

Dissertation Proposal

RUNNING HEAD....A qualitative analysis of faculty perceptions.....

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A qualitative analysis of faculty perceptions of
nursing informatics and education culture.

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A qualitative analysis of faculty perceptions of nursing informatics and education culture.

Background

Information technology is infiltrating every aspect of developed contemporary society, including education, health care and subsequently, nursing. The field of nursing informatics has been recognized for over thirty years, evolving in pace with the growing use of computers and other information and communication technologies (ICT) within work and personal environments. Staggers and Bagley-Thompson (2002) proposed that nursing informatics could be defined as “...a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, and knowledge in nursing practice. Nursing informatics facilitates the integration of data, information, and knowledge to support patients, nurses, and other providers in their decision making in all roles and settings. This support is accomplished through the use of information structures, information processes, and information technology” (Staggers & Thompson, 2002, p. 260). Although national organizations such as the Canadian Nurses Association (2001, 2006) have articulated the importance of incorporating nursing informatics in the education of student nurses, most nursing education programs continue to do so in a rudimentary manner. “Educators need to develop and implement curricula that incorporate nursing informatics competencies in basic and graduate education, be active promoters of ICT in nursing, lead by example and link their institutions' websites to the [CNA] portal. Partners should work closely with the Canadian Association of Schools of Nursing to ensure the integration of ICT competencies into core curricula” (Canadian Nurses Association, 2006, p. 81). This directive is echoed in much of the national and international literature, reflecting a positivist, utopian, modernist urge for immediate adoption, robust competency development, and swift infusion

of ICTs, e-learning, information systems, electronic health records and e-health initiatives into nursing and subsequently, nursing education (Zytkowski, 2003; Staggers, Gassert & Curran, 2002).

However, contemporary Canadian nursing curricula is shaped using a caring, critical social, feminist, humanistic, postcolonial, and phenomenological approach to cultivate neophyte nurses who are empowered, engage in dialogue, reflection, narrative, and praxis, and who plan and provide care that is intrinsically client focused, health promoting, and salient to the individual client's health needs and situation (Ironside, 2001; Forneris & Peden-McAlpine, 2006; Bevis & Watson, 1989; Cohen, 1993; Reimer Kirkham, Baumbusch, Schultz & Anderson, 2007; Spence, 1994). Blindly adopting informatics into the critical pedagogy and idealistic culture of nursing education can be seen as counterproductive to the intent and mandate of most nursing education programs. As Balka (2005) pointed out, research is needed to “fill gaps about existing knowledge of Canada's health info-structure. Currently, health technology in Canada is reviewed in terms of clinical and cost-effectiveness. Action for Health goes beyond the limits of such traditional assessment by considering the social, ethical, and legal aspects of introducing new technologies into the health sector...and examines what these changes mean for health practitioners, health care recipients and other stakeholders” (p. 2).

Although only hinted at in the literature (Holmes, 2002), perhaps it is critical awareness that there are too many unknowns, too many unanswered questions about the realistic effects of adopting technology and informatics theory in nursing that understandably spurs nursing faculty to use caution and deliberately impede indiscriminate informatics adoption into the curricula. Informatics is often listed as an integral concept in nursing curriculum content, yet usually remains, at best, along the borders of actual nursing teaching and learning (Collaborative Nursing Program of British Columbia, 2002; Ornes & Gassert, 2007). Nursing faculty serve as keepers at the interface of educational infiltration and thus far, have managed to keep informatics at the periphery of curriculum content and processes. Although prompted to allow a culture for nursing informatics to become a reality in nursing

education, informatics still remains outside of nursing education culture (Hebert, 1999; Canadian Nursing Informatics Association, 2003). Why this occurs has yet to be explored in any great depth, which provides the impetus for this proposed research study.

Often, ageism (Smadu, 2007), technophobia, technostress (Stark Burke, 2005), resistance to change, and gender reluctance/inequities (Bratteig & Verne, 1997) are credited for the slow adoption of informatics into nursing education, which all may be factors in some respects. For instance, “The introduction of computerized technologies into women's work frequently increases the speed of women's labour, while decreasing women's control over their work. In turn, this contributes to the decline in women's health” (Balka, 2003, p.1). However, the actual reasons given by individual nursing faculty may be much more complex yet proactive and even perceived as discerning and wise in the context of the ideal culture promoted within nursing education. Ultimately, “there is a pressing need for descriptive and empirical research” (Howcroft, 1999, p. 277) to explore the nuances of informatics positioning in nursing education. In order to discover and begin to understand this process, it is valuable to invite faculty to share their perceptions, concerns and insights about the current and future place of informatics within their teaching practice and nursing education culture.

Purpose

The purpose of this proposed research study is to engage with and analyze the perceptions and life experience of nursing faculty in relation to the appropriateness and process of dis/allowing informatics to move from the margins towards the centre of nursing education culture. My own history with nursing informatics has evolved to include an innovator role, reflecting two decades of work in helping nursing faculty, students, and practicing nurses to become cognizant and competent in applying nursing informatics to education and practice. Through most of my journey to this level of expertise, I have unconsciously adopted a modernist utopian view of nursing informatics and reflected this lens through my teaching, website authoring, multimedia creation, and writing. However, through doctoral

study, new critical, sociocultural, sociotechnical, and phenomenological views of informatics have permeated my own awareness regarding the ramifications of integrating informatics in nursing.

This new awareness has led me to conclude that there is a need to go to the source, the faculty themselves, to try to qualitatively understand the underlying meanings, values and perceptions that keep a culture for nursing informatics at bay within nursing education. Rather than view the lack of informatics culture through a deficit lens (a view that is strongly perpetuated in the literature), a deeper perceptual look that trusts and is interested in the motives, choices, and decisions made by nursing faculty could shine a light on the strength and value reflected in keeping informatics at the fringes of nursing education culture.

Focus of Inquiry

The actual perceptions and lived experience of nursing faculty who are responsible for integrating nursing informatics into education has, at best, been glossed over and unrevealed in the existing literature. The vast majority of studies and theories relating to this issue have been framed in a modernist, “let's get with the times” approach that results in a deficit perspective, leaving faculty in a public position of urgency, marginalization, and scrutiny. “What is most often absent in the literature is the broader understanding of faculty experiences described and analyzed through their own eyes, studied in their specific contexts, and synthesized into new theories or webs of significance” (Burton, 2007, p. 27). The qualitative focus of this study will be the perceptions of nursing faculty who are actively engaged in the process of dis/allowing informatics into nursing education culture. This study is intended to reflect the agency and voice of the faculty themselves, to add a reflective and personal meaning lens to the existing literature that all too often frames nursing faculty in a derogatory manner, labeling them as “behind the times”, resistant, and out of step with teachers of other disciplines.

The overarching question for this study is “What are the reflective perceptions, personal

meanings and lived experience of nursing faculty regarding the dis/allowing of informatics into nursing education culture?” A secondary question involves “How do nursing faculty make meaning of nursing informatics culture and its place in nursing education?”

Review of the Literature

Since the design of this study is qualitative in nature, this review of the literature primarily includes qualitative, critical perspectives of nursing education culture, the drive for nursing informatics infiltration and the process of dis/allowing this penetration into the critical pedagogy of nursing education.

The Culture of Nursing Education

The highly complex phenomena of culture has been a conceptual focus of many disciplines ranging from anthropology to zoology. The essential dimensions of culture have been conceptualized using a variety of configurations, which often reflect the discipline or philosophy used in the process. Any exploration of nursing education culture demands the acknowledgment of the presence and influence of other cultural landscapes, including the culture of higher education, the culture of health care, the immediate organizational culture of the educational institution where nursing education occurs, the broader nursing culture (both practical and disciplinary), and the swiftly growing culture of information technology which leads to a culture of nursing informatics. “The research literature on faculty culture indicates that scholars work within several cultures concurrently, including those defined by the discipline, institution, profession, and society... [as well as] culture determined by their inquiry paradigm” (Toma, 1997, p. 680).

Nurse-anthropologist, Margaret Leininger described nursing culture as “the learned and transmitted lifeways, values, symbols, patterns, and normative practices of members of the nursing profession of a particular society. A subculture of nursing refers to a subgroup of nurses who show distinctive values and lifeways that differ from the dominant or mainstream culture of nursing” (1994, p. 19). Leininger (1994) went further to distinguish both ideal and manifest attributes of culture, by defining an ideal culture as one that reflects the “attributes that are most desired, preferred, or the wished for values and norms of the group” while manifest culture is “what actually exists and is identifiable in the day-to-day world as patterns, values, lifestyle patterns, and expressions” (p. 19).

Like many other disciplinary cultures, nursing education has undergone a profound metamorphosis in the past two decades. Traditionally, nursing students were educated using an apprenticeship model of instruction framed within a distinct biomedical, positivist, behaviourally-focused paradigm. As nursing education moved from an exclusive clinical setting into colleges and later university settings, a shift towards the humanities and a more holistic paradigm was adopted, though nursing education and culture still occurred within a deductive modernist framework. Remnants of this still exist, coupled with humanistic, critical social theory, and feminist-postcolonial lens to ultimately cultivate neophyte nurses who are empowered, engage in dialogue, reflection and praxis, and who provide care that is distinctly phenomenological, client-focused and salient to the individual client's health needs and situation (see Figure 2 in Appendix II) (Ironsides, 2001; Forneris & Peden-McAlpine, 2006; Bevis & Watson, 1989; Cohen, 1993; Reimer Kirkham, Baumbusch, Schultz & Anderson, 2007; Spence, 1994).

All Canadian nursing education now occurs within degree-granting configurations, where nursing students gain practical and theoretical experience in working with clients on various specialty units as well as in the community, including in-home care, clinic-based work, public schools and other

community service areas (Hills, Lindsey, Chisamore, Bassett-Smith, Abbott, & Fournier-Chalmers, 1994; Storch & Gamroth, 2002). Students are enculturated to influence change, conduct both qualitative and quantitative research, to inquire in phenomenological ways, to advocate, to empower, and to develop empathy and respect for the unique lives, beings, and saliency of each unique client and their supportive families and circles. They are guided to apply a critical social lens to health care and question the way client experiences are governed by systematic and bureaucratic ideologies (Wilson-Thomas, 1995). As well, nursing education culture is influenced by the academic and organizational culture of the university or college it occurs in. As Holmes (2002) directs, “the central role that universities play in the concretization, legitimation, and reproduction of cultural norms, should be acknowledged. Their role is more usually one of social-regulation and stabilization rather than fundamental challenge or political action” (p. 73).

Nursing students are taught several different ways of knowing, including personal knowing, in order to holistically plan and provide comprehensive client care. “Personal knowing is the most problematic and difficult pattern to master and teach. It is the ability to see an event from the perspective of another and recognizing the other as a subject rather than as an object. Personal knowing is the discovery of self and others, which is arrived at through reflection, synthesis of perceptions, and connecting with what is known. It is captured through retrospective accounting of an interaction. The creative dimension of personal knowing is the process in which one becomes genuine, authentic, real and more whole” (Jacobs, 1998, p. 25).

Personal knowing is engrained through therapeutic reciprocity or the therapeutic use of self. This application of self promotes integrity and wholeness in personal encounters with clients and with other student and practicing nurses. By creatively blending personal knowing with empirical, aesthetic, ethical and socio-political knowledge (Carper, 1987), student nurses learn to perform within a

therapeutic caring culture that is holistic and salient to the client's health condition and recovery. This “shows patients and their families that the nurse understands their world and can interpret some of their decisions and experiences in an enlightening context that will facilitate their growth and understanding of the difficult situation. Personal knowing is central to nursing since illness is radically subjective” (Holmes & Gastaldo, 2004, p. 28).

The culture taught in nursing education, with professional ideals of autonomy, empowerment, and critical reflective practice clashes with the “highly bureaucratic institutions in the health care system” (Clare, 1993, p. 1034). As students gain experience within the clinical milieu, they often experience a discrepancy between the ideal culture taught in school, and the manifest culture experienced within the hospital and community care settings. “There is a cultural crossroads created when two or more cultures come into contact” (Blackford, 2003, p. 239) but this crossroads can become an area of contention, disillusion and distress, rather than an intersection of compatibility and congruence: sometimes to the point of “culture shock”.

Fortunately, students are not mere passive recipients of socialization, they can actively construct and impact the world around them (Francis, 1999). Faculty spend a lot of time helping students recognize the constrictive institutional structures and influencing hegemonic forces that make the clinical setting a challenging place to provide holistic client care. They are also encouraged to question practice that is not grounded in an empowering, emancipatory culture, and to move beyond fear of the “eating our young” behaviour sometimes exhibited by practicing nurses.

Nursing education is often based on a model of transformatory learning and emancipatory action. Transformatory education encourages experiential freedom and the right to interpret the stimulus events in life as one chooses, adopting from the manifest culture what one will, and discerningly refraining from emulating the more base, less desirable aspects of manifest culture in the workplace (Freshwater, 2000). Part of the ideal culture of nursing is valuing the profession as a

knowledgeable practice and supporting nursing students to cultivate an intention to nurse. According to Locsin (2002), the lens of the intention to nurse is the unifying concept underlying nursing practice and education. “Promoting nursing values, facilitating health, and inspiring a positive human health experience for those nursed are directions for nursing that reveal the intention to nurse. Intention to nurse is the dynamic that is expressed through the prevailing lens of being authentically present with the other in the moment” (p. 2).

The choice to apply critical pedagogy to nursing allows both faculty and students to question the motives and tenets of these aforementioned overlapping cultures and the dynamics within and between them. As Giroux (2004) eloquently attested,

I believe that pedagogy represents both a mode of cultural production and a type of cultural criticism that is essential for questioning the conditions under which knowledge is produced, values affirmed, affective investments engaged, and subject positions put into place, negotiated, taken up, or refused. As a critical practice, pedagogy's role lies not only in changing how people think about themselves and their relationship to others and the world, but also in energizing students and others to engage in those struggles that further possibilities for living in a more just society. (pp. 63 - 64).

Giroux (2004) supported further analysis of how the study of culture fits the notion of critical pedagogy by pointing out how this can contribute

to our understanding of how culture deploys power and is shaped and organized within diverse systems of representation, production, consumption, and distribution. Particularly important to such work is an ongoing critical analysis of how symbolic and institutional forms of culture and power are mutually entangled in constructing diverse identities, modes of political agency, and the social world itself. Culture is partly defined as a circuit of power, ideologies, and values in which diverse images and sounds are produced and

circulated, identities are constructed, inhabited, and discarded, agency is manifested in both individualized and social forms, and discourses are created, which make culture itself the object of inquiry and critical analyses. (pp. 59 – 60).

Giroux is vehement in stressing that culture is “constitutive and political, not only reflecting larger forces but also constructing them....culture not only mediates history but shapes it” (p. 62). It is a virtual hotbed of both “contestation and accommodation, and it is increasingly characterized by the rise of mega-corporations and new technologies that are transforming the traditional spheres of the economy, industry, society, and everyday life” (p. 62). It is this last point that has led to the drive for nursing informatics and the frequently declared need for a culture for nursing informatics within education.

The Drive for Nursing Informatics Culture

Giroux's (2004) treatise to consider the combination of cultural studies and critical pedagogy within higher education is relevant to this study, especially when exploring how nursing education culture, currently founded on critical pedagogy, dis/allows informatics infiltration. As he points out:

The scope and power of new informational technologies, multimedia, and visual culture warrant educators to become more reflective about engaging the production, reception, and situated use of new technologies, popular texts, and diverse forms of visual culture, including how they structure social relations, values, particular notions of community, the future, and varied definitions of the self and others (p. 67).

A major goal of this study is to invite such reflection in nursing educators who participate in the proposed interviews and other data collection methods.

In 1999, a National Nursing Informatics Project was spearheaded by the Canadian Nursing Association and four other major nursing groups to examine the future growth of nursing informatics in

Canada: a discussion paper was written (Herbert, 1999) to present their findings. One of the key points addressed in this paper was a critical need for a culture for nursing informatics both within practice and nursing education. According to Hebert (1999):

Barriers to advances of nursing informatics (NI) in nursing education including integrating NI into the curriculum includes a need for a nursing culture to promote acceptance and use of information technologies as basic tools for information management and exchange.

Barriers occur in three areas:

- *human resources* - lack of time, lack of knowledge, faculty preparation
- *technical resources* - including unsuitable software, limited access to appropriate computer hardware and software and the rapid rate of change within the technology industry makes it difficult to keep skills and educational materials current
- *system resources* - including little or no support from administration, financial burden of maintaining and upgrading computers and a lack of funding to develop and present programs, as well as declining financial support for continuing nursing education. (p. 6).

The lack of resources and a need for a culture for informatics is a recurring theme in much of the literature written to spur nursing informatics adoption. “These results suggest that singularly focusing on changes in curriculum will not accomplish changes in the health system or in nursing practice if the overall nursing culture has not adopted information technology” (Hebert, 1999, p. 23).

In 2002, the Canadian Nursing Informatics Association (CNIA) initiated a research project, coordinated by Dr. Heather Clarke to “describe the current situation of undergraduate nursing informatics education in Canada” (p. 44) with the intent to use the findings to “inform education decision makers and funders of information and communication technology of the needs related to enhancement of nursing curricula and faculty preparedness in nursing informatics and of information

and communication technology (ICT) requirements in Canadian schools of nursing” (CNIA, 2003, p. 44).

Although it appears that more nursing schools were incorporating informatics to some degree, this report showed that there were huge gaps between what exists in nursing education and what appears to be needed. A lack of theory, practical experience and qualified faculty to teach informatics to students were all factors identified in this study. Data from the CNIA (2003) study revealed:

While there is a culture that supports ICT in teaching and learning in the majority of schools (~3/4), fewer schools (~1/2) have a vision or strategic plan with goals and supportive policies for the integration of ICT and NI in nursing education or a committee to address this issue. However, several faculty noted that while NI and ICT have obvious advantages, they appear to run counter to the philosophical underpinnings upon which the curriculum is based (p. 17).

The report (CNIA, 2003) included a recommendation that “the culture and expectations of schools of nursing embrace nursing informatics and appropriate use of information and communication technology in teaching and learning” (p. 30). As well:

Academic and clinical staff members, as well as nursing students, require a holistic understanding of nursing informatics and use of information and communication technology in education and health care. While there is a general awareness of informatics in nursing, it is specifically related to the use of the Internet and other technologies such as databases for research and does not encompass a broad based understanding of the full scope of nursing informatics or its impact on nursing care (p. 22).

A further review of the nursing informatics literature revealed several perspectives that could well be reflected in the data that will be collected in this study, as faculty reflect on the implications, barriers, benefits, processes, and dangers of allowing nursing informatics in education. Seven

significant perspectives of informatics identified from the literature include: Antithesis, Artifact, Utility, Technique, Agency, Networks, and Power (see Figure 1). All seven of these perspectives present an unique lens to consider when analyzing nursing informatics within (or outside) the context of nursing education culture.



Figure 1: Nursing Informatics Perspectives Reflected in the Literature

An Antithesis perspective refers to the notion that the use of computers and other information technologies in health care is a threat: in fact it is the antithesis or opposite of compassionate, caring and client-centered nursing practice and education (Barnard & Sandelowski, 2001; Timmons, 2003; Marck, 2000; Sandelowski, 1999). Just as the dystopic literature in any field warns, the uncritical and unquestioned adoption of technology into any discipline or life area should be resisted. Nursing faculty and students need to be fundamentally aware of how information and other technologies shape our way

of being in the health care landscape, and how the nursing profession is being shaped by current electronic developments.

An Artifact perspective refers to the notion that technology of all kinds, including the contemporary inclusion of information technologies in nursing is an inherent, almost seamless cultural phenomenon, one that is long-standing and can be taken for granted as part of nursing evolution. Margarete Sandelowski (2000) presented a comprehensive examination of how nursing and technology have been consistently linked since the advent of the bureaucratic health care system beginning in the early 19th century. Technologies, from simple to complex, have served as long standing artifacts within nursing culture, along with other tools, documentations, physical and organizational structures, and more recently, information systems. “Health care informatics should be understood as an ecology of tasks and artifacts. Knowledge is situated in particular social and physical systems and emerges in the context of interactions with other people and the environment” (Kaplan, 2001, p. 46).

An Utility perspective is reflected in literature that presents information technologies as simple, benign, and useful tools that nurses control and apply to their practice, research, studying, and management activities. This reflection is very common in the nursing literature, usually embedded within an organizational culture or management framework, to support the use of technologies in a utilitarian manner. “Technology is conceived as socially, culturally, and morally neutral – is conceived as amoral (amoral in the sense of having no value of moral consideration) – is nothing more than a resource to be used by nurses” (Barnard, 1997, p. 127). Supporters of this perspective question why information technology is not used more in nursing since it is, after all, a benign tool that can make nursing work easier, less redundant and repetitive, and more congruent with contemporary trends.(Bartholomew & Curtis, 2004; Ball, 2005; Simpson, 1994; Kling, 2000b; Smith, 2004; Canadian Nurses Association & Office of Health and the Information Highway, 2000).

Technique is another perspective that promotes the application of information technologies in nursing to boost productivity and efficiency, promote best practices and evidenced-based practice, and concretely record nursing education and practice activities electronically. The modernist health care system demands that nurses operate within this technique driven environment, and nurses have learned to embrace this way of acting and being while providing client care. “We nurses have expressed concern over the impact of technology but have embraced technique. Yet it is technique that has made nursing technological not objects, machines, automata, or equipment” (Barnard and Sandelowski, 2001, p. 372). This focus on technique places nurses within a whirlwind of regulations and standardization that threatens their ability to care for clients in phenomenological, individualized ways.

Barnard and Sandelowski (2001) summarized:

Because of technique, there can be over emphasis on the maximization of efficiency, specialization of practice and development of conformity and sameness in product, process, and thought. Accordingly, it is technique, not technological objects 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. (p. 372).

An Agency perspective incorporates actor-network theory, technological agency in its' own right, and how nurses interact with ICTs in an interactive and intense, almost reciprocal way. Human – computer interactions occur within sociocultural and sociostructural contexts, a notion that has sparked research and theory that strives to account for the social role of technology within the workplace and other arenas of society (Bandura, 2002). “Informatics is contextual by nature, entangled with the work done to gather it. There is a co-evolution of the environment and the system, the technology, work and clinicians are interwoven agents of change. Technology is physically constructed by actors working in a given social context” (Kaplan, 2001, p. 47). Some theorists view technologies as having agency (the

capacity to make a difference) as they are acted upon by humans within the workplace or other social milieu. Others theorize that technologies gain agency in their own right, which is constituted as a non-human agent within the social landscape. “Technologies, like people, are now conceived of as having agency, biographies, lives, lifecourses, histories, language, idiosyncratic quirks, inclinations, and known propensities for perverse or benign behavior” (Barnard and Sandelowski, 2001, p. 368). This particular perspective of informatics presents technology as a critical actor within the social context of the health system, an actor that “cannot be understood without examining contextual factors relevant to the particular society, such as gender, class, economics, culture or race. Within this context, a series of historical actors with an investment in the system make choices about the function, form, or use of a particular technology, and these choices themselves reflect the social context” (Fairman and D'Antonio, 1999, p. 180).

The perspective of Networks examines the collaborative application of information technologies as educators and students interact with others, such as colleagues, interdisciplinary team members, clients, and communities of practice and inquiry, sometimes on a global scale. The application of networks in health care requires careful design and awareness of the users of the system. System designers, as well as nurses who serve as guardians and guides of the system need to recognize the life-worlds and work-worlds of the users: in this context, of the health team and the clients they serve. As well, the social context (a matrix of people, service, organizations, location, history, and so on) of the ICT use in network activity must be considered since they play “a significant role in influencing the ways that people use information and technologies” (Kling, 2000a, p. 254). However, the issues of inclusion/exclusion and social access (or the lack thereof) are potential critical consequences of any health oriented network. Clients and health professionals alike could be disadvantaged, even marginalized if other modes of interaction are not available (Page and Scott,

2001).

Finally, the perspective of Power has been investigated from a disciplinary perspective, including the consequences of prestige, influence, legitimacy, governmentality, and social access. The lens of power is important for nurse educators to critically examine the dynamics of disciplinary and individual power in the context of utilizing information technology within nursing education. A particular focus on the power that nurses exhibit in the context of using technologies within the health care system is important, as is a look at client and student power. The nursing literature is just beginning to provide a look at informatics through this particular lens which is actually a part of all of the previous perspectives addressed, from antithesis to networks. “As a society, we barely comprehend the true effects of our increasing involvement with computers. Technology does not function in a vacuum but within a social matrix, interacting with individuals in an organization. The use of computer capabilities can indeed affect the social and political dynamics in an organization by frequently rearranging communication patterns and the distribution of power” (Richards, 2001, p. 11).

Holmes (2002) warned:

As society becomes increasingly 'technicized', the universities are themselves liable to be technicized, thereby becoming part of what Habermas calls the 'system world'. The consequences of such a process is that technical rationalization swamps, or 'colonizes', aspects of daily life which are rightfully part of the lifeworld, and technical interests start to override practical and emancipatory ones. One of the tasks of intellectuals, for Habermas, is thus to salvage and nurture manifestations of the lifeworld, and to resist their colonization by dehumanizing systems. This challenge, to resist the technical invasion of the lifeworld, faces all nurses, however, and not just those in universities, and the role of intellectuals must be to help their colleagues to see what is happening and to devise strategies for

individual and collective resistance. (p. 79).

As the current President of the Canadian Nurses Association, Marlene Smadu mused during her plenary speech at a recent Health Informatics conference, “Are nurses ready for the mammoth shift in their world and their work? Well, younger nurses won’t be prepared to work any other way. We know that the shift to the culture of information and communication technology is inevitable” (Smadu, 2007, p. 9). Buehring and Waring (2001) pointed out that the culture change urged by national and organizational leaders is vague and ambiguous. They summarized:

The culture change appears to be related to the notion that information and communication technologies (ICTs) bring about positive change and will benefit organisations through streamlined working practices, reduced paper loads and improved communications between professionals and the organisations. How the culture change will benefit patients and clients of the health and social services is even more ambiguous. Attempting to re-engineer culture is a highly political, subjective activity and therefore has to be challenged from a critical perspective. (p. 33).

Acknowledging the Wisdom of the Border Keepers

The vision and mission of most nursing education programs go beyond preparing students for the workplace: the intent is to enculture students who can examine the flaws in the current bureaucratic modernist workplace and find fissures and cracks that encourage change and slow but sure transformation. Nursing faculty do not protect the borders of the curricula in order to perpetuate a “professionalized, gated community” (Giroux, 2006, p. 64) or “ivory tower” cloistered milieu, but to actually preserve the critical socially-conscious culture that can support nursing students to develop the knowledge, discernment, inner strength, vision, and social critical skills to bring a genuine client-

centred health care system into reality. In fact, the teaching methods adopted by many contemporary nurse educators reflect the ideal espoused by Giroux (2006). They at least attempt to enact Giroux's warning that "...it is imperative that public intellectuals within and outside of the university defend higher education as a democratic public sphere, connect academic work to public life, and advance a notion of pedagogy that provides students with modes of individual and social agency that enable them to be both engaged citizens and active participants in the struggle for global democracy" (p. 66).

The critical pedagogy embraced within nursing education is enacted to "shift how students think about the issues affecting their lives and the world at large, potentially energizing them to seize such moments as possibilities for acting on the world and for engaging it as a matter of politics, power, and social justice" (p. 66). Many nursing faculty both support and are keenly aware that educational institutions which, as Giroux (2006) pointed out:

By virtue of their privileged position, division of labor, and alleged dedication to freedom and democracy, have an obligation to draw upon those traditions and resources capable of providing a critical, liberal, and humanistic education to all students in order to prepare them not only for a society in which information and power have taken on new and potent dimensions but also for confronting the rise of a disturbing number of anti-democratic tendencies in the most powerful country of the world and elsewhere across the globe. (p. 71).

Although much more challenging to do when teaching within the clinical arena of the current health care system, the actual classroom pedagogy of nursing does support Giroux's prescription for 21st century higher education.

If higher education is to be a crucial sphere for creating citizens equipped to understand others, exercise their freedoms, and ask questions regarding the basic assumptions that govern democratic political life, academics will have to assume their responsibility as

citizen-scholars, take critical positions, relate their work to larger social issues, offer students knowledge, debate, and dialogue about pressing social problems, and provide the conditions for students to have hope and believe that civic life not only matters but that they can make a difference in shaping it. (p. 74).

Although Giroux was addressing the political situation in the United States as the context for his treatise, his writing can also be reflected in the way nursing faculty are perceived within their position in preserving the critical pedagogy taught in nursing and their stance on allowing the infiltration of nursing informatics into the culture of nursing education. Giroux (2006) eloquently described:

This politically charged notion of the oppositional intellectual as homeless – in exile and living on the border, occupying an unsutured, shifting, and fractured social space in which critique, difference, and a utopian potentiality can endure - provides the conceptual framework for educators to fight against the deadly instrumentalism and reactionary ideologies that shape dominant educational models (p. 74).

Giroux does point out that new information technologies can provide the means to further critical pedagogy since “higher education is one of the few places where scholars can be educated for life in a global democracy by becoming multi-literate in ways that not only allow them access to new information and technologies but also enable them to be border crossers capable of engaging, learning from, understanding, and being tolerant of and responsible to matters of inclusiveness, meaningful difference, and otherness” (2006, p. 74). However, most of the rhetoric (or what Giroux calls “corporate discourse”) that promotes nursing informatics integration into nursing education culture reflects a market-place preparatory, economic, commodification-based control paradigm, is clearly alien to the vision of nursing perpetuated in education. Hardly any of the nursing literature questions this modernist approach or presents an alternative to sheer infiltration of technology sans questioning or awareness (Health Canada, 2003).

The critical – phenomenological lens and methods applied in nursing education appear to defy the demand for technology integration and is often summed up in the literature as simple “resistance”. Yet, “critical education links knowledge and learning to the performative and worldly space of action and engagement, energizing people not only to think critically about the world around them but also to use their capacities as social agents to intervene in the larger social order and confront the myriad forms of symbolic, institutional, and material relations of power that shapes their lives” (Giroux, 2006, p. 75). Perhaps the deliberate positioning of informatics at the borders of nursing education is an un/conscious result of this sort of critical awareness which needs to closely examine the consequences of allowing full rein to modernist informatics infiltration.

Jurema and O'Rourke (1997) transposed Paulo Friere's (1972) literacy tenets to information technology literacy in education. They described IT literacy

“as a process enabling people to be in control and active in their lives instead of acted upon by social, political, and economical forces. IT literacy is therefore far more than learning the skills necessary to use hardware and software. It involves understanding the role IT plays in society, questioning the purposes for which IT is used, understanding how IT intervenes in our lives and relations with others, and being able to choose when and which tools are appropriate for a task or problem at hand. IT literacy therefore involves developing a critical consciousness which enables us to make informed choices about the way we use and respond to such technologies in our society” (pp. 129 – 130).

The authors further described a pedagogy of informatics that involved teacher engagement “in a process of 'capacitation’” which opens spaces involving reflection, dialogue, and reinvention of actions leading to better educational practices. Capacitation is more than building capacity, It refers to an ongoing, active process where teachers work together and become empowered and energized through deep collaboration” (Jurema and O'Rourke, 1997, p. 132).

The type of IT or nursing informatics literacy described by Jurema and O'Rourke (1997) does appear to mesh with the tenets of contemporary nursing education. However, this level of literacy does not match the apparent readiness of nursing educators (see Figure 3 in Appendix II). There are too many questions that have not been adequately answered; too many consequences to explore before nursing educators will openly allow nursing informatics infiltration into education.

As Giroux (2004) concluded:

In the broadest sense, critical pedagogy should offer students and others – outside of officially sanctioned scripts – the historically and contextually specific knowledge, skills, and tools they need to participate in, govern, and change, when necessary, those political and economic structures of power that shape their everyday lives. Needless to say, such tools are not pre-given but are the outcome of struggle, debate, dialogue, and engagement across a variety of public spheres” (p. 69).

The important debates, dialogues, and engagement have not yet occurred – at least not in nursing education. It is hoped that this proposed study will act as a small stepping stone in this process.

Methodology

Research Design

A qualitative design will be applied to explore the personal meanings and experiences of nursing faculty – how they perceive, describe, feel, make sense of, and talk about informatics within the context of nursing education culture. Since the data I seek is reflected within the perspectives of nursing faculty who are being encouraged to allow informatics into the culture of nursing education, a qualitative epistemological position seems appropriate. A qualitative design provides a naturalistic or

constructivist perspective to the methodology, where a space is created within which participants can share their personal thoughts, feelings, and experiences related to the phenomena in question: in this case, to the appropriateness and inclusion of informatics within contemporary nursing education from the perspective of nursing faculty “Qualitative research has the unique goal of facilitating the meaning-making process. The complexity of meaning in the lives of people has much to do with how meaning is attributed to different objects, people and life events” (Krauss, 2005, p. 763).

Streubert Speziale and Carpenter (2006) traced the initial qualitative ontological and epistemological shifts from a positivist paradigm to Kant who publicly questioned “the fundamental nature of reality as seen through a Cartesian lens” (p. 3). Kant's questioning spurred a dearth of theorizing by various philosophical, psychological, sociological and educational intellectual giants who further added to an emerging body of knowledge related to qualitative investigation. This growth represented decades of difficulty in representation, legitimization, and acceptance within the broader scientific and social communities.

Historically, almost all nursing and education research applied a positivist paradigm with the intention of improving both disciplinary and scientific legitimacy. As qualitative research slowly gained significance in other disciplines such as anthropology, sociology, psychology and education, some nursing scholars applied a naturalistic paradigm to their research. Educational leader, John Dewey has been credited for influencing the application of qualitative methods in education via his notions of qualitative intelligence and inquiry, written in the 1930s (Eisner, 1993). In the 1980s, leading nursing scholars such as Patricia Benner (1984), Leininger (1985) began to challenge the normative positivist paradigm by advocating for a shift towards qualitative nursing research to investigate human perceptions, subjectivity, and personal meanings. In 1985, Leininger wrote “it has been difficult to “turn the tide” of thinking because so few nurses have critically examined where

qualitative and quantitative methods lead to in knowledge discovery and verification” (p. 4).

Educational theorist, Elliot Eisner distinguished qualitative research methodology as “the kind of methods in which the researcher is the research instrument, methods that are non-interventionist, that are field-focused, that are interpretative in character, that use voice and aesthetically crafted narrative to convey meaning” (1993, p. 50).

Qualitative methods provide a means to generate data that is rich in the subjectivity of culture, symbols, rituals, interactions, actions, emotions, and personal meanings. As well, a qualitative framework provides the means to elicit data through a variety of sources and methods, and provides a reflexive flexibility in the interpretation of the the concepts and themes that emerge from this data. It upholds an epistemological pluralism that allow a subjective exploration of the complex phenomena of focus, through multidimensional human perspectives that occur within naturalistic contexts. Qualitative design is an appropriate approach to “discover essences, feelings, attributes, values, meanings, characteristics, and teleological or philosophical aspects of certain individuals or group lifeways” (Leininger, 1985, pp. 6-7). Smith asserted that the gist of the qualitative paradigm is that the researcher believes that “knowledge is the result of a dialogical process between the self-understanding person and that which is encountered – whether a text, a work of art, or the meaningful expression of another person” (1990, p. 177). Patton elaborated on the concept of *verstehen*, a notion promoted by Max Weber and founding phenomenologists such as Husserl. Patton (1980) explained that *verstehen* promotes

understanding that focuses on the meaning of human behavior, the context of social interaction, an empathetic understanding based on subjective experience, and the connections between subjective states and behavior. The tradition of *verstehen* or understanding places emphasis on the human capacity to know and understand others

through sympathetic introspection and reflection from detailed description and observation.
(p. 45).

Maxwell (1996) identified the principle strengths of qualitative research as its capacity to examine a) the meaning for participants of the events, situations, and actions in which they are involved, b) the context within which the participants act and how the context influences these actions, c) unanticipated phenomena and influences, that may emerge spontaneously during the open-ended interviews, d) the process in which events and actions take place, and e) complex relationships that enfold the phenomena of interest. “Qualitative data are attractive. They are a source of well-grounded, rich description and explanation of processes occurring in local contexts. With qualitative data, one can preserve chronological flow, assess local causality, and derive fruitful explanations” (Miles and Huberman, 1984, p. 21). “Epistemologically, the researcher is engaged in the setting, participating in the act of “being with” the respondents in their lives to generate meaning of them. Developing themes and storylines featuring the words and experiences of participants themselves is an important result of qualitative data analysis that adds richness to the findings and their meaning” (Krauss, 2005, p. 767).

Amedeo Giorgi (1975) further refined qualitative research by theorizing and demonstrating how researchers can apply systematic analytical techniques to examine subjective descriptions. This method consists of studying the recollections and reflections of people who live with the phenomena in question, within actual real-life contexts, and engaging in the texts that emerge using interpretative reduction and synthesis to discover the essences and constitutive components of the phenomena. This method of inquiry allows the researcher to discover structure within shared perceptions via co-constructed dialogue and eventual theory-grounded interpretation.

Qualitative research is ultimately, interpretative in nature but it also places emphasis on the structure of the phenomena and the rigor of the methodology used, especially the issues of verifiability

and replicability. This design focuses on the actual words expressed by the participants to define the structure, thus is dependent on the factual data collected from the participants (Giorgi, 1975; Colaizzi, 1978, Schutz, 1967). . Thus, the focus and perspective used does not view the present state of informatics in nursing education as a problem or a state of deficit, but rather explores the situation as a complex human experience worthy of attention and analysis.

Sample

Purposive sampling will be used to select participants who have experience with the phenomena. The target sample will include a minimum of ten nursing faculty who teach in Western Canadian baccalaureate nursing programs who have experience with the decision-making process of dis/allowing informatics theory and practice in nursing education. All participants will be Masters or Doctorate prepared, and will be currently teaching in a nursing education program. Purposive sampling is often used when research is focused on a qualitative phenomena where it is important that each participant has experience with the phenomena of focus. It is also useful when the researcher wishes to “interview individuals who reflect different ends of the range of particular characteristics” (Lobiondo Wood and Haber, 2005, p. 290) such as levels of experience in applying nursing informatics in education.

A recruitment strategy will be used to invite nursing faculty with various degrees of experience in applying nursing informatics to their teaching. Educational leaders such as the Deans and Directors of six local nursing education programs will be contacted and asked to circulate a Call for Participation notice to a minimum of three interested nursing faculty in their institution. This circulated informational document will include some key information fields to help to identify the interested educator's level of comfort and experience in applying informatics to nursing education. A goal of the sampling for this study involves the attempt to purposively select a sample of nursing faculty who

present a balanced representation of experiences across a continuum of competency level. Experience levels will be assessed using a continuum ranging from Entry to Advanced levels of competency in applying nursing informatics within nursing curricula as suggested by Hebert (1999). The three levels of competency will focus on:

- a) *Entry level Users* – beginning or core level experience in applying nursing informatics in education
- b) *Practicing level User* – intermediate level experience in applying nursing informatics in education
- c) *Specialist level User* – advanced experience showing innovation in applying nursing informatics in education

Each of the three competency levels includes both knowledge and skills required to:

- use information and communication technologies to enter, retrieve and manipulate data;
- interpret and organize data into information to affect nursing practice; and
- combine information to contribute to knowledge development in nursing (Hebert, 1999, p.6).

However, it may be difficult to recruit participants who represent all three of these levels, especially the Specialist level. Still, a dedicated attempt to do so will be made, since this could afford more depth and scope to the emerging data and final analysis. If the literature is accurate though, there may be a much larger proportion of Entry level users available. If recruitment is slow in eliciting interested faculty, further Calls for Participation notices will be circulated through other groups such as Sigma Theta Tau, Xi Eta Chapter and the Canadian Nursing Informatics Association.

A focus on individual faculty in this study seems congruent with the mandate of nursing investigation. Thorne (1991) elaborated, “While nursing is quite prepared to acknowledge the

incalculable complexity of the human person, its focus always resides in the concrete instances of individual persons and their unique sets of circumstances” (p. 188).

The majority of nursing faculty are well versed in the practice of reflection and reflexivity, which is supported by a focus on the individual rather than the collective. As well, involvement and knowledge development in nursing informatics has primarily occurred through self-directive study and practice, since very few formal accessible programs and courses exist in Canada at present. Thus, most nursing faculty presently embark on a solitary journey in developing nursing informatics theoretical and practical skills and competencies. An investigation into the effects of these solitary journeys seems both appropriate and valuable in representing the voice and agency of nursing faculty as they consider dis/allowing informatics in nursing education culture. A final point is that the literature rarely reflects the voice of the individual nursing educator in the context of nursing informatics. Rather, in many instances, nursing faculty are indiscriminately aggregated and characterized as a unified resistant group that can be convinced to include informatics into nursing education en masse. The results of this sampling approach should provide an unique and valuable lens that reflects the critical perspectives of participating individual nursing faculty.

Ethics and Confidentiality

All participants who agree to be involved in this study will be assured of complete confidentiality, anonymity, and privacy regarding their identity and input to the data. Assurance will be given that any information shared or disclosed will be kept private and the researcher will not behave as an informant or disclose personal information to administration at the participants' place of employment. The decision to leave the study at any time will be at the discretion of each participant, without any ensuing repercussions or consequences. A written and signed Consent Form agreement will be signed by each participant. All paper documents that bear participant identifying information

will be stored in a locked filing cabinet throughout the study time period. Relevant computer files will be password protected. Ethical approval of this study will be obtained by the University of British Columbia's Research Ethics Board and the ethics Boards of the educational institutions that employ the participants before any part of this study begins. Special attention will be given to the University of British Columbia's Policy 89, on Research and Other Studies Involving Human Subjects.

Data Collection

The primary mode of data collection in this study will include an interview guide approach (Patton, 1990) to conducting face to face interviews with each individual participant. Each participant will be initially interviewed using the same open-ended question guide (see Interview Guide in Appendix I) to facilitate analysis and comparison of the data. Each interview will be audio-recorded using strict protocol to ensure unobtrusive yet clear recording of the interview, and to facilitate accurate transcription and preparation of the data for analysis (Stockdale, 2003). The final data will consist of tape recordings, typed transcripts of the tape recordings, and the researcher's notes which will document observations about the interview content, the participants, and to add contextual details from the interviews.

Initial questions will follow Patton's (1990) taxonomy of interview question themes which revolve around:

Behaviours or Actions – what the participant has done or is doing in relation to the topic

Perceptions – what the participant thinks and intuitively about the topic

Emotions – what the participant feels about the topic

Knowledge – what the participant knows about the topic

Sensory - what the participant has seen, heard, touched, tasted, smelled

Demographics – to elicit relevant life history data from participants

As well, probing questions will be used to invite elaboration or seek clarification. As Mack, Woodsong, MacQueen, Guest and Namey (2005) described

Probing is probably the most important technique in qualitative interviewing, but also the hardest to master. It requires patience, thorough knowledge of the interview guide and research objectives, and a solid understanding of what kind of information each question is intended to elicit. It also requires patience and sensitivity, effective time management, and good interpersonal skills. (p. 43)

Examples of probing questions that will be used as needed include:

Why was that important to you?

How did you feel about that?

What is significant about this to you?

Have you always felt this way?

How has your approach changed over time?

Can you give me an example?

The interviews will be conducted in each participant's office if feasible or in a booked room within the participant's place of employment. Alternatively, a more convenient quiet place to meet will be arranged if requested by individual participants, such as the researcher's office or a booked private meeting room in a convenient community building. Interviews will be scheduled at a time of day that is convenient for each participant. The goal will be to arrange interview settings that allow participants to feel relaxed, comfortable, and free to share their perceptions and feelings openly.

Study Instruments

As Eisner (1981) asserted, in qualitative research “the major instrument is the investigator himself. By this I mean that although the investigator might use some formal instruments to collect data, the major source of data emanates from how the investigator experiences what it is she or he attends to” (p. 8). Careful attention will be given to put the participant at ease, ensure privacy, and to cultivate an atmosphere of relaxed rapport. An interview guide will be used to guide the initial questioning during each interview (see Appendix I).

. Each interview will be audio taped (with the participant's permission) to ensure accurate transcription of the participant's reflections and shared insights. The researcher will also keep a research journal to record field notes, methodological notes, theoretical notes, and personal notes related to the study. The interview guide will also serve as a secondary recording document for researcher notes and impressions.

Data Analysis

Qualitative analysis will be applied to analyze the themes that emerge from the subjective data provided by the participants. General analysis of themes is considered a foundational method for almost all qualitative analysis, one that Braun and Clarke (2006) purported should be considered a qualitative method in its own right, rather than as a component of particular qualitative designs such as phenomenology, ethnography, or grounded theory or as a particular event within any specific theoretical framework. “Through its theoretical freedom, thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex, account of data”

(p. 78).

Colaizzi's (1978) and Giorgi's (1975, 1997) methods of qualitative analysis are helpful in articulating the steps that will be used in this study. Before these steps are initiated, the researcher will engage in reflection to explore personal bias, notions, beliefs, values, and knowledge about dis/allowing informatics in nursing education. The actual analysis steps include:

1. Dwelling with and intuiting the textual data by reading the transcription several times to acquire a sense of the whole.
2. Significant statements and phrases are extracted from the data to form initial units of analysis
3. Meanings are formulated from the significant statements to provide structure to the data through qualitative reduction with a focus on the central, dominant, and recurring themes within the textual data
4. Further analysis is done to organize the emerging themes into eventual theme clusters and categories.
5. Analysis of the themes evolves to provide a rich and exhaustive analysis of the meanings, perceptions and experience shared by the participants.
6. The essential essence and structure of the data are articulated through eidetic reduction.
7. Validation is sought from the research participants to verify the descriptive analysis with their lived experience. If necessary, the description is modified to achieve congruence with the participants' lived experience.

Qualitative software, such as NVivo7 will be used to analyze the themes (the software labels these as nodes) and theme clusters within the data.

Attending to Rigor

Rigor within qualitative analysis is presented in different ways in the literature. For instance, Lincoln and Guba's (1985) method of assessing trustworthiness has been replicated by several researchers, including nursing researchers. The authors equated four “criteria of goodness” of trustworthiness to the common measures of rigor used in natural science (quantitative) to assess reliability and validity: a) they equated credibility to internal validity; b) transferability to external validity; c) dependability to reliability and d) confirmability to objectivity. However, other authors like Emden and Sandelowski (1998) cautioned researchers about using this method, arguing that qualitative analysis did not fit the same paradigm as quantitative and did not need to fit into the same framework and that Lincoln herself recently “acknowledged that the “trustworthiness” criteria were founded in the positivist paradigm” (p. 208). In her more recent writing, Lincoln (1995) has expanded her view of criteria of goodness. “Positionality is of key concern for Lincoln: it recognizes the postmodern argument that all texts are locally located and that any texts claiming whole truths are misleading. Also important are: community; voice; critical subjectivity; and sharing the perquisites of privilege. Lincoln advocates dialogue about emerging criteria because the entire field of interpretive or qualitative inquiry is still itself emerging” (Emden & Sandelowski, 1998, p. 210). Sally Thorne (1997) urged researchers to move beyond criteria to more conducive forms of accountability in qualitative research, namely: moral defensibility, disciplinary relevance, pragmatic obligation, contextual awareness and probable truth. Emden and Sandelowski (1999) summarized their critique on qualitative criteria pointing out that “postmodernist thinking decries all such searches for order and meaning, usefully reminding us that it is never too late to ask “Whose criteria? Criteria for what? And Why criteria at all?”” (p. 6).

Report of Outcomes

The findings of this study will be shared as a qualitative analysis of the gathered data. Final dissemination of the outcomes will be presented as a classic written dissertation with accompanying web site. The dissertation report will be written as an evocative rich text with the intent of sharing insights revealed through the participant's dialogue and reflection. "Writing evocative accounts entails more than the bland reporting of events. It requires report writers to find the textual means to evoke deeper forms of understanding" (Stringer & Genat, 2004, p. 119).

Some obvious limitations of this study include:

- a) the small sample size reduces the ability to generalize the findings to the general population
- b) the selection of the qualitative research method necessitates the need to confine the findings to the context of the actual participants
- c) the qualitative design may support the likelihood of bias in the researcher

Still, it is assumed that this study will provide a valuable contribution to the growing literature on nursing informatics, especially within the context of nursing education. The intent of this study is to provide a space for the expression of voice and the description of agency in nursing faculty who are confronted with the choice to allow informatics into their teaching. This is a space that is not currently reflected in the literature, yet would add value, perspective, and new meaning to the plan and surge to teach nursing students about informatics within Canadian nursing programs.