Technology and humane nursing care: (ir)reconcilable or invented difference?

Alan Barnard  RN BA MA PhD MRCNA
Lecturer, School of Nursing, Queensland University of Technology, Australia

and Margarete Sandelowski  RN PhD FAAN
Professor, School of Nursing, University of North Carolina at Chapel Hill, USA

Introduction

A commonplace in nursing (although not exclusive to it) is to portray medical technology as a ‘culprit in contemporary health care’ (Timmermans 1998a, p. 435). We nurses (and others) have variously charged medical technology with the dehumanization, depersonalization, and objectification of patients and of nursing care: that is, with depriving patients of their individuality, subjectivity, and dignity as human beings, with creating the alienation between self and body, and with separating nurses from their mission to care. Some nurses (Allan & Hall 1988, Green 1992, Mann 1992, Cooper 1993, Calne 1994) have linked dehumanization with clinical environments characterized by standardization, the too palpable and audible presence of machinery and equipment, and by the treatment of patients as extensions of that machinery.

A thematic thread in the nursing literature critical of technology is that technology/scientific cure is paradigmatically
opposed to touch/humane care and thus is at odds with the practice and even moral imperatives of nursing (Braud et al. 1984, Gadow 1984, Sandelowski 1988). In this literature, the organized and efficient world of technology prevails over the particular and spontaneous world of people, and functions to undermine expressions of caring. Medical technology is here juxtaposed with the nursing ‘culture of caring’ (Fox et al. 1990). Indeed, the positioning of nursing/care against technology/cure has been a key device by which some have sought to establish the distinctive professional identity of nursing and the ‘narrative and symbolic boundary’ between nursing and medicine (May & Fleming 1997).

Even those of us who espouse the existence of a harmony between technology and care (Ray 1987, Bosque 1995, Locsin 1995, Walters 1995, Ozbolt 1996, McConnell 1998) have assumed a rapprochement between two separate and potentially irreconcilable entities (Sandelowski 1997). For many of us technology is still something nurses must work with, work around, or work hard to make compatible with, or supportive, nursing care. To this end, we have encouraged each other to develop an ethical awareness, in order to temper the effects of technology (Ray 1987, McConnell 1998), including the ‘dissonance’ that it engenders (Purnell 1998).

Yet as we will propose in this article, recent scholarship in the social sciences has called into question the tension presumed to exist between humane care and technology: between a ‘paradigm of relation’ and a ‘paradigm of control’ (Hawthorne & Yurkovich 1995, p. 1090). Indeed, the tension between ‘touch’ and ‘technology’ as ‘two paradigms of patient care’ (Gadow 1984), and the positioning of nursing between the ‘humanistic’ and ‘technologic frameworks’ (McConnell 1998, p. 26), may reflect better a certain social construction of humane care and technology, rather than any essential difference between them. Recent scholarship suggests a more complicated relationship, as what any technology is at any moment in time is increasingly understood to depend on the eye of the beholder, the hand of the user, and the technological systems that influence integration and use.

In this paper, we argue that technology is not necessarily opposed to humanized care, but rather is often specifically and deliberately enrolled in the service of that care. In addition, we suggest that the continued polarization of technology and humane care may comprise a discourse that is more in the service of maintaining a distinctive professional identity than of improving nursing care. The paper seeks to highlight an alternative approach to understanding the relations between technology and nursing and to discuss critically whether there is necessarily an irreconcilable tension between technology and humane care.

Contested terrain

In sharp contrast to the humanist depiction of technology on the nonhuman side of the human/nonhuman divide is the postmodern challenge to all ‘troublesome dualisms’ (Balsamo 1997, p. 133), including nature/culture, person/object, female/male, and human/nonhuman (both animal and machine). Although it is common to categorize technology as nonhuman, pacemakers and artificial joints implanted in living human beings, genetic engineering, and artificial intelligence systems regularly confront us with the reality of and potentiality for living artifacts and vital machines (Channell 1991). These cyborg ‘emblem(s) of postmodern identity’ (Balsamo 1997, p. 32) blur the line between animate and inanimate, and human and machine (Haraway 1991).

Long conceived in Western medicine as if they were machines (Lupton 1994), human bodies have actually become ‘technological artifacts’ (Oldenziel 1998, p. 181) as new media/medical technologies have made these bodies more ‘plastic’, ‘bionic’, ‘interchangeable’, and ‘virtual’ (Williams 1997). Body parts (for example, kidneys, hearts, gametes) are now used as ‘therapeutic tools’ (Hogle 1996). In the case of organ transplantation, these ‘personalized’ and ‘objectified’ body parts challenge existing notions of a unified embodied self (Sharp 1995, p. 361). Corpses, experimental animals, fetuses, and brain-dead-but-otherwise-alive organ donors confound and contest humanistic notions of person vs. object, natural vs. artificial, and living vs. dead (Casper 1994, Ohnuki-Tierney 1994, Pickstone 1994).

(Casper 1994, pp. 307–308) located the fetus ‘at the margins of humanity’: in the ‘spaces between … (the) conceptual dualism’ of human/nonhuman. Technological innovations in diagnosis and treatment have contributed to the marginality of the fetus. No longer solely a divine or natural creation, the contemporary fetus is a technologically ‘carpentered’ entity (Ilde 1979, p. 118); a ‘synthesized’ product (Duden 1993, p. 8) and ‘engineered construct of modern society (Duden 1993, p. 4). Contested objects, such as the fetus, exemplify the disappearance of the last great divide: that is, they exemplify the effacement of what Mazlish (1967) referred to as the ‘fourth discontinuity’ between human and machine. Indeed, biomedical technologies, in particular, are the contested sites and even the ‘fault line’ where such entities as nature and culture, person and object, and human and nonhuman meet, mingle, and regularly transgress traditional boundaries (Casper & Koenig 1996, p. 525).

With the recognition of the ‘traffic’ between entities once thought of as having inviolable borders (Casper & Koenig 1996, p. 526), technologies, like people, are now conceived of as having agency, biographies, lives, lifecourses, histories,

network theory, both human and nonhuman actors act. Agency is no longer conceived as the sole privilege of human beings.

The ‘ontological extension of human agency’ (Timmermans 1998a, p. 427) to nonhumans is said to occur through ‘delegation’, whereby devices ‘substitute for – stand in for and hold the place of – the actions of people’ (Timmermans 1998a, p. 428). For example, Prout (1996) used actor

network theory to show how the metered dose inhaler can be usefully seen as a means of delegating biomedical work. The inhaler was given the clinician’s work of controlling the dose of medication delivered to the patient, even as the inhaler itself was placed in the hands of patients. The autonomy of the patient was extended, but it was also limited as the inhaler regulated the dose the patient could receive. The device thus offered simultaneously more control that was personal to patients while maintaining traditional medical control over them.

The actor

network view of humans and nonhumans as analytically (as opposed to morally) similar (Prout 1996, p. 215), and its emphasis on acts, not actors, contrasts with dualistic and deterministic accounts of technology as alien to human beings and as stable causes of effects (Barnard 1996). As (Timmermans 1998a, pp. 435–436) argued, critics using ‘technological deterministic arguments dislodge technological innovations from their performance contexts’. Such arguments preclude us from seeing how technologies, like people, simultaneously act, but are also ‘acted upon’ (Timmermans 1998a, p. 436): that is, how the human and the technological mutually constitute each other (Prout 1996) and thus cannot be understood as entities apart from each other. Indeed, the one is in the other, as opposed to the one (that is, the technological) existing exclusively as Other to the human (Gadow 1984).

Moreover, technological deterministic arguments preclude us from seeing that what technologies are depends on the historical, social, and cultural (including gender) contexts in which they act and are acted upon: how the ‘potential and power of a technological device to shape an interaction is not pregiven but is realized in practice’ (Timmermans 1998b, p. 148). A stethoscope is what it is physically. But even more importantly, the stethoscope is also what it becomes in a specific user context; the stethoscope is, among other things, an instrument of diagnosis, an extension of the ear, a symbol of science, and a bid to a higher social status (Sandelowski 2000).

Technology in the service of personhood

While technological determinists assume a prefigured stable cause of effects, humanists assume a prefigured stable self. This essential self is at the heart of prevailing notions of agency, identity, and person

hood. Several recent ethnographies challenge both of these ideas, emphasizing the changing meanings of technology and the changing identities technologies invoke (Timmermans 1996). In these ethnographies, technologies are shown to foster person

hood and to further humane caring.

Agency through objectification

Cussins (1996, 1998) challenged the humanist notion of a stable self appropriated by technology and the humanist argument that these selves required protection from technological ‘objectification to ensure their agency and authenticity’ (1996, p. 575). She especially wanted to confront the longstanding humanist tradition of viewing objectification as alienating and technology as ‘usurping selfhood’ (1996, p. 576), and a specifically feminist tradition of viewing infertile women as ‘paradigmatic of the objectified patient’ (1998, p. 167). Not wanting ‘to deny the subjugating and disciplining effects of many technologies’, Cussins instead sought to ‘question whether ... objectification per se (was) antithetical to personhood’s (1998, p. 167). Cussins found infertility clinics ‘rich sites’ for answers to this question: that is, for an ‘examination of agency and the ontological commitments that go with it’ (1998, p. 169).

Cussins concluded that the infertile women she observed often asserted themselves through objectification. As she interpreted their experiences with assisted reproductive techniques, there was no one infertility patient, who exemplified the saved or victimized patient objectified by technology, but rather there existed at different times various kinds of active participants pursuing agency by means of objectification.

Cussins used the term ‘ontological choreography’ to refer to the multiplicity of selves evident in infertility work, whereby a woman is at one time and in one place a generic patient, and at other times and places a set of ovaries and follicles on an ultrasound screen, a vagina and cervix on speculum examination, or a satisfied or dissatisfied consumer of medical services. By permitting and even requiring these ontological variations to multiply, reproductive technologies offered women new options for achieving a long-term desired self: that is, to be a mother. Indeed, as Cussins proposed, women
did not allow themselves to be treated passively like objects in order to comply with medical protocols, but rather they complied actively to permit themselves to be treated like objects in the interests of achieving a long-range desired self. Women actively participated in several kinds of objectification, including 'medical operationalization', by which a woman is 'rendered into multiple body parts', 'naturalization', by which many of a woman's social roles are made irrelevant while her body becomes an object of experimentation and manipulation, 'bureaucratization', by which only her status as a generic infertility patient is made relevant, and by 'epistemic disciplining', by which a woman becomes an informed consumer of infertility services (1998, pp. 187–189).

Cussins (1998) proposed that not only did women's selves vary, but also their perceptions of their own objectification as operating for or against their long-range self. A woman might say that a procedure objectified her after failing to get pregnant by it, but evaluate the same procedure more positively when she achieved pregnancy. Yet, as Cussins (1998) argued, these judgements were not simply reflections of changes in any one woman's perception according to outcome, but rather of different 'subject(s) of discourse' (1998, p. 191); for one of these subjects, treatment entailed retaining properties of personhood while for the other, it did not. Moreover, the care of women was personalized by objectification, because objectification allowed a failed procedure to be separated from a failed body/self. That is, it allowed a woman and those caring for her to see a failure to achieve conception, not as her failure (I/she cannot get pregnant), but rather as an organ failure (my/her fallopian tubes block conception) or technical failure (the embryos did not implant). This 'synedochal's (1998, p. 176) relationship, by which an isolated body part or function comes to stand for a particular patient and by which instruments 'acquire properties of personhood in virtue of which they fix, bypass, or stand in for stages in a woman becoming pregnant' (1998, p. 192), allowed women's subjectivity to be maintained. Only in cases of 'synedochal breakdown', where 'rupture (1998, p. 190) occurred between the long-range self and these variously objectified selves did feelings of alienation or dehumanization emerge.

Accordingly, as Cussins’ work illustrated, there is no necessary tension between technology and self, nor technologically-engendered alienation between body and self. (Van Manen 1998, p. 16) observed that an ‘objectifying view of a patient’s body is not in itself a dehumanizing activity’. As he proposed:

The physical body is the form in which our lived body can show itself as object. It is only when the relation between physical body and lived body is broken that we may speak of an alienated corporeal existence.

Legitimation through visual objectification
A special case of objectification, and a key feature of contemporary health care, is the increasing turn to an image-based reality. Health care is now a ‘panoply of “screens”’ (Williams 1997, p. 1047) by which the natural is purportedly made visible. Technological images (for example, X-rays, sonograms, computerized tomography and magnetic resonance pictures) have created the ‘inside body’, a body conceived to be the body as it really is: that is, not the outside body that clinicians routinely engaged prior to the 20th century and the ‘blind old days’ of medicine (Simon 1999, p. 141).

In the ultimate exemplar of technological objectification, the patient is not the ‘corporeal’ person in the bed or on the examining table, but rather the ‘hyperreal’ re-presentation of that patient on screen in the form of a rhythm strip, black and white picture, colourized image, or digital or other display (Williams 1997). Arguably, these images ‘stand in for patients with more life than the “real” thing’ (Simon 1999, p. 157). Indeed, both clinicians and patients themselves now look to screens to find out how well or close to death a patient is (Robillard 1997). Clinicians now treat ‘bad strips’, not sick patients (Cartwright 1998, p. 249).

Yet as Rhodes et al. (1999) discovered in their study of patients with chronic back pain, ‘visual objectification of the body’ often sustained patients’ subjectivity by helping them to legitimate their suffering. By offering these patients, who had nothing to show for their pain, visual proof of its cause, visual technologies conferred on them the ‘power of the visible’ in a culture that increasingly defines the real as the seen. For patients suffering from ambiguous diseases like chronic back pain, these technological images become meaningful as ‘visual representation(s) of the truth of pain’ (Rhodes et al. 1999, p. 1192). Moreover, these patients seemed to derive a vicarious pleasure from the sensuous pleasure their physicians experienced while gazing at and analysing these images. For them, there was a ‘satisfying visualization of the correspondence between objective finding and subjective pain’ (Rhodes et al. 1999, p. 1201).

In contrast, for patients for whom no such visual proof of their pain existed, these technologies were meaningful as undermining their claims to pain. These patients experienced these technologies as alienating because they not only ‘delegitimized’ their pain, but also fragmented their selves. Reinforcing the Cartesian split between body and mind, visual technologies, in cases where no visual proof of pain
Nursing theory and concept development or analysis

Technology and human nursing care

It is not technology per se that renders birthing and dying unnatural and inhumane, but rather technologies contribute to situations that make possible such events to be conceived and lived as either natural or unnatural, and humane or inhumane, as these terms are defined by a person or culture in a specific moment in time. Whether birthing woman or dying patient, individuals choose and combine elements of their preferred natural event from a range of potentially contradictory sources (Seymour 1999, p. 693). ‘What is natural is man’s (sic) artifice’ (Fletcher 1988, p. 44). Human beings create technologies and thereby the nature that technologies reveal, alter, and even (as in the case of a baby conceived by in vitro fertilization) make possible.

A technological but dignified death

Timmermans (1998b) illustrated this phenomenon well in his ethnographic study of resuscitation technology. Timmermans challenged the prevailing assumption, largely derived from cases of chronic illness, that medicalized or technological interventions undermine dignified death in all cases, specifically, in cases of sudden death. He argued that even with all its problems and excesses, resuscitation technology addressed a distinctively western reluctance to accept death. By taking away some of the suddenness of sudden death, resuscitation technology gave relatives and friends time to come to terms with the death of their loved ones, allowed them a sense of control over the inevitability of death, and offered them the consolation that everything possible had been carried out to avert it. In the case of sudden infant death, resuscitation efforts, which were often initiated even when there was no hope of reviving the infant, helped parents make sense of a senseless death. These benefits were emphasized in cases where relatives were allowed to witness or participate in the resuscitation effort (Timmermans 1997). As Timmermans proposed, resuscitation technology served as a cultural ritual facilitating the passage from life to death. By providing an opportunity to prepare for impending death, the technology naturalized and ‘dignified death’ (Timmermans 1998b).

From difference to paradox: from technology to technique

Although postmodern views of technology challenge its separation from the human and the natural, nurses are among many groups who still adhere to a humanist view of technology on the nonhuman and nonnatural side of the human/nonhuman, nature/artifice divide. We still depict ourselves as the bridge spanning the divide between technology and humane health care. We have thereby claimed professional ownership of the space between technology and

existing, supported the notion that ‘what is not clearly body ... (becomes) only mind’ (p. 1201).

Technology as humanized nature

In addition to sustaining subjectivity, technologies may also enhance nature. Central to critiques of the modern way of birth and death is the view of technology as at odds with an idealized nature (Eakins 1986, Davis-Floyd 1992). In these critiques, natural birth and natural death are romantically conceived as painless, dignified, satisfying, and even beautiful. Natural birth and death are seen to be events in the ‘lost’ but recoverable past preceding their medicalization, the key component, cause, and effect of which is technological intervention (Harvey 1997). Indeed, the technological intervention at the heart of medicalization is seen to be ‘ emblematic of inhumane and unnatural death’ and birth (Seymour 1999, p. 692).

Yet there is nothing natural about either birth or death, as natural childbirth and dying, and the human bodies central to both, are highly social entities. Indeed, nature is itself a cultural artifact, as people in different cultures have continually (re)defined and (re)created nature (Lock 1996). In many Western countries, dead is now ‘dead enough’ (Franklin 1996, p. 684) legally and morally to extract and use body parts as ‘therapeutic tools’ (Hogle 1996). Dead is not an absolute category, but rather a ‘negotiable terrain’ (Franklin 1996, p. 684). Moreover, a natural death, when defined as a painless death, is frequently achieved with pharmacological and technological intervention.

Nature is also culture in the case of natural childbirth. Early 20th century American women and clinician advocates of the Twilight Sleep, by which women were heavily sedated during labour and delivery, promoted drugs as allowing a natural birth to occur. Indeed, births without drugs were considered to be unnatural. In contrast, the key feature of the mid-20th century American Natural Childbirth Movement was its antitechnological stance: drugs and surgery were seen to interfere with a natural birth (Sandelowski 1984). In other studies, patients have often conceived of technology as operating in the service of nature (Calnan & Williams 1994). For example, infertile couples have described assisted conception as natural because nature allowed it to succeed, because it simulated natural conception, because the pregnancy, birth, and child that followed it were themselves natural processes and entities, and because it allowed them to become natural parents. For these couples, natural equaled normal, moral, and technological (Sandelowski 1993).

Technology can thus be conceived in two contradictory ways: as humanizing and ‘humanized nature’ (Pfaffenberg 1988), or as an entity or force opposed to nature. Moreover,
patient, and the responsibility for maintaining humane care in technological environments (e.g. Ray 1987, Gordon 1992, Cooper 1993, Halm & Alpen 1993, Pelletier 1994). Dwelling in this space, we see ourselves as the mediators between two seemingly irreconcilable and disparate forces.

Our claims to ownership of the divide between technology and patient imply not only our alignment with the human, but also our belief that we can control technology. Moreover, our association with technological knowledge and skill has been a source of increased prestige and power for nursing (Barnard & Gerber 1999). Indeed, we have conceived of technology as the embodiment of both scientific progress and of professional development. Although we have questioned the impact of technological innovations on nursing practice, we have accepted technological tasks delegated to us and turned to technology to advance our profession (Barnard 1999, Barnard & Cushing 2001, Walker 1970, Donahue 1985, Gordon 1992, Castledine 1995). As one nurse observed:

I think the profession looks more professional and more glamorous because they can work all these machines that buzz and they [nurses] know exactly what to press. They [patients] think they are going to be blown up or something like that, and they panic. The nurse comes along and she just saves the day and presses the right button (Barnard 1998, p. 161).

Yet the discourse of difference that nurses have engaged in concerning technology does not resolve the paradox of technique that exists in the nursing/technology relationship. Technique refers to the formation of system comprised of human, organizational, political, and economic structures, which are aimed toward the absolute efficiency of methods and means in every field of human endeavor. Several philosophers of technology have emphasized the importance of technique over technology (Ellul 1964, Winner 1977, Mitcham 1994, Feenberg 1999). For them, technique – not technology per se, that we must confront, as we have delegated to technique the power of decision-making and have relied on technique for the development of professional status. We nurses have expressed concern over the impact of technology, but we have embraced technique. Yet, it is technique that has made contemporary nursing ‘technological’, not objects, machines, automata or equipment. Technology has always been part of nursing. The use of technology now, although it is more advanced and sophisticated than technologies of the past, is not a criterion for defining contemporary nursing practice as technological (Barnard 2001).

Conclusion: nursing, technology, and difference

In conclusion, we have in this paper questioned the validity of a boundary traditionally presumed to exist between technology and humane care. We have proposed a more complicated view of technology. We have argued that what determines whether a technology dehumanizes, depersonalizes, or objectifies is not technology per se, but rather how individual technologies operate in specific user contexts, the meanings attributed to them, how any one individual or cultural group defines what is human, and the potential of technique to emphasize efficiency and rationale order. Like technology, humane care is itself a socially-constructed entity. The power any technology exerts derives from how it acts in any given situation and from its meaningfulness. Technology is thus not simply or necessarily a paradigm of care opposed to touch, but rather also an agent and object of touch. Technology can itself be a humanizing factor, even in the most technologically intense arenas of health care. The ‘duality of technology’ (Orlikowski 1992) – as matter and meaning – lies not in its necessary opposition to humanization, but rather in its recursiveness: in its existence as both objective, material force and as a socially constructed and chameleon-like entity.
The problem of technology for nurses may thus lie less in technology itself than in the choices we and our patients make about what is humane, natural, and dignified care. As we have proposed, we all choose and combine elements of our own preferred humane, dignified, or natural event from a range of potentially contradictory sources. A dignified death might thus entail a ‘low’- or ‘high’-technology presence. A dignified death might thus entail a ‘low’- or ‘high’-technology presence. The resolution of this problem is, in part, to ascertain and honor these varied choices.

Alternatively, the problem of technology for nurses may lie less in technology itself than in the discourse of difference (Burbules & Rice 1991) surrounding technology. (Ellul 1990, p. 130) argued that we often experience what is opposite to a prevailing discourse. Professional discourses, paradoxically, often reflect opposing realities; that is, more talk of freedom often means there is less freedom, more talk of respect, less respect, and more talk of humane care, less humane care. Accordingly, by emphasizing the difference between touch and technology, we may be focusing on differences that either do not exist, or do not matter, and thereby diverting ourselves away from differences that do. A question that we must answer is whether the discourse of difference surrounding technology is preventing us from recognizing the technique that can undermine humane care?

Another key question for nursing is ‘whose interests are being furthered or protected’ (Munro 1997, p. 4) by maintaining the distinction between technology and humane care. Indeed, this distinction exemplifies ‘difference-in-use’ (p. 19) by which divisions are exploited to achieve certain ends. We nurses have engaged historically in the ‘labour of division and identity’ (p. 5), seeking to define nursing in part by claiming difference from medicine and the things with which it is culturally associated: namely, technology. For nurses, as for others seeking identity and power through difference, there is ‘no vision without division’ (p. 10); division allows nurses to see (themselves) and to be seen. The appeal to difference (between technology and humane care) is itself a technology – an ‘artifact’ (p. 4) – by which we have sought to make ‘visible’ our contributions to health care (Gordon 1991, p. 93).

But we nurses have yet to examine the ‘effects that flow from the presence of difference’ (Munro 1997, p. 19). That is, for example, whether and how the distinction between technology and humane care serves our patients or nursing in an era when divisions that once seemed ‘fixed and fundamental’ now appear increasingly ‘precarious and arbitrary’ (p. 3). Indeed, for nurses, who comprise a social group that has never established fully a separate and secure identity, it is the abandonment of divisions – not the divisions themselves – that may seem precarious and arbitrary.

Accordingly, the question of whether to maintain or to abandon the distinction between technology and humane care is not a simple one to answer, as it confronts us with the core issues of professional position and power, and of the politics of difference. We have to ask ourselves: What differences will we ‘choose’ (Burbules & Rice 1991, p. 400) to maintain? Does maintaining a distinction between technology and humane care reinforce or undermine gender and other stereotypes and prejudices concerning nursing? Such distinctions have often entailed essentializing both nursing and technology, or minimizing the differences or diversity within these categories and thereby reinforcing stereotyped notions of them (Sandelowski 1997). Indeed, the idea of difference has itself become essentialized; rather than reifying it, difference is better conceived as in constant interaction with sameness. Whether two entities are viewed as different, or the same, is a matter of changing cultural evaluation (Burbules & Rice 1991). Does difference contribute to or detract from the goals of equality or privilege (Barrett 1987) for nursing? As (Barrett 1987, p. 35) observed, ‘sites of difference are also sites of power’. Finally, we must ask ourselves whether the appeal to difference settles any differences for us concerning nursing, technology, and the humane care of our patients?

References


Green A. (1992) How nurses can ensure the sounds patients hear have a positive rather than negative effect upon recovery and quality of care. *Intensive and Critical Care* 8, 245–248.


