Wajcman's statement *I often wonder how it is that I have such an inefficient cooker and vacuum cleaner when we can fly men to the moon* (Wajcman 1994:9).

It is challenging to envision feminist technologies (Karpf 1987) and wonder how people's relationships with technology could be different, beyond the present mediconormativity. There has been a reluctance to see femaleness and technology linked together, perhaps reflecting

Halberstam's (1991) view that such a coupling could be exciting for feminists but probably terrifying for others to contemplate. The last decade has seen the emergence of feminist authors (Halberstam 1991; Haraway 1985; Sofia 1995) who explore gender and technology, creating new ways to analyse the human/machine relationship. Halberstam (1991) continues the theme that modern machinery aims to transform artificial processes into functions that seem organic, making the boundary between human and machine intelligence unstable. In her discussion of cyborgs, Halberstam (1991:452) asks *(W)hat is so anxiety provoking in a blurring of machine and human?* Perhaps a female cyborg is terrifying *because it hints at the radical potential of a fusion of femininity and intelligence* (Halberstam 1991:454). Such a fusion releases the female body from its bondage to nature and the *resistance she represents to static conceptions of gender and technology pushes a feminist theory of power to a new arena* (Halberstam 1991:454). Halberstam believes that a female cyborg shatters the gender binary and the ability to distinguish between our natural selves and our machine selves, posing the challenging thought that perhaps we are already cyborgs (Halberstam 1991). Bates and Lapsley (1987) write on a similar theme, believing that human tissue transplants are changing social attitudes to the human body. How, then, could nurses envision cyborgs of the future? How can machinery be incorporated into, or linked with people's bodies, to benefit them holistically?

Perhaps RNs in health care centres of the future will give a lot of thought to the concept of cyborgs and be very concerned about the human-machine couplings that they produce. Nurses may strive to promote a relaxed, happy and enjoyable healing environment rather than the stressful, physically-focused, machine-dominated

environment presently found (Chinn 1989; Adams 1993). If health care technology moved from a surveillance and treatment focus to a healing focus, perhaps clients could individually choose the music, lighting and colouring of their institutional environment. Perhaps virtual reality and cyberspace will offer clients different responses to their conditions - they will be encouraged to use the power of their minds to heal themselves (Benson 1996).

RNs could use finger pegs or electrodes to measure clients' emotions as well as their pulse rates and oxygenation levels. Perhaps there will be glasses that RNs can put on to enable them to see clients' electromagnetic auras, and then call in other RNs who are expert in therapeutic touch to channel healing energy for these clients. We are presently perhaps experiencing the final stages of the great physical focus of technology, before the mind and spirit are also included, in ways which we presently do not comprehend. There cannot be a future without technology, but health care systems can become less routinised, barbaric and invasive and become happier, healing environments tailored to individual's needs (Adams 1993). One participant, Eve, hinted at this when she said that given the opportunity, nurses buy technology which enhances the quality of life for their clients. Issues such as adequate staffing levels of nurses to care for the cyborgs, would be seen as societal concerns, if nursing was integrated into health care systems rather than marginalised as it is at present, by economic efficiency (Mason et al 1991).

The participants spoke with concern about their need to pay attention to the machinery presently in use. Sonia said *"You're tuned into the machines."* She talked of her dismay at finding herself nursing the machinery rather than her clients, when working a busy shift looking

after six post-operative clients, all accommodated in single rooms. The lack of time caused her considerable stress and low job satisfaction.

> *There is a great tendency to look at the machine and read the machine and rush out. I talked to the client while I read the machine but I didn't use my eyes. I didn't look at the client.*

Sonia understands the importance of eye-to-eye contact which conveys trust and moral caring (Reilly & Behrens-Hanna 1991) and hence her dismay when she failed to give eye contact to a person in her care. Eve agreed, stating *"We end up looking after the machines rather than the patient."* Would their stress be lessened if RNs thought about the client/machine as a single unit, or cyborg? Can clients also be encouraged to view the equipment as an extension of themselves; and how does the function of the equipment impact on this possibility? Is it easier to see machines that maintain life or health (give treatment) as part of self, rather than surveillance (monitoring) equipment which is less easily integrated into a view of "self"?

Jane already attempts to incorporate the client and machine into a single unit, by asking the client to help her when she attends to the machine. She believes that encouraging the clients to touch and understand the machinery, reduces their alienation from it, thereby reducing their stress and increasing their level of comfort.

The machinery is usually noisier and more demanding of nurses' attention than the clients. Nurses have to put up with these demands because they cannot alter the behaviour or performance of the machines, merely adapt to its presence, whereas clients can be sedated or their emotional and spiritual needs ignored. RNs do have

to nurse the machines as well as the clients but perhaps the future may see more sophisticated and better designed technology, that will be less intrusive and demanding of nurses' time and less frightening for the clients. Glen acknowledged this fear when he talked about the process of admitting someone to a Coronary Care Unit.

> *They're frightened anyway because they're being admitted as an emergency and then you're strapping all this stuff on them. I just explain to them that this is just a machine - it's nothing to be afraid of.*

Care of a person who has had a heart attack is discussed further in Appendix III.

Jane, Lyn, Laura and Adrian also spoke of the fear that technology presently causes their clients. As Adrian said

> *The body's being treated - the emotional and psychological needs are certainly not catered for. I don't think machinery can give comfort. It can assist or promote it, but it can't give comfort.*

Sonia commented though, that not every client is fearful of technology. Many of her younger clients who are undergoing elective surgery, actually *adore the technology*, as do their visitors.

Technology will only be liberating for nurses if they control it, rather than always having to accommodate their work around it (Bush 1983; Cockburn 1985; Rothschild 1983), and being critical of it is the first step to changing nurses' understanding of technology and their relationship to it (Drought & Liaschenko 1995; Walker 1994). This

critical attitude was evident among the participants. Adrian said:

> *The information* (from the monitors) *can be completely wrong, so it's still up to the individual to say "Well that reading doesn't seem correct - doesn't seem to correlate with what I'm seeing", and to check the equipment. . . . It doesn't matter how much equipment you have, the way you interpret the information you've been given is most important.*

This was echoed by Ann, Glenn and Laura. Laura said *Watch your patient! Listen to your patient!* Eve checks the machinery and her client simultaneously in any emergency, never relying purely on the information from the machinery. Both aspects of client/machine couplings should always be checked exemplifying the dependent and independent aspects of a nurse's role, if this checking is seen as two tasks. However within the concept of a cyborg, the checking of client and machine(s) would be necessary in order to do a thorough assessment of the cyborg, with no one aspect more important than the other. Such a view would demonstrate to others the necessity of having RNs looking after these cyborgs created within the health care system. This would educate other professionals and the public about the frequently forgotten independent aspects of nursing practice, as it is the medically dependent functions that are often believed to be the core areas of nursing (Marles 1988).

It is interesting that nurses are striving to link the operating of technology with high status, when in other industries people operating machines may be referred to as blue collar workers or technicians and have less status. Robotics now means that machines are themselves controlling other machines, and hence the comment made to Glen about technology - a *"trained monkey could do this"*. Technicians always work for other people, they are not usually afforded

professional autonomy, or control of the workplaces in which they are employed.

Adrian was adamant that nurses should not lose their basic skills *"because they're the skills that will get you through, no matter what the equipment says"* and this is certainly still the case. Whatever the future holds in the way of health care technology, nurses can continue to be flexible and focus on client well-being. Lyn spoke of the gratitude she receives in her role of educator for clients, prior to their interaction with technology.

> *The clients say "Thank you". What they're meaning is "Thank you for telling me, I was too afraid to ask."*

Laura emphasised the significance of the person attached to the machinery.

> *You've always got to try and step back and look at it and say "This is a person, it's not just somebody attached to all the machinery that I'm looking after. I'm looking after the person as well."*

Cyborgs will continue to require an RN's vigilant assessment or scrutiny, in order for the care of the client and machinery, to be co-ordinated and appropriate. Nurses should therefore include information about the client and the machinery - not just the readings from the machines, in their documentation. The impact of technology on nursing work and feminist views of cyborgs must be written into nursing's clinical history. There is evidence to suggest that Carter (1990) correctly states that the conditions under which new technology is introduced needs investigation as it is a major determinant of the impact of that technology (Carter 1990). Although Carter (1990:216) was writing about office workers, the assertion that

the larger the office, the greater the tendency for people to become *more narrowly specialized in performing more narrowly defined sets of tasks* could also be true of hospitals.

One important outcome of this discussion is that nurses should be more assertive about their knowledge of technology and the choosing of new equipment. This is evident within nursing literature where Bates and Lapsley (1987), Marsden (1991), McConnell (1994 & 1996), McConnell, Newland, Manning and Paech (1993), Meredith (1987), Pelletier (1990), Pickler and Munro (1994), Pillar (1992B), Quivey (1990) and Scott Heide (1982) all agree that this is important. While technology assessment is a necessity, it does not fit comfortably with the discourse of the participants who work in gendered hospitals in Adelaide, where the doctors' wishes are paramount. These hospitals spend huge amounts of money on technology in order to attract doctors thereby explaining Banta and Luce's (1993) assertion that hospital doctors are the most dependent on technology. Lyn gave a very clear account of how the doctors who employ her in their small private practice could not maintain a cost-effective service to the public, if they frequently up-graded their expensive equipment. Their income is directly related to their expenditure, whereas salaried doctors who are employed in hospitals, have no such personal accountability for their spending. Money spent by hospitals on technology is likely to be public money.

RNs may not as yet be aware of the entrenched technology-medicine-power relationship, but rather experience individual frustration and discontent with their working lives. Until their awareness is raised, there can be no change. While it is tempting to say that once RNs do understand the cause of their frustration they should put their own

interests first, this is not likely to happen. There is evidence of a strong element of determination to care for their clients in the participants' discussions and it is this determination to place clients' needs, perhaps ahead of their own needs, that is part of the code of nursing ethics and politically difficult at times for the nursing profession. Mason, Backer and Georges (1991) believe that some nurses still think that political behaviour is unprofessional and unfeminine.

Individual strategies cannot alter the present gendered nature of the health care system, but changes are necessary in order to allow clients' needs to be the focus of nursing care within the health care system. The present control of technology by hospital administrators and the medical profession is not in the best interests of the nursing profession or the people of Adelaide.

Perhaps health care technology will soon be digitalised and operated remotely by RNs, just as mobile telephones and the Internet, allow ease of communication. If a machine alarms, perhaps it will only alert the nurse carrying the remote control, who can then communicate with the client, also checking their vital signs and emotional state, and choose to either stay at a distance; immediately attend to the client/machine; or give instructions via the remote control to the machinery to change its function or behaviour. The cyborg will be the focus of attention rather than the client or the machine, as is the present case.

In any situation where responding to clients' healing needs is the work being carried out, rather than treating symptoms, hands-on touching/communicating will always be important, so is it really "Back to the future?" As Eve said when talking about her tiny clients

in Neonatal Intensive Care *"You still stroke them; you still hold them to settle them down"*; or Lyn of her adult clients *"I stand at their head where I am visible and talk to them"*. Some participants spoke of how technology is reducing their need to touch clients during procedures, but reinforced their personal views that touch is an essential part of healing. In Laura's words *"I fully believe in the power of touch - it's very under-estimated in healing."*

According to Reilly and Behrens-Hanna (1991:14), *(t)ouch is still a powerful source of saying "I value you"*, but Jane was the only participant who thought that technology promoted touch. This is perhaps because of her experience in a Nursing Home where the presence of the machinery requires the RN to regularly attend to a particular resident, who otherwise may not have required so much of the RN's time. Communication with nurses remains very necessary to help clients to cope with the present technology, and will remain necessary, no matter what the nature of the future client/machine couplings, unless the cyborgs themselves are able to recreate this human activity.

A more empowering healing environment for nurses and the people in their care is possible, and can be imagined. Cyborgs are not gendered masculine and the nature of available technology can be altered to a healing, nursing focus. A collegial relationship with the medical profession and health care administrators, is also possible and is greatly desired by many nurses, including the participants in this research. However none of this will be achieved without further feminist research and professional political activity to further highlight the hidden patriarchal nature of the present health care system.

Chapter 8

Conclusion

Feminism is "slowly and cumulatively exposing the ideological limitations of discipline after discipline."

(Hodge 1995:37)

In 1982 Foucault stated that a struggle for power was occurring between the medical profession and all other people in Western cultures (Foucault 1982). Evidence of this struggle has been given by the participants in this research, as they talked of the effects of technology on their working lives. The in-depth interviews with eleven experienced registered nurses who work in a variety of settings in metropolitan Adelaide, gave very rich data about the social relations of technology within the health care system. Drawing on feminist and cultural literature about technology, and a social postmodern theoretical analysis, various themes concerning the hierarchical power struggles surrounding technology became apparent.

The participants understood technology to usually mean equipment or hardware, rather than work practices or processes. They spoke of the strong association between technology and the power, status and control of the medical profession; the challenge, enjoyment and stress they experience as the users of health care technology; and how the impact of individual machines on their work is related to the layout or geography of wards and the number of human-machine couplings in their care. The participants also shared aspects of their personal experiences with technology, which showed that as women and men,

they may either enjoy the challenge of technology, or be alienated by it; and that there is congruence between their present personal and professional lives and their childhood experiences.

Technology is indeed contradictory, as Halberstam (1991) points out and all of the participants who work in hospitals were positioned outside of the decision-making processes about it, while continuing to gain technical skills which may then result in them being devalued as technicians within those institutions. Darbyshire's (1987:34) words are still relevant; *(w)e must learn the lessons from the women's movement about the manifestation and meaning of paternalism.*

The discourse of technology does not show it to be a neutral force, but one which is clearly supportive of male medical power. The participants expressed concern about this hierarchy within the health care system and the technology-medicine-capitalism relationship. Nurses may enjoy using technology, but it presently benefits doctors rather than nurses. In this way, the politically weak are unwittingly supporting the politically powerful, in the belief that their status and power will be increased by the use of technology. Prestige and career advancement determine the nature of medical practice and research (More & More 1994), and it is this medical demand, together with commercial initiatives, that drive technological development (Pelletier 1990). While this continues, the tension between the role of nurses and the nature of health care technology, is also likely to continue.

Registered nurses and their professional organisations need to articulate the stress placed on nurses by their lack of control over the selection and use of equipment and its impact on their working lives. Perhaps McConnell has been right all along in calling technology 'medical technology', or 'medical devices', because according to the

participants, the decisions to buy and use it are rarely made by nursing staff. Perhaps this distinction needs to be articulated more clearly in the future, with the term nursing technology used only to describe the technology which nurses use when they deliver their independent care to people. Clearly labelling technologies as 'medical' or 'nursing' would become a political stance and allow RNs to see how much of their time is taken up with their dependent role. It may then become obvious that technicians should be used to look after medical equipment, but this would rule out the possibility of futuristic nursing care of the cyborg. Certainly the very important role of registered nurses in monitoring both the client and the technology used to support their health, needs to be articulated within the health care system and to the general public.

Challenging the mega-technology of western culture may be futile, and instead nurses should perhaps concentrate on writing cyborgs into nursing's history. Nurses presently look after people and machines and the participants described their struggle to prioritise clients' needs ahead of the machines, when the machines may be more demanding and impossible to ignore. Attending to clients as cyborgs would write both technology and the technological nurse into nursing history, along with data about the nursing focus on people's emotional, psychological and spiritual needs.

Federal government funding arrangements presently underpin the structured subjugation of nurses and the power and legitimation of the medical profession in the health care system. Therefore, in order to change the marginalisation of RNs, a change in the funding arrangements of the Australian health care system would be needed. McNeil's (1993:164) words *the more we know about patriarchy, the*

harder it seems to change it are very applicable to this situation. Political activism at both state and national levels will be needed if RNs are to challenge the present medical, and capitalist control of health care technology. This technology is poorly assessed; marketed for profit; serves medical officers' status; and may be viewed by them as more reliable than the informed opinion of an experienced RN.

Smoyak (1987):37 writes of an American joint commission of doctors and nurses, set up to review the Dr/Nurse relationship. The AMA (American) withdrew its financial support when the commission's activities became threatening to doctors. Joint practice, equal pay, trust, respect, status, collaboration and collegiality were issues reviewed. Smoyak notes however that the values and philosophies of the commission continue to survive in many settings. *A structure may be demolished, but not an idea* (Smoyak 1987:37). RNs can be heartened by this comment while at the same time, realising that equal relationships of power with the medical profession are probably not the present reality.

Further feminist research about technology and nursing is needed in order for nurses to more fully understand the gendered nature of the cause of the frustrations and inconsistencies they may experience in the struggles around the hierarchies of power and legitimation of health care technology. There are presently social structures and processes in South Australia which support medical dominance while demanding nursing submission. Nurses, as essential workers, continue to be silenced by the sexism of the health care system, as was the case a decade ago (Linn 1987; Meredith 1987).

This research has indicated that Daza Samper (1990) is correct in saying that technology cannot be adequately met with individual

survival strategies, because it is a force that produces social changes. Unions, agencies and social organisations need to co-operate across state and national borders, in order to create organisational structures which ensure that technology enhances, rather than degrades, the work of RNs and the well-being of their clients. Sohier (1992) has confidently stated that nurses can act in strength to produce revolutionary change in the health care system and hence, creative options about the relationships between people and technology can be envisioned and made operational.

Bush (1983:156) cautions feminists against polarising the rhetoric about technology as triumph/threat, because this *enables advocates of particular points of view to gain adherence and power.* The challenge for nurses then, is to understand technology as a gendered social construct and therefore a focus of power relations, looking at ways of using it to best facilitate client healing and quality nursing care, for the health of all the community. Further feminist research is urgently needed into the gendered nature of the health system's technological discourse, so that nursing's professional organisations can push for social changes across Australia.

Glossary

activities of daily living. Activities, such as eating, washing and dressing, which are usually performed as part of a person's normal daily routine.

doctor-nurse game. Interpersonal dynamics between doctors and nurses which have class, gender and knowledge/power as explanatory components. The playing of this game usually helps to maintain the status of the medical profession.

enrolled nurse. A person who has completed a course of study and is qualified to give nursing care under the direction of a registered nurse.

high-technology. Work involving the use of numerous electronic machines and other equipment.

inservice. Education supplied by an employer.

interns. Newly graduated doctors who are employed in hospitals to work under the supervision of more experienced doctors.

medical consultant. A senior doctor or medical specialist, who works part-time in a hospital and also has a private practice outside of the hospital system.

nurse assistants. People with little, or no, education, who do nursing work under the supervision of enrolled or registered nurses.

nurses' station. The staff office on a ward or unit, from which all nursing staff work.

Patient Controlled Analgesia (PCA). A technique which allows patients to self-administer small intravenous doses of opioid analgesia via an electronic device. A push of a button delivers the dose.

Glossary

registered nurse (RN). A person licensed to practise nursing.

therapeutic touch. A process by which energy is transmitted or transferred from one person to another to maximise a person's health status. The process does not involve physical touching because the human energy field extends beyond the skin, and is perceptible to the trained healer.

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Appendixes

Appendix I: Letter to participants

Dear

Re: Research by Merri Paech for the Master of Arts (Women's Studies)

I am in the process of completing a Master of Arts (Women's Studies) at the University of Adelaide and now need to do a research project. My topic, nursing technology, is just beginning to be explored in international nursing literature. I believe that insight is needed into how technology is both understood, and used, by experienced registered nurses working in a variety of settings, and that this information will make a valuable contribution to Australian nursing knowledge.

I plan to interview 10 - 12 registered nurses who completed the Bachelor of Nursing (Post-reg) in 1995, and would like you to be one of these participants. Each participant will take part in an informal unstructured interview focusing on both the positive and negative effects of technology on their nursing practice. I would value the opportunity to hear your views and experiences on this topic.

The interview will be held at a time and place that suits you, (the discussion will take approximately 30-45 minutes), and I would like your permission to tape the conversation to facilitate my research. Your real name will not be connected with the tape, and the tape will be erased when a transcript of it has been typed. I will attach an invented name to the typed transcript of the interview, and you can be confident that no personal or identifying information will be included in the study.

During the interview you are not obliged to answer questions or discuss any issue that you do not wish to discuss. If you want to withdraw your interview material from the study you can do so any time, without giving me a reason, up until I finish conducting the interviews.

I will send a report on the results of the research to every participant when the study is completed, and also a copy of any journal articles that I write.

Please do not hesitate to contact me if you want more information. If you have concerns which you do not wish to discuss with me directly, you can contact my thesis supervisor Dr Margaret Allen, or the Head of the Women's Studies Department.

If you agree to take part, please complete the Consent Form and return it to me in the stamped envelope provided. I will then contact you to arrange a suitable time and place for us to meet.

I look forward to hearing from you in the near future.

Yours sincerely,

Merri Paech
14 Larkdale Crescent
O'Halloran Hill 5158
Tel: (H) 381-5403

Dr Margaret Allen or Head
Dept. Women's Studies
University of Adelaide
Adelaide 5005 **Tel: 303-5975**

Appendix II: Calculating the impact of machines on nursing work

According to the participants, it is less demanding to nurse one client with 6 machines attached to them, than to nurse six clients with one machine attached to each client, and yet nursing discourse perpetuates the myth that the opposite is true. Also, conscious clients who are confined to bed, and whose movement is restricted because of attached technologies, could be considered more demanding to nurse than unconscious clients, because conscious clients make demands on the nurse who is looking after them. Again, the larger number of client interactions required when working on the ordinary wards, increases the workload. Concerns expressed by the participants included that the technology may malfunction; be interfered with by clients; and be tampered with by visitors; and for which the RN is legally responsible.

The following formula (see Table I) could be used to calculate a workload Machine Factor (MF). The higher this factor, the greater the physical and emotional effort required by the nurse to carry out the client care. The table (see over) shows that the number of clients is multiplied by the number of machines in use; then the number of locations is added to this figure. Research needs to be carried out to determine whether this is a meaningful way of calculating the impact of technology on clinical practice. Perhaps a technology workload factor above 9 should be considered stressful, however testing of this formula in various clinical settings is needed. What it does achieve is

the factoring in of the geography of the unit or ward, as an indicator of the stress of RNs who are responsible for technology that is not easily visible.

This may prove to be a useful formula to help RNs to understand why they are finding particular shifts very busy and to argue for particular staffing levels.

Table I: Calculation of Machine Factor

Number of clients		*Number of machines*		*Number of locations*		*MACHINE FACTOR (MF)*
1	x	6	+	1	=	7
2	x	4	+	1	=	9
6	x	1	+	6	=	12

Appendix III: Heart "attack" - the enemy within

Admission to a Coronary Care Unit signifies a very serious illness, as the word 'coronary' means a heart attack in western culture. A person's heart has painfully attacked them, putting their life at risk. People do not have eye attacks or lung attacks, only heart attacks which may necessitate admission to a Heart Attack (Coronary) Care Unit. Does this signify that their body is turning against them? A terrifying prospect. Machinery is then used to monitor this recalcitrant heart and the machine must be watched by a registered nurse. Technological and human surveillance is mounted against the assaulting body organ.

Cardiac monitoring allows a nurse to look after a patient's heart for them, to take responsibility for it, which the patient resumes upon discharge from this unit. This cardiac surveillance gives the patient a sense of security (similar to closed circuit cameras in a public mall), and protects the patients from their problem hearts. This exemplifies Erlen's view (1994 citing Cassell 1993), that technologies are reductive and oversimplifying, reducing a patient to a body with a sick part, needing to be fixed. Glen spoke of his concern when patients were sometimes re-admitted with panic attacks, overwhelmed at home by the fear of physically surviving alone, without the reassuring technological surveillance.

An RN watching a bank of cardiac monitors in a nurses' station could be likened to a security officer watching a bank of screens showing the activities in a shopping mall, via security cameras. The main difference is that the security officer watches people and places, which

the nurse cannot. The nurses' surveillance is reduced to heart rate and rhythm.

Perhaps in the future mutual coloured screens will relay pictures of the clients as well as their heart surveillance, to the nurse, while a picture of the watching nurse is relayed to the clients. The nurse would then be able to assess the clients' position in bed, facial expressions, skin colour, respiratory rate and physical activity - data which give information about not only the clients' physical status, but also their emotional and spiritual status. The clients would also be aware of the registered nurse's vigilance in assessing their health status and not feel alone or frightened. Would this mutual human contact promote healing in a way that the machine surveillance of an organ cannot?

It must be difficult indeed for clients to relax and recover from their episode of chest pain and distress when the health care system establishes their heart as the enemy within - a violent assaulting organ. Perhaps a change of name is in order - something like a Cardiac Healing Unit; Chest pain recovery area; or Specialised Cardiac Nursing Unit may be less frightening for clients and change the focus of the care within the unit.