A Cyborg Ontology in Health Care

Traversing into the Liminal Space Between Technology and Person-Centred Practice

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Abstract

Person-centred practice indubitably seems to be the antithesis of technology. The ostensible polarity of technology and person-centred practice is an easy road to travel down and in their various forms has been probably travelled for decades if not centuries. By forging ahead or enduring these dualisms, we continue to approach and recede, but never encounter the elusive and the liminal space between technology and person-centred practice. Inspired by Haraway's work, we argue that health care practitioners who critically consider their cyborg ontology may begin the process to initiate and complicate the liminal and sought after space between technology and person-centered practice. In this paper, we draw upon Haraway's idea that we are all materially and ontologically cyborgs. Cyborgs, the hybridity of machine and human, are part of our social reality and embedded in our everyday existence. By considering our cyborg ontology, we suggest that person-centred practice can be actualized in the contextualized, embodied and relational spaces of technology. It is not a question of espousing technology or person-centred practice. Such dualisms have been historically produced and reproduced over many decades and prevented us from recognizing our own cyborg ontology. Rather, it is salient that we take notice of our own cyborg ontology and how technological, habitual ways of being may prevent (and facilitate) us to recognize the embodied and contextualized experiences of patients. A disruption and engagement with the habitual can ensure we are not governed by technology in our logics and practices of care and can move us to a conscious and critical integration of person-centred practice in the technologized care environments. By acknowledging ourselves as cyborgs, we can re-capture and preserve our humanness as caregivers, as well as thrive as we proceed in our technological way of being.

Keywords:

"We are all … theorized and fabricated hybrids of machine and organism; in short, we are

cyborgs. The cyborg is our ontology" (Haraway, 2000, p. 150).

This statement by Haraway (2000) is jarring, as it conjures up images of science fiction characters like Frankenstein and Darth Vader, as well as other more human characters such as the Six Million Dollar Man and the Stepford Wives. These are all unmistakable and noticeable cyborgs. Cyborgs are a hybridity of machine and human (Haraway, 2000). However, they are no longer just the domain of science fiction; cyborgs are a part of our social reality. Haraway (2000) asks us to not only consider an embodied hybridity of machine and human, but asserts that our organic way of being is shaped by machines. Drawing upon Haraway's (1991) ideas, the cyborg as our ontology is a metaphorical representation of dualisms that create and uphold borders. At this early stage in our paper, a glimmer of these significant dualisms include machine/human, self/other, mind/body, objective/subjective, patient/practitioner, and technology/patient-centred practice. Maintaining these dualisms renders a liminal and relational space impossible – and yet, it is within this space where a resemblance of the real happens. To accept that one is a cyborg asks us to reject the clear and unambiguous boundaries of these ostensible dualisms; this rejection moves us into uncharted and uncomfortable territory, particularly in the world of health care.

To consider a cyborg ontology in health care brings us uncomfortably close to what Haraway (2000) would call the potent fusions of machine and human and the possibilities and risks of being a cyborg; this may include both health care practitioners who use technology to positively facilitate patient care as well as those who become dependent on technology to the point where they lose their humanness. Technology is so entrenched in our everyday existence

that it is difficult to tell where humans end and machines begin. This can be particularly potent in health care where technology is ubiquitous and to a large extent rooted in everything we do as health care practitioners. If we do not examine our cyborg ontology, we may be at risk of being solely governed by or struggling against technology. It is not a premise of this article to revert to a less technological time, but rather become attuned to the relational kinship between machine and human. Kinship is used purposefully as "we" are all in this liminal and relational space together. The illusionary, impermeable boundaries and borders of self-other, machine-human are dissolving; as Haraway (1991) states "the machine is us; our processes, an aspect of our embodiment" (pg. 180). Although the idea of a cyborg ontology has pierced the health care literature, philosophical deliberations specific to the dominant discourse of technology and person-centred practice remain neglected.

In this paper, we do not argue that practitioners are merely technological or that PCP is not possible in a technological context. We recognize that PCP indubitably "seems" to be the antithesis of technology. However, we argue that to forge ahead or endure this simplified dualism will ultimately ensure we remain at a standstill. We argue that health care practitioners who critically consider their cyborg ontology will begin the process to initiate and complicate the liminal and sought after space between technology and PCP. By drawing upon Haraway's (2000) idea of a cyborg ontology, we suggest that PCP in health care can be actualized in the contextualized, embodied and relational spaces of technology. Before examining a cyborg ontology and this liminal space in health care, we begin by explicating conceptualizations of PCP followed by a delineation of technology.

Person-Centred Practice

PCP is often used interchangeably with patient-, client-, person- and family-centred care/practice/initiatives. Definitions continue to evolve as key stakeholders, including patients and health care professionals, engage in discussions about the key elements and increasingly identify its significance in health care systems. There are slight variations in these terms, but that is beyond the scope of this article. In this article, we employ the term person-centred practice.

Integral to PCP is an understanding that it is a dynamic process that, in essence, is refined with each patient. Individuals encounter illness and disease in personal, emotive and embodied ways. Patients are unique and "experiencing individual[s]" (Mead & Bower, 2000, p. 1089). They exist in a social world that shapes identity, behavior and values. Localized and contextualized knowledge is thus crucial in order to understand patients' specific needs. Hence, PCP requires an individualized approach (Bolster & Manias, 2010; Radwin, Cabral, & Wilkes, 2009) that is constructed in collaboration with the patient. It is important that patients' needs and preferences are central and that health care practices are organized and delivered accordingly (Bolster & Manias, 2010; Drach-Zahavy, 2009; Edvardsson, Fetherstonhaugh, & Nay, 2010; Hebert, 2010; International Alliance of Patients' Organizations, 2007). The International Alliance of Patients' Organizations (2007) suggests that key components of PCP include respectful engagement and support of patients in which they are provided choices and opportunities to be involved in their care, as well as sufficient information to make informed choices.

The significance of PCP has become more clearly articulated in the last decade. The focus on quality, and more recently on patient safety, has highlighted PCP as an important component in health care (Hughes, 2008; Institute of Medicine, 2001). It has been noted that PCP increases patient satisfaction (Binnie & Titchen, 1999; Lee & Lin, 2010) and quality of care (Bolster & Manias, 2010; Edvardsson, Fetherstonhaugh, & Nay, 2010; Institute of Medicine,

2001; Radwin, Cabral, & Wilkes, 2009). Specific to quality of care, it has been found that PCP is related to enhanced well-being, as well as an increased likelihood that patients will be honest and share more personal information about themselves (Radwin, Cabral, & Wilkes, 2009). As a result, not only can care be individualized, but clinical decision-making may be shaped by more accurate information given by the patient (Radwin, Cabral, & Wilkes, 2009).

In the current health care environments in which technology has become a mainstay (albeit, in some areas more so than others), PCP is even more important. Since an authentic presence and spatial proximity to patients can facilitate the growth of PCP, we need to consider it within technologized environments of care. Not only do we need to consider how PCP can be fully actualized in these environments, but also how technology is a part of and shapes PCP. Over the years, paternalistic approaches to health care have been deconstructed and health care professionals have increasingly shifted to PCP in which patients are recognized as active partners in care (Lee & Lin, 2010). Concurrent with the deconstruction of paternalistic approaches, there has been a continued evolution of technology in health care as well as a consumer movement that has highlighted the importance of advocating for the empowerment of patients. The integration of PCP upholds values that are consistent with ethical health care in which patients' self-determination and agency are recognized. As a result, a conscious consideration of the relational space between PCP and technology may be helpful to nurses and other health care professionals.

Engaging with and focusing on patients are key components of PCP. In many health care domains, PCP is considered a dominant discourse that shapes philosophical approaches to health care practice. Problematic, as McCormack and McCance (2006) indicate, is that it has not been fully actualized in health care settings. In McCormack and McCance's (2006) person-centred framework, they identify four central constructs including the attributes of health care professionals, the care environment, person-centred processes and expected outcomes.

Interestingly, McCormack (2004) has noted elsewhere that it is the care environment that potentially has the most pronounced influence on the promotion or restriction of PCP. Adding a layer of complexity to this issue is that technology as a key element of the care environment has been largely neglected in relation to PCP and is absent from McCormack and McCance's framework. Furthermore, the idea of a cyborg ontology may bring awareness to the facilitators and barriers of these person-centred processes. In order for PCP not to be reduced to mere rhetoric, we need to examine it in the context of technology.

Conceptualization of Technology

There are various ontological assumptions concerning technology. The most predominant conceptualization of technology in health care involves a focus on material objects (Sandelowski, 2000) such as diagnostic, therapeutic, and monitoring devices. These material objects can range from gloves, masks, stethoscopes and intravenous lines to more advanced technology such as cardiac monitors and ventilators, as well as information and communication systems (Lupianez-Villanueva, Mayer, & Torrent, 2009; Sandelowski, 1997a). Although this is not an un-true conceptualization, neither is it comprehensively accurate; Such a simplified conceptualization reduces technology to mere objects and limits the development and advancement of health care practices (Barnard, 1999; Barnard & Cushing, 2001).

A more comprehensive understanding takes into consideration the socially-embedded components of technology that shape health care practices including PCP. Referring back to Haraway (2000), we are ontologically cyborgs. Therefore, it is noteworthy to understand the ways that technology is part of, and shapes providers' way of being and social practices in health care. Analogous with a perspective that considers space and place (Andrews & Shaw, 2008; Lapum, Chen, Peterson, Leung, & Andrews, 2009), to move beyond an essentialist view

highlights the social meanings, interactions and cultures associated with technology. Technology is intimately linked with socially-generated practices that inform nurses' actions and responses to the patient's condition. Nurses' responses, both cognitive and behavioral, often emanate from the interpretation of technological readings (Lapum, Angus, Peters, & Watt-Watson, 2010; O'Keefe-McCarthy, 2009). These responses and logics of care are technologically-informed through an evidence-informed system that results in clinical protocols, pathways, algorithms and standardized care maps that shape health care practices (Barnard, 1996; Lapum, Angus, Peters et al., 2010). Research elsewhere has shown that this theoretical construction of technology that includes objects, logics, and practices of care, expands and sheds light on our perception of the technological environment as opposed to restricting understandings of it (Lapum, Chen, Peterson et al., 2009). Thus, in this paper, we incorporate a comprehensive understanding that departs from object technology, but also includes the practices that emanate.

The Liminal Space: A Cyborg Ontology of Health Care Practitioners

Accepting ourselves as a version of Frankenstein or the Stepford Wives does not constitute the way that nurses and other health care practitioners are cyborgs. Of course, comparing the mechanical way of being of either of those images to practitioners may anger some, but it should also alarm and inspire us. We are more than merely technological. But our ontology is also more than merely human. Although we mentioned earlier that Frankenstein and the Stepford Wives among others are noticeable cyborgs, in fact their technological features are more poignantly present than their human features. Bear in mind that cyborgs are a hybridity of machine and human (Haraway, 2000). What we are suggesting is that both features are relational and shape our way of being as health care practitioners. Haraway's (1991) work has acted as an

impetus to consider something than what already is – to consider the liminal space between machine and human and the some of the other closely entwined dualisms of self/other, objective/subjective, patient/practitioner, and technology/patient-centred practice. We argue that a cyborg ontology can initiate and complicate the liminal space between technology and PCP. Since we have already hinted at the dominant discourse of technology and the mechanical risks associated with the technological features of a cyborg ontology, we structure our argument according to the presence of technology in its many guises. Our philosophical examination in this paper proceeds as follows: (1) technological as a dominant mode of knowing; (2) routinization of technological environments; and (3) cultivating the hybridity of technology and human.

The Technological as a Dominant Mode of Knowing

As we argue the ways that a cyborg ontology can initiate and complicate the liminal space between technology and PCP, we begin by examining the dominant mode of knowing in health care. The cyborg features of nurses' and other practitioners' way of being include a technological knowing. This type of logics stems from and is interconnected with object technology; it is objective and concrete in nature. A significant amount of authority is attached to the information that is gleaned from technology such as images produced through x-ray, MRI and PET scans (Blaxter, 2009) as well as assessment techniques such as palpation and auscultation. This type of knowing is comparable to Carper's (1978) conceptualization of empirical science that is deductively and systematically formulated and involves generalized knowledge and factual evidence. Empirical science has been crucial to health care progression as it facilitates description, explanation and prediction (Carper, 1978). In what can be an uncertain and chaotic world of illness and disease, the systematic and objective elements of technological knowing provide a level of certainty and competence in practice. Furthermore, the

medical gaze, facilitated through technology, allows deeper access into spaces of the body (Webster, 2002) that used to be concealed. This type of knowing has simultaneously alleviated diagnostic uncertainty about pathologies of the body, but it has also increased uncertainty about prognostics and therapeutics where the educated lay consumer demands precise information (Webster, 2002). This type of knowing is also integral to evidence-informed health care and patient safety because the systematic and deductive processes potentially ensure that the best knowledge is identified and delivered in practice.

Because of the certainty and demand associated with technological knowing, does it prevent us from traversing into the liminal space? Does it encourage us to neglect the human features of our cyborg ontology? Do the human features emerge when we critically examine the technological knowledge and consider the best responses and actions that could follow based on context? The continual juxtaposition of technological knowing with PCP brings to light the risks and possibilities associated with a cyborg ontology. Because of the certainty embedded in technological knowing, it often takes a dominant position particularly in clinical situations that demand precision. For example, when a patient is going into hypovolemic shock, blood pressure is plummeting, heart rate is escalating, oxygen saturations are dropping. Is it best for the technological features of a cyborg ontology to eclipse our human features? Possibly. However, a major assumption would be that the body is also following an objective course – that all patients' bodies act and respond in the same way. If we give fluid, blood, dopamine, epinephrine, cardiac output will improve. Possibly. However, we also know that bodies do not always follow algorithms and pathways. No matter how much precision accompanies objective knowledge, the patient's body does not relinquish its own subjective and localized course. The patient body too is also a cyborg entwined with objectivism/subjectivism, machine/human; the entwinement of these elements are not so easily dis-entwined – the cyborg is afterall, our ontology.

It bears emphasis that the dominance of deductive and objective knowing associated with technology can position one at risk of neglecting inductive formulations. Inductive formulations of knowledge are constructed based on patients and form a foundation of PCP. Although technology could be a part of some inductive formulations, generally its objectivity and standardization of normal/abnormal variations does not consider contextuality. It has been argued that current technologized environments can impede health care professionals' focus on the subjective and contextual aspects of patients' stories (Kleinman, 2008). The dominant discourse of technology shapes logics and practices of care in ways that do not always leave sufficient space for localized and contextualized knowledge that engages the patient's voice and highlights his/her specific needs. Knowing that solely stems from theory and generalized facts runs the risk of not opening up space for a humanistic approach that facilitates an understanding of patients (Scanlon, 2006) and their own cyborg features. To some extent, and more so in some situations than others, personal, aesthetic and ethical knowing (Carper, 1978) shift to the bottom of the epistemological hierarchy; and the ultimate risk of a cyborg ontology is when the dominance of technological knowing becomes taken for granted/automatic. On the contrary, the ultimate (alternative) risk of a cyborg ontology might be when these human features of context and subjectivity overshadow the objective, technological knowledge. However, in our health care system, it may be a risk that is less risky considering the current dominant discourse of technology. And thus, we are left to ponder the possibility and beauty of a cyborg ontology, when (if), we enter that liminal space.

Given the risks and possibilities of the extreme ends of a cyborg ontology, the challenge for nurses and all health care practitioners is to mediate this delicate balance between PCP and technological knowing. Striking a balance between the human and the technological features of our cyborg ontology can be a challenge because technological knowing is embedded as a dominant discourse early in one's career. One component of technological knowing is rational

thinking; this type of thinking is a curricular focus in health care professionals' education

(Freshwater & Stickley, 2004) and even more so in practice. Rational thinking is a cognitive-

based process that is scientific, systematic and objective. The evolution of technology in health

care has made rational thinking even more prominent as professionals can use objective

measures offered through diagnostic and monitoring devices. Embedded in this discourse is a

focused attention on psychomotor, task- and procedure-related assessment and skills

(Freshwater & Stickley, 2004). Similar to reductionist thinking, a full understanding of the whole

person can remain elusive (Green, 2009). By shifting more so to the technological features of

our cyborg ontology, we focus on what can be objectively known and the biological components

of the patient become a focus, while the psychosocial may become a subsidiary. However, as

Green (2009) states a patient is not merely a "sum of its parts" (p. 266). Extending from this, a

patient is neither merely human nor machine. If we take a cyborg ontology seriously, the

borders of these parts become permeable. A relational engagement with the whole patient is

optimal in health care, which is consistent with PCP. The technological as a dominant mode of

knowing can potentially act oppressively upon health care professionals, as other ways of

knowing are sometimes overlooked or not as well accepted. In the bureaucratic system of

health care, more intellectual and financial currency is given to the technological than other

epistemologies, partially because it provides certainty in decision making. Thus, even though

the philosophy of PCP may be a curricular focus, the precedence that is given to technology in

practice creates clinical tensions.

Potentially, PCP could be conceptualized as advancing the fullness of our cyborg

ontology in which the technological and the human features are employed simultaneously.

Since technological knowing may be considered the dominant mode of knowing in health care,

we also need to acknowledge what might be considered the antithesis. The human features of a

cyborg ontology in health care could be considered the social knowledge that permits insight

into the layers and nuances of patients. This knowledge would involve a recognition of the importance of emotional intelligence (Freshwater & Stickley, 2004) or humanistic engagement of patients (Scanlon, 2006) in which the unique (and cyborg) features of each person are recognized and integrated into care – remembering that patients too are neither merely human nor machine. Emotional intelligence is a body state that we *feel* and it influences responses and actions (Freshwater & Stickley, 2004), and can facilitate empathy and therapeutic relationships with patients (McQueen, 2004; Molina Kooker, Shoultz, & Codier, 2007). It is also a type of knowing that takes time to develop and can be limited by the fast pace, technological environments. Some educational programs have attempted to incorporate narrative curricular approaches or PCP philosophies of care that highlight both emotional intelligence and humanistic engagement. Hence, it is timely to consider both the possibilities and the inherent dangers of both ends of a cyborg ontology. In actuality, it is the liminal and relational space between where a resemblance of the real happens, where possibilities are most possible, where dangers are less dangerous.

Technological knowing is embedded in thought processes so early in the lives of health care professionals that it emerges as an ontological way of being in practice that at its extreme becomes habitual. Its dominance could be said to not only technologize practice and identity, but also agency. In considering one's capacity to act, a technologized way of being in the social practices of health care can be compared to the metronome in music with the consistent and fixed tempo that ensures one does not slow down or speed up; this is when the technological feature of our cyborg ontology presides. One might say that when the technological features preside, the cyborg disappears as the human in fact is not present. The habituation inherent in a cyborg ontology places health care professionals at risk of not developing authentic presence, moral and physical proximity, empathy, and an understanding of the patient context. Potentially, one might consider whether there is a direct relationship between these risks and predominance

of technology in the environment. At the minimum, we are being called to take notice of the dangerous risks of our cyborg ontology (Haraway, 2000) and its potential for habitual knowing and being as it relates to the technological.

In the passages above, we have elucidated the possibilities and risks of the technological features of our cyborg ontology. It leaves us to question whether a critical and reflexive examination can ensure that our cyborg ontology does not become fully technological and that patient-centred approaches do not remain mere philosophical deliberations (both extremes involving a disappearance of the cyborg). If we are highly attuned to the risks of a cyborg ontology, can we then encompass both the human and technological possibilities as well? Since many health care environments are routinized, how then do we attend to the human feature of our cyborg ontology?

The Routinization of Technologized Environments

The second closely related claim to the technological as a dominant logics includes the routinization of health care environments. If, we as health care professionals begin to inhabit the liminal space, that does not mean that the technologized routinization needs to be expelled nor does it mean that we should be merely technological in our practices. We need to traverse into and complicate this liminal space between PCP and technology and recognize the ostensible dualisms within.

To begin, health care professionals are intimately connected with and focused upon technology in which practices are highly routinized (Lapum, Angus, Peters et al., 2010; Philpin, 2007; Sandelowski, 2000; Scott, Estabrooks, Allen, & Pollock, 2008); this is a technological element of our cyborg ontology. Many of our actions and behaviors are mediated by technology. As an example, technological and objective data provided through vital signs, blood work,

cardiac monitors, x-rays, and drainage receptacles often provide the foundation for clinical decision-making. These measures provide specific details of patients allowing health care professionals a very intimate understanding of the body. We could argue that it is these highly technologized practices that provide insight into the patient as a unique person and thus, allows the individualized elements of PCP to be developed and implemented. The conscious focus of working within this liminal space involves recognition of shared elements between and within technology and PCP.

Of course, one might object and suggest that the technologized measures are often interpreted in a deductive process of abnormal versus normal in the context of generalities. An evidence-informed dimension of practice is whens decision-making is influenced by clinical pathways and care maps that outline expected trajectories and promote efficient practices that focus on objective outcomes (Micik & Borbasi, 2002; Stajduhar, Balneaves, & Thorne, 2001). For example, the act of medication delivery by nurses, particularly in acute care environments, is often based on a generalized and routinized approach (Bolster & Manias, 2010; Rycroft-Malone, Latter, Yerrell, & Shaw, 2001); these are required elements of competent practice. We would not argue against the above objection or suggest that routines should be eliminated. Rather, our argument is to consider these processes within the liminal space (i.e., the space where technology and PCP exists, facilitates, hinders and thrives together). Thus, PCP principles such as the influencing factors of patient preference and contextual variables become part of the routinization of practice as opposed to disruptive factors.

To further develop our argument, we consider the temporal components of technological routines; specific routines are laid out based on timing. Take for example, the frequency of medication delivery as it relates to plasma half life concentrations of drugs or frequency related

to repositioning of patients to prevent pressure ulcers or frequency of changing peripheral

intravenous sites to prevent phlebitis. These practices are relatively routinized and shape nurses'

behaviors and actions by providing a fixed practice to follow. These routines can enhance patient

safety and ameliorate clinical uncertainty, providing health care professionals with a sense of

competence in decision-making. However, this technological routinization, with its restricted,

fixed path, can also be potentially oppressive for both health care professionals and patients. The

oppressive nature occurs when routinization becomes merely automatic and context becomes a

disruption. The oppressive power that minimizes possibilities of variability in practice may occur

when the technological features of a cyborg ontology take precedence over the human features.

If though, entwined in these technological routines is PCP, then the routine potentially becomes a

methodical presence to "be" within the liminal space. Hence, the relational aspect of the liminal

space manifests in which technology and PCP are in constant flux with each other.

　　　Although we are arguing that a cyborg ontology can initiate and complicate this liminal

space, we cannot do so without acknowledging the significance of tasks in health care routines.

The categorization and assignment of specific tasks can be beneficial as it facilitates competent

practice in the sense that the health care professional providing the care is the best individual to

do so, based on her/his level of technical knowledge and skill (Tiedeman, 2004). At times, this

can be an important component of PCP since technology is highly valued by patients (Peek,

Higgins, Milson-Hawke, McMillan, & Harper, 2007), and in many environments patients give

precedence to technological competence over caring (Suliman, Welmann, Omer, & Thomas,

2009). In certain critical situations or intensive care environments when prompt decision making

is required, the technological features of a cyborg ontology may take precedence. One may

object by arguing that the task-oriented approaches to care can negate and restrict PCP (Titchen,

2003) because the patient is generally not actively engaged, and the care rendered is not individualized (Bolster & Manias, 2010; Rycroft-Malone, Latter, Yerrell et al., 2001). The technological shapes task-oriented approaches so that the priority is to follow rules, procedures and regulations (Tiedeman, 2004). Not only does care have the potential to become fragmented and the whole person become reduced to parts (Tiedeman, 2004), but the patient-practitioner encounter is disrupted. The ultimate risk is that health care professionals' adherence to standardized and procedural uniformity restricts their abilities to sustain proximity to patients and recognize their unique human features (Malone, 2003). Since, we all know this to be true, it becomes critical to maintain the permeable boundaries of a cyborg ontology and learn to dwell in the liminal space; this way health care professionals can work within both technological and PCP.

Reflecting on our cyborg ontology in health care is timely, particularly since the increasing technologization of practice is re-shaping the patient-practitioner encounter (O'Keefe-McCarthy, 2009; Sandelowski, 2002). It is argued that technology has increased the distance between patients and health care professionals (O'Keefe-McCarthy, 2009) both morally and physically. The fast-paced and bureaucratic environments in which time is at a premium can make it challenging to be authentically present with patients (Covington, 2003). Although technology has permitted us to understand the patient's body and disease in ways that we have never been able to, the uncloaking of the layers of the human body can also conceal other ways of knowing the person. A focus on the rational logics wherein one thinks and theorizes (Sandelowski, 2002) on an abstract level disrupts communication with patients. This discursive impact of technology can shift communication from dialogical to monological approaches and although there is an intense focus on the physical body, there can be a simultaneous neglect of

psychosocial dimensions. What can become a technological hegemony in our cyborg ontology is when we forget to engage and recognize our own unique humanness as nurses and even more so, that of the patient.

Although technology has always been part of health care in some capacity, its now marked prominence shapes health care professionals' practices in ways that often become inadvertently habitual. These fixed practices can be beneficial. However, when the technological feature of our cyborg ontology dominates to the exclusion of engaging in other ways of knowing and being, we can become potentially entrenched in a habitual state of mind and embodied action. The risk of a cyborg ontology is when our humanness is pushed into the background and ways of being become merely technologized and automatic. As Haraway (2000) states, the risk is when our "machines are disturbingly lively, and we ourselves frighteningly inert" (p. 152). The ultimate danger of inertia is when our technological way of being cannot be acted upon by an external force (i.e., the contextualized and localized lives and experiences of patients). Hence, if we take notice of the risks of the technological feature of a cyborg ontology, can we more readily draw out the human features in the context of health care? If we accept our cyborg ontology, can we initiate and complicate this liminal space?

Cultivating the Hybridity of Technology and Human

In a Manifesto for Cyborgs, Haraway (2000) asks us to venture to the boundaries of hybridity, if for no other reason, because it is our social reality. As human beings, we are no longer fully natural/human/organic, but have become enmeshed with the technological in terms of our logics, routines, embodiment, and ontology. To competently venture these boundaries, we need to cultivate the risks and possibilities of hybridity in health care. As we have argued thus far, it is the liminal space between technological and PCP where the risks of a cyborg ontology

become less risky and the possibilities become more possible. Lastly, in the context of hybridity, it becomes essential to understand the human and technological features of our way of being and how they may facilitate and restrict practitioners from engaging with and focusing on patients.

The idea of hybridity suggests heterogeneous composition. In the context of the metaphorical image of the cyborg, one such composition involves technological and human features. Since most health care professionals would more readily ascribe to being human, the underlying fear or anxiety is about understanding what it means to acknowledge an identity that is also technologically-defined and the repercussions on one's agency. If one is technological, this does not mean that one is also not human – not according to a cyborg ontology. As Haraway (1991) may suggest, it is these heterogeneous compositions that define the cyborg features of partial identities that are interwoven with multiple and contradicting perspectives. She further guides to a place where we can use these multiplicities to see from a vantage point that may have otherwise been unimaginable (Haraway, 1991). Hence, if we permit ourselves to be caught up in the liminal space, then the extreme ends of our cyborg features will not exist. We can cultivate this hybridity so that the human and technological features of our cyborg ontology can work in a more synergistic as opposed to dualistic fashion.

For many this heterogeneity is embedded in a discourse of dualisms of polarized opposites and incongruities. Our magnetism to dualisms is ever present in the social world of health care. Dualisms can be easily compartmentalized; they are less messy and less complex. They are clear and clean and veer away from complexity whether it is as simple as separating the body and the mind, person and technology, self and other, subjectivity and objectivity. The Cartesian paradigm of the mind-body split draws us into considering how such dualisms can impact us and create absence, such as the absent body where the lived experience is not

acknowledged (Leder, 1990). To ascribe to dualisms, and suppress an understanding of hybridity, can create confusion and fragmented identities (Haraway, 2000; Leder, 1990). Leder indicates the "cognitive habits of dualism [are] deeply entrenched in our culture (pg. 5)." The dualist traps are alive and well and can inhibit us from a fullness of being, engaging our cyborg being, and the possibilities that exist in social practices such as health care.

In order to engage hybridity, it is important to juxtapose and disrupt the relevant dualisms related to technology and PCP. For decades, there has been attention to what could be seen as a dualism between PCP and technology. Some have referred to the underlying concepts and principles related to PCP and technology to highlight this dualism. The most prominent example is conceptualizations of caring being at odds with technological practices (Drach-Zahavy, 2009; Epstein, Franks, Fiscella, Shields, Meldrum, & Kravitz, 2005; McCance, 2003; Turkel, 2004) or that technology and the associated routines can be dehumanizing to patients (Sandelowski, 1997b). These dualist juxtapositions have also reproduced the care versus cure debate, where caring is seen as less valued because of the increased focus on cure with increased technology leading to better treatment and highly technical practices (McCance, 2003). Similarly, humanism, caring, therapeutic relationships and individualized patient care are discussed in opposition to technology and its associated principles of objectivism and bureaucratic systems of care (Traynor, 2009). Although the examination of how concepts related to technology and PCP can be at odds, most would agree that both have an important place in health care and are contingent on the situational and temporal spaces in day to day practices. Perhaps though, it is not a shifting between, but being within a liminal space where each cyborg feature is at play. For example, the features of technological and PCP would always be in a relational flux; they would be shaping one another and the practitioner-patient encounter. In essence, "we" (human and

machine) are in constant relation, interacting and constituting each other; this is the kinship between machine and human. "We" are all in this liminal and relational space together.

A departure point is to continue to deconstruct the totalizing theories that shape health care practices. Totalizing theories, as they relate to social relations and practices, humanness, and embodiment, actually fail to take notice of or underplay the messy complexities of reality (Haraway, 2000). This idea has postmodern notions of reality in which the messy, raw, hybrid, and contextualized social practices are permitted space to exist without attempting to create a less complex and unadulterated version. Often, in health care, we attempt to simplify phenomena and eliminate extraneous variables in order to elicit a clear focus on the patient or the particular problem. However, the translation of this approach into practice is problematic when we consider the complex and layered spaces of patients' lives and the environmental context. It is not sufficient to examine social relations and practices of health care from just one lens or perspective. Considering PCP as separate from other dominant philosophies or practices only restricts its possibilities as opposed to allowing it to flourish in health care. Since PCP is being implemented in technologically-shaped health care systems (to varying degrees), it becomes evident that the two need to be considered together. As we become theoretically open to our cyborg ontology, we can more fully engage our hybrid ways of being and the complexity of social practices.

To highlight our cyborg ontology does not mean that we favour our technological features or become completely mechanical. Rather, a cyborg ontology asks us to see and acknowledge beyond such simple dualisms and understand how our way of being as health care professionals is shaped through multiple lenses and standpoints including both our technological and human features. Conceivably, we need to further imagine what this liminal space would be

like and practice being within it. The increasing technologization of health care systems and practices makes this even more imperative now as it impacts the patient-practitioner encounter (Johnson, 1994; McCance, 2003; O'Keefe-McCarthy, 2009). The hybridity embedded in a cyborg ontology can facilitate a deep, human and methodical connection between practitioners and patients within the technologized spaces of health care. Understanding the fullness of our cyborg ontology can potentially lead us to a more intense focus on patients and as such, an enhanced actualization of PCP.

Conclusion

Inherent in a cyborg ontology are the possibilities for practitioners to pierce into the liminal space between technological and PCP wherein both the human and technological features work in perpetual flux. It is not a question of choosing technology or PCP. Such dualisms have been historically produced and reproduced over many decades and have only inhibited possibilities and prevented us from recognizing our own cyborg ontology as health care professionals. Technology is both ubiquitous and invisible (Haraway, 2000). It has become inserted into our lives and social health care practices in that it shapes our actions and behaviors in ways that are actually difficult to see. Its ubiquitous nature in the 21st century has made it near invisible. If health care practices are not consciously and critically examined, nurses and other health care professionals may actually not even recognize the ways that practices are technologically-shaped and focused. Thus, it is important to examine the socially-embedded components of technology because they deeply mediate health care practice including interactions between health care professionals and patients (Lehoux, 2008).

Although PCP is considered a dominant discourse that shapes philosophical approaches to health care, its actualization in practice has been limited. In this article, we considered the ways that the technological intersects with PCP from the lens of Haraway's (2000) cyborg ontology. The inherent danger is that a mere technological, habitual way of being does not permit us to be open to the embodied and contextualized experiences of patients. A disruption of the habitual in terms of logics, embodiment, and routines can move nurses and other health care professionals to a conscious integration of PCP into the technological care environments.

To accept that one is a cyborg is quite contentious and has inherent and dangerous risks, but also hidden benefits and unexplored possibilities. The acceptance of our cyborg ontology involves an uncomfortable proximity about identity and agency, but to critically examine and engage this way of being in health care can ensure that we are not governed by or struggling against technology in our logics and practices. To allow ourselves to engage in this uncomfortable proximity to what it means to be a cyborg can actually be liberating rather than oppressive. Although our embodiment and way of being as practitioners may be technological, it is not only technological. A conscious and critical consideration of Haraway's (2000) idea of a cyborg ontology can facilitate an understanding of the contextualized, embodied and relational spaces of technology and how it can potentially facilitate and restrict PCP. Cyborg considerations in the context of health care professionals' way of being shed light on how we can realistically advance and engage in PCP in technological health care environments.

It is time to take pleasure in the social reality of cyborgs and messy borders (Haraway, 2000). By considering ourselves as cyborgs, both materially and ontologically, we can begin to initiate and complicate the liminal space between technological and PCP. We can re-capture and preserve our humanness as caregivers as well as thrive with our technological way of being. In a

postmodern, posthuman, neoliberal world where hamburgers are grown in Petrie dishes, self-diagnostics are determined on the World Wide Web, stem cells are grown into a heart, and we are injected, incised and inserted to look like Barbie or the 21st century version, Kim Kardashian – self and other are merging. We may even begin to accept the patient's cyborg ontology. But, that would be beyond this philosophical examination.

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