Transdisciplinarity and Nursing Education: Expanding Nursing's Professional Identity and Potential

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Nursing, as both a discipline and profession, has a history of struggling to define its unique identity and body of knowledge. This history, coupled with nursing's dynamic contemporary sociopolitical context, now compels a renewed conceptualization of nursing's professional identity and purpose and a redirected sense of its potential to contribute to the health and social problems facing society. Although the concept of transdisciplinarity has been interpreted in various ways, the idea that disciplinary knowledge can be expanded and transcended by the blending of other realms of knowledge is a potentially fruitful one for nursing, in its quest for significance. This chapter will review the history of nursing's conceptualizations of its knowledge and identity, consider the contemporary forces that necessitate a reimagining of nursing's current collective professional identity, and explore the ways in which transdisciplinarity in nursing professional education might, somewhat ironically, allow nursing to find its unique professional pathway by incorporating a transcendent range of disciplinary knowledges.

A Brief History of Knowledge, Education, and Professional Identity in Nursing

Over the years, nursing's professional identity and status have been strongly linked to the knowledge upon which its practice is based. Ideologically-based decisions about what constitutes nursing knowledge are translated into nursing education, which becomes the practical avenue for the development of nurses' professional identity and sense of social significance. In its early years, nursing as an occupation did not have strong foundation of formalized disciplinary knowledge and education. Nursing education at the turn of the twentieth century was more about "appropriate" gender-based character development than it was about the acquisition of knowledge (Larsen

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and Baumgart 1992). Thus, during the early 1900s, nurses in Canada were mainly untrained women whose work resembled domestic labor (Brannon 1994; Coburn 1988). Those training in hospitals were unpaid apprentices, more exploited than educated (Coburn 1988). Formal definitions of nursing knowledge were largely nonexistent. Traditionally, the nursing curriculum was dominated by biomedicine and nurses were dependent upon doctors for their education and training (Allen 2001; Cooke 1993a).

Professional education in nursing moved through a period of increasing formalization in the mid twentieth century, as nursing education moved into hospital schools of nursing and eventually universities. An important feature of the increasing formalization of nursing education was the development of and reliance upon nursing theories and concepts (Larsen and Baumgart 1992) as nursing intensified its attempts to differentiate its knowledge from medical (physician) knowledge. Ironically, however, it has been noted that early nursing theory was in fact organized around the medical model (Rutty 1998; Yeo 2004), which involved a body systems view of the person and an interventionist approach to care. Nursing's understanding of its own knowledge at this point was focused in large part on its role in illness intervention. At any rate, the development of nursing theories represented the beginnings of the movement to defining the unique professional knowledge of nursing.

Interestingly, despite considerable formalization of nursing education and the knowledge upon which it is based, some commentators have observed that nurses continue to lack a clear description of their work that differentiates it from medicine or mothering, which is reflective of its gendered history and close association with medicine and which prevents employers and society from valuing nursing work or defining nursing as professional in conventional terms (Bolton 2000; Daiski 2004; England and Folbre 1999; Nelson and Gordon 2009; Rutty 1998). Since the 1980s, the discipline of nursing has continued on its quest to define its knowledge by focusing on the fundamental concepts of health and caring (Newman et al. 2004). New nursing theories and models identify a distinct nursing territory, shifting focus from the biomedical model toward caring, holism, and ethical expertise (Fawcett and Swoyer 2008; Goodrick and Reay 2010; Maben and Griffiths 2008; Nelson and Gordon 2006). In fact, Newman and colleagues (2004) purport that "a body of knowledge that does not include caring and human health experience is not nursing knowledge," (p. 21). Such an assertion clearly has the effect of narrowing the scope of nursing knowledge and making it possible to justify why nursing should ignore a whole host of disciplinary perspectives that do not have an obvious connection to caring.

Although there has been considerable evolution in the ways in which nursing defines its knowledge and, hence, professional identity, and how it imparts these perspectives through nursing education, there has been an ironic lack of progress in terms of carving out a distinct body of knowledge upon which to build the professional work of nurses. Florence Nightingale observed in her time, the late 1800s, that the elements of nursing were unknown and many commentators have noted that this remains true today (Royal College of Nursing (RCN) 2007). Over the years, nursing has primarily concerned itself with debating the extent to which it should align itself with medical knowledge. At this point, nursing has virtually come full circle, having

returned to a focus on potentially very gendered virtues such as caring, while overlooking the concrete knowledge that nurses have and its possible sources (Nelson and Gordon 2006). For some time, nursing has acknowledged that its ways of knowing include scientific, relational, and ethical dimensions (Carper 1978; Newman et al. 2004; RCN 2007) and that its domains of practice include patient care, teaching, research, and administration (Canadian Nurses Association (CNA) 2006; RCN 2007). With such a broad epistemological range and such a breadth of areas in which this knowing is applied, it would seem to be beneficial for nursing to consider the role that other disciplinary perspectives could play in nursing's knowledge development and self-understanding. Nursing's uptake of the concepts of cross-disciplinarity has, however, been quite limited.

In health care, the terms multidisciplinary, interdisciplinary, and transdisciplinary are used interchangeably but, overall, these terms generally refer to levels of teamwork among the various health professions working together in a particular setting and interprofessional collaboration in patient care (Dyer 2003; Fauchald and Smith 2005; Ray 1998). Which of these terms is selected to define a team is based on the level of communication among team members, the integration of the team members' knowledge, and the coordination of service delivery and planning. Curricular implications for cross-disciplinary practice focus on promoting positive group dynamics, exposing students to the perspectives of each health discipline/profession, and developing collaboration skills (Dyer 2003; Freshwater et al. 2013). Developing transdisciplinary work in nursing has been difficult and, in some cases, threatening, both within nursing and the health care realm (Grey and Connolly 2008). "True" transdisciplinarity is poorly defined in nursing but it is said to involve the creation of new frameworks that break down traditional boundaries between disciplines (various health professions) for the purpose of improving clinical outcomes (Dyer 2003; Mitchell 2005). There is little awareness of the transcendence of transciplinarity and the ways in which it might "expand referential fields, open new lines of possibility, allow selves to mutate, autodevelop and redevelop" (Genosko 2003).

Contemporary Forces and the Role of Nursing

In order to understand the potential and importance of transdisciplinarity for nursing, it is first necessary to understand the contemporary forces that impact upon nursing and the ways in which these forces make demands for a re-thinking of the nature of nursing knowledge. For at least the last three decades, there has been a movement toward university-based professional nursing education. Several years into the twenty-first century, nursing jurisdictions across Canada have now implemented the requirement that nurses be educationally prepared at the baccalaureate level; many other Western countries have or are about to introduce this minimum educational standard (Global Knowledge Exchange Network (GKEN) 2009). Interestingly, however, although the baccalaureate entry to practice policy is intended to prepare nurses for the complexities of contemporary life, the policy has actually

been divisive among nurses and a great deal of energy has been expended over the years in debating where nurses should be educated rather than how they should be educated (Larsen and Baumgart 1992; Nelson 2002).

As mentioned, the rationale behind this higher standard of education is that nurses need more education in order to "cope with a changing world and to contribute in a thoughtful way to changing patterns of nursing practice" (Larsen and Baumgart 1992, p. 392). As expansive and forward-thinking as this rationale may sound, the justification for increased educational requirements for nursing has emphasized competence and quality of care and has been based upon evidence that university-educated nurses provide safer care in hospitals (GKEN 2009; Larsen and Baumgart 1992). Nurses work in a health care system that, despite ongoing change, continues to privilege biomedical technology and physician-driven services (Campbell 2000). The long-standing association of nurses with physicians and hospital care is taken for granted as a defining feature of nursing and continues to shape nursing's self-identity and its understandings of the disciplinary content and goal of nursing education. To illustrate, Scott et al. (2013) explored the "nature of nursing and the function of the nurse within a twenty-first century health care system" (p. 23). In doing so, they stressed the holistic perspective of nurses and the role they play in attending not only to the physical needs of patients but also the psycho-social aspects of their care and they called for adequate resourcing for "the humane, compassionate treatment of patients" by nurses (p. 31). What is interesting about this is that, despite the promise of considering the possibilities for nursing today, they work within a narrow view of nursing's role as providing care for hospitalized patients within a complex health care system. If this is all that is possible for the nurses of this century, then a continuing focus on the medical model of care, albeit with an emphasis on compassion and virtue, is all that is required of nursing education and an insular and limited disciplinary perspective is sufficient.

It is important to note, however, that contemporary trends and needs in health and health care compel a much broader vision and provide an opening to a much more unique, independent, influential, and effective identity and role for nursing, which requires an expanded and innovative approach to nursing education. If nursing were to embrace an expanded range of transdisciplinary knowledge, nurses could contribute to society's health, in the broadest sense of the term, in new and unique ways. Global health crises, issues in addressing the social determinants of health, advances in medical science and technology, and health care reform, present numerous pathways for nurses to pursue in order to secure a more certain professional identity. Responding effectively and creatively to these issues demands an extensive repertoire of transdisciplinary knowledge.

Many of the world's most challenging health issues have a significant socio-political component, which necessitates an understanding of the social sciences in order to assess and respond to health needs of this nature. According to the World Health Organization (http://www.who.int/features/factfiles/global_burden/en/), several of the most pressing global health problems are amenable to simple and cost-effective care, including vaccinations; clear water and sanitation; medication availability and administration; maternal/child care including breastfeeding support

and pregnancy care; health promotion activities related to diet, exercise, smoking, and lifestyle; and health assessment, counseling, and education. Other trends that are shaping society and health care in Canada and internationally include the global HIV/AIDS pandemic, the rise and rapid spread of communicable diseases, rising rates of mental health problems such as anxiety, depression, and fear, aging populations, increasing global migration, climate change and other environmental health issues, and ongoing wars and terrorism around the world (Villeneuve 2010). Few, if any, of these trends and issues require the biomedical approach to illness care that is so familiar in the West.

It has been established for some time that health is largely socially determined (CNA 2005; Mikkonen and Raphael 2010). Social structures and power relationships in society can have a significant impact on overall health and well-being and can have much stronger effects than the typically emphasized individual level lifestyle and behavioural factors (Mikkonen and Raphael 2010). The key social determinants of health include: income (poverty), education, employment status, working conditions, and job security, early childhood development, housing, food security, social inclusion, gender, race, disability, and the presence of a social safety net (Mikkonen and Raphael 2010). The Canadian Nurses Association (2005) notes that, to date, however, despite considerable evidence, there has been only slow progress in addressing the social determinants of health within a context that favours medicalized, reactive care and that there has been an emphasis on individual level interventions and a tendency to attribute blame to individuals living in sub-optimal social situations, rather than viewing the issues at a structural level. In their recommendations to professional nurses across Canada, the CNA (2005) suggests a range of strategies that nurses can implement to attend more deeply to the social issues that influence health, such as assessing patients' social needs and incorporating them into plans of care, advocating for a view of health that includes the social determinants of health, and promoting health-focused social policy. Given that improving social health requires "think[ing] about health and its determinants in a more sophisticated manner than has been the case to date" (Mikkonen and Raphael 2010, p. 8), a new approach to nursing education that incorporates critical, structural level theory, might be in order.

In addition to the social and public health issues now facing the world, there are many concerns about the nature and sustainability of western health care systems. Western health care systems are highly complex and most countries have been dissatisfied for some time with their health care systems (Ben-Zur et al. 1999). Despite many calls over the years for health system reform, change efforts have been mainly directed at improving efficiencies in hospital care. There has not been a comprehensive and committed plan to address the social determinants of health, primary health services remain underdeveloped, the implementation of medical technology has yielded to unrealistic and irrational societal expectations, and the majority of nurses continue to work in hospitals where their autonomy is limited and their professional values are challenged (Storch 2010). Ultimately, despite ongoing chaotic change, what we now see in Canada's health care system is "less of the same or worse" (Armstrong and Armstrong 2003, p. 87). In their visionary document, *Toward 2020: Visions for Nursing*, The Canadian Nurses Association (2006) asserted

that Canada's medically driven, "1960s style system" (p. 12) remains essentially intact and noted an unwillingness or inability across health care professionals to talk about issues of power and other dynamics that limit the creation of new structures and ways of behaving. Quite possibly, this is because of limited cross-disciplinary perspectives in professional nursing education that would equip nurses to have these kinds of conversations. The CNA, in this document, envisioned nursing in the future as much more independent and directly accessible to the public. In support of this shift in role for future nurses, the CNA foresaw revolutionary changes to nursing education as part of a shift away from the illness care model to a focus on wellness, although they lamented the deeply entrenched lack of real change in the system. Eight years later, little progress has been made in this regard.

Changes in the health care system have had a profound impact of the professional experiences of nurses. There has been very little uptake of expanded roles for nurses (Armstrong and Armstrong 2003). Rather than contributing to innovation in health care, nurses have had to comply with the efficiency agenda, which has undermined their capacity to provide the patient care they judge appropriate (Rankin and Campbell 2006). System restructuring has led to significant job change for nurses (Aiken et al. 2001; Daiski 2004; Laschinger et al. 2001; Rankin and Campbell 2006; Wynne 2003). They have experienced increased workloads, job uncertainty, disrupted professional relationships, and significant work related stress, along with systemically-produced moral distress and compassion fatigue (Aiken et al. 2001; Austin 2011; Austin et al. 2005, 2009; Daiski 2004; Ingersoll et al. 2001; Laschinger et al. 2001; Shannon and French 2005). Most "nurses have acquiesced to this punishing system" (Sullivan 2002, p. 183) and have been "sublimely unaware of most of [the] flaws" in the system (Carter 2007, p. 270). Thus, they have been party to the devaluing and rationalization of their work, and uncritical or unaware of the issues they face, thus helping to perpetuate a model of care that is at odds with their professional ethics (Austin 2011; Carter 2007; Rudge 2011). Nurses resist and lack the theoretical tools, mainly those from critical social science, that might help them to better assert their place and role in the health care system.

In addition to responding to the changing nature of care and work in today's health care system, nurses are required to manage the ongoing rapid growth of new scientific and technological knowledge and applications in medical care (Maloney 1992). The Canadian Nurses Association points out that "nursing practice will be driven increasingly by the way technology and science change human health and illness care" (CNA 2006, p. 80). Technological advances in surgery, anesthesia, drugs, and medical treatments will change the way care is delivered and technology in general will change communication patterns, jobs, and education (CNA 2006). In the world of advancing science, nurses are and will increasingly be required to learn to use new technologies and develop competence in determining the applications and limitations of new treatment modalities (Maloney 1992; CNA 2007). They will also be called upon to make balanced decisions about how technology interfaces with advances in holistic care and complementary therapies, low-tech primary, community, and social care, human need and experience in health care situations, and how it impacts their own jobs (CNA 2006; Maloney 1992; Villeneuve 2010).

Bowen et al. (2000) acknowledge that, as nursing educators attempt to respond to change within the complex health care system, they will inevitably experience the tensions that accompany politically-charged change. However, they stress that "any program that ignores the sociopolitical forces in the external environment will do a disservice to its graduates" and state that "one of the most important skills that educators can impart to their students is the ability to manipulate their environments to come change agents creating new and more healthy systems" (p. 32). They suggest that nursing curricula must now include instruction in communication, legislative and policy awareness, and leadership skills, which they note are not always present in professional nursing educational programs.

Global health issues, concerns about the social determinants of health, and the care decisions that are forced by the possibilities that accompany advanced science and technology compel the need for new ways to understand and respond to ethical issues in nursing practice. Nursing has a history of commitment to social justice, although most nurses today are scarcely involved in sociopolitical activities. As well, giving attention to the social determinants of health requires that nurses rethink their perspectives about individuals in poverty (CNA 2005, 2006). Even when nurses embrace ideals of social justice in theory, "ethical practice in relation to social structures and marginalizing processes may have limited uptake or be constrained in practice" (Pauly 2013, p. 438). Although scientific advances have led to important gains in health across the world, significant disparities persist and it is time for a re-emphasis on the moral foundations of health improvement activities (Ruger 2004). In the acute care context, which is increasingly technological, nurses must find ways to balance care with technology and to question the values that underpin the application of science and technology (Timmins 2011). Brown and Allison (2013) point out that "the complexity of contemporary nursing practice demands that nurse educators continually engage in. . . educative moments" that will contribute to ethical, reflexive, critical, and transformative nursing practice (p. 302). Such an endeavour must draw upon as yet untapped knowledges.

All of these trends point to a necessary evolution in the responsibilities and roles of registered nurses, which in turn means that nurses of the future will require new knowledge gleaned from fundamentally reconsidered educational curricula (Villeneuve 2010). For real change to occur, nurses will require the knowledge and skills that allow them to question pervasive ideologies about health, professions, and individualism (to name a few), understand the complexities of social life and its inherent power dynamics, have the professional confidence and competence to advocate for and take a leadership role in health system change, and, more practically speaking, work within a different scope of practice (set of responsibilities) and across a range of non-hospital practice settings. Clearly, there would be a benefit to incorporating a greatly expanded range of disciplinary knowledges to inform a new perspective for nursing in the future.

Perspectives on Disciplinary Knowledge in Nursing

Nursing is conflicted about the kinds of knowledge that have legitimacy for the profession and its practice. In 1997, Trnobranski argued that nursing has lacked clarity and cohesion in the definition of its knowledge base and noted that it has diminished the potential contribution of other disciplines in its educational curricula. This lack of clarity and definition is complicated by nursing's long history of affiliation with biomedical knowledge and exposure to value systems that confer power and prestige on scientific knowledge (Cooke 1993a; Rutty 1998). Although there has been much discussion about the value of various kinds of knowledge for nursing practice, the fundamental assumption that remains is that the "'hard' sciences are not contestable and are therefore more relevant for the [nursing] students" (Aranda and Law 2006, p. 562) than is knowledge from the social sciences. Interestingly, the debates that raged in the 1990s about the kinds of knowledge that are important for nursing practice have cooled off to some extent, in favour of pedagogical discussions that focus on process of teaching and learning rather than its content and the acquisition thereof (Holland 2004), leaving nursing with important unresolved questions about what the scope of its professional knowledge should be. The value of theory (of any sort) for nursing has been questioned (Sharp 1994). There is an anti-academic and anti-intellectual bias in nursing (Aranda and Law 2006; Rutty 1998) that perpetuates what is referred to as a theory-practice gap (Stevenson 2005). There is a tension in nursing between "knowing how" and "knowing that," which refers to the distinction between an ability to perform the work competently and theoretical knowledge of what the work is (Sharp 1996). In general, nurses rarely engage in discussions of the ontological or epistemological premises of their knowledge base and are reluctant to question familiar expectations and assumptions, not just about the care they give but also about their own work situations (Cooke 1993a; Sharp 1994). Even though nursing education has moved into universities, it has reverted to or continued with a training/apprenticeship model rather than adopting an educative model that takes advantage of the range of knowledge available in a university setting (Aranda and Law 2006).

The work of nurses deals, in part, with biophysical need and, given that the majority of nurses continue to work in hospitals, the assumption that nursing knowledge is biomedical knowledge has been easily sustained. However, although nurses do value immediately useful scientific knowledge (Jordan 1994), the discipline of nursing has had a certain ambivalence toward including the sciences in nursing education, particularly since nursing has moved toward viewing its knowledge as based upon caring and holism (Jordan et al. 1999; Trnobranski 1997). Dissatisfaction with the biomedical model of care and the dominance of physicians in the health care hierarchy prompted earlier commentators to suggest that nursing reduce or eliminate any attention to the sciences in the nursing curriculum (Jordan 1994). Nursing may have devalued bioscientific knowledge to its detriment in an effort to distance itself from subservience to the medical profession; nursing theories have developed without reference to the biological basis of nursing (Jordan 1994). Nevertheless, it has

also been acknowledged that scientific knowledge does not belong to any particular discipline (namely medicine) and that the value of this type of knowledge for human welfare may have been reduced by a lack of application of this knowledge by other disciplines (namely nursing) (Jordan 1994).

Research has shown that nurses tend to lack the knowledge and confidence needed to understand and communicate basic biological processes that underlie common patient conditions and treatments (Clancy et al. 2000). As nurses continue to seek professional autonomy and a place of significance in the health care endeavour, the application of scientific knowledge by nurses to contemporary individual and population health concerns may be of increasing importance (Jordan et al. 1999), which has implications for the disciplinary richness of nursing education. Going forward, nursing can establish its own legitimate claims to scientific knowledge (rather than attempting to separate itself from it) by incorporating it into nursing education, scholarship, and theory, thus reframing the physical problems of patients not as medical problems but as nursing problems that can be addressed through interventions that are associated with nursing knowledge and values (Jordan 1994). For example, nurses with strong scientific knowledge would be able to see a condition such as edema (swelling) of the legs as a condition amenable to changes in diet, exercise, and rest rather than as one requiring pharmacological intervention (Jordan 1994). Further, nurses who understand the behavioural sciences can be reflexive about their own attitudes toward their patients and can promote positive behavioural change from a perspective that acknowledges the social psychological factors that influence health, such as habit, the need to belong, embarrassment avoidance, and the contextual factors that influence choice (Mowforth et al. 2005; Thirsk and Clark 2014).

Perhaps ironically, despite the "hard" or concrete nature of scientific knowledge, nurses continue to question the relevance of scientific knowledge for practice and have difficulty applying it in practice. However, nursing's confusion about the value of scientific knowledge pales in comparison to its assessment of the importance of the social sciences, particularly sociology, to its purposes. Nurses can be especially hostile to theory that takes a critical view (Wall 2007). Even when sociology is incorporated into nursing professional education, these perspectives can be misappropriated and twisted to fit into nursing's prevailing ideological system and to serve nursing's own purposes (Cooke 1993a). Cooke (1993a) argued that nursing has used micro-sociological knowledge to support nursing's values around holistic care and as a way of understanding social factors as properties of individuals rather than society. She also noted that nurses have failed to draw upon the sociological perspective in an analysis of its own occupational circumstances. Edgley et al. (2009) found that nursing students who had taken sociology courses had poor recall of the content and simplified sociological understandings of clinical situations. They also found that students shifted in and out of various sets of knowledge—back and forth between biomedical and sociological knowledge—depending on the situation, rather than drawing upon an integrated foundation of knowledge. Research by Aranda and Law (2006) also revealed "a lack of understanding of the very nature of sociology" on the part of both students and teachers of nursing.

Nursing education sustains nursing's epistemological premises; nurses are often taught in an unquestioned and straightforward manner and success in the acquisition of these perspectives is evaluated on the basis of right or wrong (Sharp 1994). Ultimately, nurses are, in general, focused on the one-to-one care of individuals and they seek workable solutions to the practical demands of patient care (Sharp 1994), without allowing the critiques and complexity of issues that sociology imposes to interfere with their professional identity and perceived purpose. A strong opponent of the inclusion of sociology in the nursing curriculum, Keith Sharp, once argued that it is not even desirable for a nurse to be acquainted with sociology since its theoretical orientation is irrelevant to nurses' practice orientation. He also expressed concern that nurses should gain an understanding of social forces on their work and an ability to imagine new possibilities for nursing, lest it "stir student nurses to some form of revolutionary praxis" (1995, p. 54).

Despite dissention, numerous other nursing authors have articulated a role for sociology in the nursing curriculum because it allows for "the development of a new way of looking at the world—one which calls into question much that we have taken for granted" (Cooke 1993a). Sociology can make a positive contribution to nursing education (and thus professional socialization) through its ability to produce an increased critical awareness and understanding of the social influences on health and illness and an expanded base of knowledge for considering a multi-causal model of health and illness, as opposed to a biomedical model (Pinikahana 2003). Porter (1998) argued that nurses need to understand the influences of sociocultural factors on health and illness and described how some of the major social theories have relevance for nursing practice. As well, sociology can contribute to nursing through its emancipatory aims. This has relevance on micro- and macro- levels, with regard for both patient need and nursing as an occupation. Cooke (1993a) pointed out that sociology can provide a framework for linking personal or individual experiences and needs with social and political contexts by showing us "that existing social relations are not fixed an immutable" and by "expand[ing] our consciousness of the different possibilities for the future" (p. 215). This has relevance for global health issues that are matters of social need, for addressing the social determinants of health, both at home and abroad, and for rethinking the future of nursing as a profession (Cooke 1993a). The incorporation of sociology in nursing can also make possible a critique of the technical rationalism that nursing has turned to for professional legitimation and help develop nurses who are able to work within the messy, confusing world of practice within a constantly changing organizational environment (Williamson 1999). Finally, sociology may be able to provide a new approach to considering moral questions facing the nursing profession that would move away from medico-legal approaches to ethical reasoning toward a more situated and relational understanding of professional ethics (Johnson 1990; Bergum and Dossetor 2005) and an "understanding of how moral values and ethical behaviours are embodied and lived by social agents" (Lopez 2004, p. 878).

Nursing has drawn upon knowledge from other disciplines throughout its development as a profession and discipline. However, because of its primary association with medicine, nursing's attempts to differentiate itself as a discipline have largely

centered around distancing itself from biomedical knowledge. Thus, "in the latter half of the twentieth century, nursing has emerged as an academic discipline which is intent upon inculcating its novitiates with its own world view" (Cooke 1993b, p. 1990). Some analysts see nursing as "a composite interdisciplinary area of study derived from a range of primary epistemes" but many more seem to "reject nursing's dependency on other disciplinary knowledge" (Allen 2001, p. 388). Donaldson and Crowley (2004) observed that the breadth of knowledge development in nursing appears to be global but they strongly asserted that "by definition. . . a discipline is not global" (p. 293). Fawcett (2000 cited in Allen 2001) strongly argued for a perspective of nursing knowledge that is based on discipline-specific theories and research, claiming that knowledge advancement that is said to be nursing but is accomplished within the intellectual traditions of other disciplines is a "great danger to the advancement of nursing science and the survival of the discipline" (p. 388). Clearly, an insular world view such as this has had "a profound effect on [nursing's] relationships with other academic subjects" (Cooke 1993b, p. 1990).

Transdisciplinarity: Possibilities for Nursing

The creation of academic subjects involves boundary work, which involves decisions about what knowledge has legitimacy for each discipline (Cooke 1993b). Perhaps in its attempts to draw the boundary around its professional scope, nursing has fallen prey to the assumption that knowledge belongs to one or another discipline and so must be excluded from nursing in order to avoid contaminating the purity of nursing knowledge. When drawing on a range of disciplinary knowledge, nurses tend to shift in an out of various perspectives, perceiving different forms of knowledge as discrete and distinct, and applying pieces of knowledge to particular situations. They also appear to operate according to a hierarchy of knowledge that privileges knowledge that is seen to be objective and unchanging (such as science) rather than that which is seen as fluid and dynamic (such as sociology), which all too easily "reassert[s] the biomedical model of nurse intervention" (Edgley et al. 2009, p. 20). Sharp conceives of nurses as doers rather than thinkers and suggests that knowledge that cannot be held to be true or that requires reflexivity and skepticism is not appropriate or even comprehensible for nurses (1994, 1995). These ways of conceptualizing knowledge for nursing practice are antithetical to the notion of transdisciplinarity in professional education and to the development of an innovative and expansive professional identity.

In short, the knowledge that is said to be useful for nursing practice is inward-looking, fragmented, and mired by traditional conceptions of nursing's professional identity and purpose. Notions of transdisciplinarity in nursing education and practice seem elusive. As we have seen, the nursing and health literature about cross-disciplinary work is limited to a focus on teamwork among health care professionals for the sake of efficient patient care. However, despite these limitations, the small body of literature on transdisciplinarity in nursing alludes to some of the possibilities inherent in taking a transdisciplinary approach. It is noted that transdisciplinarity

in health care can merge concepts from various disciplines in order to create new frameworks for thinking, give birth to new disciplines that are more analytically sophisticated (Mitchell 2005), allow professionals to work on problems that are not typically within their set of responsibilities (Ray 1998), pool expertise in order to address complex problems, and allow for a broader scope of knowledge dissemination (Fauchald and Smith 2005).

Hadorn and colleagues (2008) explain that transdisciplinarity is needed now more than ever as researchers "step into problem fields" (p. 3) and engage with real life people who face complex problems such as poverty, sickness, crime, and environmental issues, spanning the local to global, all the while bearing in mind the established technologies, practices, and power relations within a field. Real movement toward transdisciplinarity requires a certain set of conditions that must be met by a discipline: an ability to question how a given discipline is able to understand its global context, a humble attitude toward the immensity of knowledge, and a commitment to its own specialization while also pursuing heterogenous fields of dialogue (Genosko 2003). Transdisciplinary work and learning can break down the "generalising, decontextualizing and reductionist tendencies of discipline-based inquiry" that is capable of "capturing only part of the situation in question" (Horlick-Jones and Sime 2004, pp. 442, 445).

It is true that disciplines provide us with a social identity (Giri 200) and they frame the boundaries of a web of knowledge that cannot be easily assimilated into another disciplines ways of knowing (McMurtry 2006). Transdisciplinarity requires time, patience, constant communication, and a commitment to respect for the complexity of other disciplines (Fry 2001; McMurtry 2006; Mitchell 2005). However, disciplinary transcendence does not mean that professionals become poorly trained or that they lose their grounding in their own discipline (Rosenfield 1992; Giri 2002). Rather, it means that they are intellectual risk takers who are authentically embedded in their own discipline and expert and confident enough to work with the conceptual frameworks and paradigms of others (Rosenfield 1992; Giri 2002). The crossing of disciplinary borders does not constitute heresy (Genosko 2003). It is "an act of creation rather than one of violation" (Giri 2002, p. 104). A transdisciplinary education can allow a professional to annex new knowledge and, thus, be able to act from a dual point of view based on competencies from various disciplines that are interwoven in daily practice (Hagoel and Kalekin-Fishman 2002).

Transdisciplinarity holds promise for the discipline and profession of nursing. Grey and Connolly (2008) argue that the time is past for nurses to debate the definition of nursing science and that nurses now must begin instead to focus on the real problems facing individuals and groups in clinical and community settings. From their point of view, it is clear that the nurses of the future must embrace transdisciplinarity because of the complexity of human disease. Rosenfield (1992) sees transdisciplinarity as an approach that can provide the theoretical frameworks for considering the social, economic, political, environmental, and institutional factors that influence health and well-being. Certainly the integration of various disciplinary knowledges within the nursing curriculum is complex and requires exploration and clarification (Mowforth et al. 2005). It may be, however, the critical step in re-imagining nursing's identity and purpose into the future.

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