Facilitating the Integration of Interprofessional Education into Quality Health Care:

Strategic Roles of Academic Institutions

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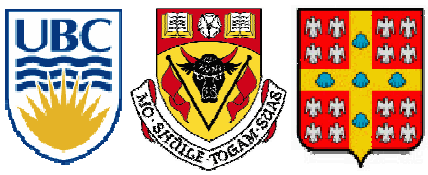

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I. Preamble

What we're trying to do is essentially bring about a shift in mindset where health professionals feel they can admit there are certain things about a patient they simply do not understand, and more importantly, admit when one of their colleagues is more qualified to deal with a particular problem.

(John Gilbert as cited in Choo, 2005)

Academic institutions such as universities and professional colleges play a pivotal role in the evolution of the current cultural paradigm shift towards interprofessional education for collaborative patient-centred practice. Such institutions are capable of advocating and enabling individual and systems-level changes through trainee education and life long learning for health professionals.

Interprofessional education (IPE), as defined by the Centre for the Advancement of Interprofessional Education, occurs when "two or more professions learn with, from, and about one another, to facilitate collaboration in practice" (CAIPE cited in Baxter, 2004, p. 103). This is an approach centered on the learner with the aim of helping participants "acquire knowledge, skills and professional attitudes which they would not be able to acquire effectively in any other way" (Horsburgh et al., 2001, p. 877).

IPE must be considered by educators in health professional schools because interprofessional care is considered the best model of care for many vulnerable groups (e.g., frail elderly individuals, palliative care patients) who require co-coordinated care (Drinka & Clarke, 2000; Zwarenstein, 2005), as each health profession is necessary but insufficient to deliver the complex care that patients often require for optimal management. Accordingly, the 2003 Institute of Medicine report, *Health professions education: A bridge to quality* (Greiner & Knebel, 2001) prominently recognized that interdisciplinary team based practice and patient-centred care were two of the five core competencies all health professionals must possess for the 21st century.

While this paper focuses on interprofessional learning, it is important to affirm upfront that there is always the central need for intra-professional learning that is unique and irreplaceable for each profession. This is because interprofessional practice is not having all members performing the same tasks and skills, but is rather enabling each professional team member to maximize their own professional skill sets while working effectively together with the others to deliver optimal, patient-centred care. Therefore, establishing each trainee's professional identity and unique sets of competence is sine qua non for successful team formation and training in IPE.

Further, the knowledge and skills required by health professions are increasingly overlapping. The resulting delivery of health services represents a model in which clearly

defined roles and responsibilities of individual health professions have been blurred requiring health professionals to be "adaptable, flexible, collaborative team workers [with] highly developed interpersonal skills" (Horsburgh, Lamdin & Williamson, 2001, p. 876). Thus, a key motivator for educating interprofessionally is the need to develop health care workers who understand and value the contributions of other professionals with respect to patient and health outcomes (Horsburgh et al., 2001).

Administrative interest in IPE also arose when factors such as efficiency, cost saving, job satisfaction, patient safety and improved patient outcomes began to be identified as potential outcomes of this model (Sorrells-Jones, 1998). The Canadian health care system is struggling to maintain its universality and excellence, and part of the solution is embodied by collaborative patient-centred practice teams (Romanow, 2002). Academia is now responding to these drivers, and is bringing a focus of research and educational theory to the forum. The interface between academia and interprofessional collaborative patient-centred practice is dynamic and allows both contexts to learn with, from, and about each other.

What if the current status quo of uni-professional education with minimum cross-profession training is maintained? Over time, this could lead to an increasing lack of appreciation of the research and evidence based practices generated by each of the different health professional groups, without cohesive convergence of all the evidence to benefit patients as a whole. Paradoxically, despite each profession's best intent in providing best practices from their respective vantage points, the delivery of patient care becomes progressively and inevitably more fragmented, resulting in the failure to provide seamless and coordinated health care services at best, and worsening patient safety as they fall between the cracks of the various professionals' care at worst. Furthermore, as the demand for an interprofessional team based care model by the governments, general public, and health administration organizations increases, the inability for the academy to train health professionals with collaborative skills would signal the training institutions' failure to appropriately respond to societal needs, and burdening other institutions to carry out team based training. None of these developments would endear the academy to the communities that they serve and could impact the populace's perception that the academy fails to respond to societal needs.

This paper explores two related questions: 1) What are the philosophies, cultural contexts and driving forces in academic institutions; and 2) Given these factors, what is the best way to partner with these institutions in facilitating the paradigm shift toward patient-centred, interprofessional team-based care? We endeavour to describe the current landscape of IPE through a systematic review of the literature, a discussion of system based change management, a comprehensive description of prototypical IPE programs through key informant interviews, and synthesize the findings in order to make strategic recommendations for implementing change.

This paper is intended for senior decision makers in academic institutions, such as Deans and Directors of faculties and professional schools so as to provide them with evidence-based recommendations for the support and advancement of IPE. As the authorship group comes from faculties of medicine, this paper is written from this perspective with the goal of reflexive "self-assessment" on an organizational level to understand the barriers and opportunities for medicine toward change and contribution to IPE. However, although the heritage of the authors is mostly from one profession, all of them have significant portions of their clinical and scholarly work strongly grounded in interprofessionalism. It is through the culmination of these experiences that the authors provide their perspectives in this paper.

II. Insights from the Literature

A review of the leverages, facilitators, barriers and challenges to IPE implementation

> *Canadians are being bombarded at every turn with the message that things have to change, that we are uncompetitive in an increasingly competitive global economy, and that we can no longer afford the security and services that were once guaranteed to all Canadians by the postwar welfare state (Brodie, 1995, p. 9).*

In response to such messages, notions of collaborative practice and interprofessionalism have become increasingly current in Canadian health and social policy discourse as a means of achieving effective and efficient delivery of health services (Scott & Thurston, 2004; Health Canada, 1996; Scott, Home, & Thurston, 2000). McNair (2005) has described teamwork as fundamental to the practice of health care. This focus extends to the education of health professionals resulting in an encouragement for academic centres to adopt interprofessional learning practices (Baxter, 2004).

The knowledge and skills required by health professions are increasingly overlapping. The resulting delivery of health services is a model in which clearly defined roles and responsibilities of individual health professions have been blurred (Horsburgh, Lamdin & Williamson, 2001) requiring health professionals to be "adaptable, flexible, collaborative team workers with highly developed interpersonal skills" (Horsburgh et al., 2001, p.876). Thus, a key motivator for educating interprofessionally is the need to develop health care workers who understand and value the contribution of other professionals with respect to patient and health outcomes (Horsburgh et al., 2001).

Levers and Facilitators for Interprofessional Education Implementation

In order for positive outcomes to occur from interprofessional learning, a number of key characteristics and/or conditions must be present. Parsell and Bligh (1999) have identified the following important factors:

- Relationships – An understanding of common goals as well as the values and beliefs of different professional groups must be developed.
- Collaboration and teamwork –Knowledge and skills of how to work effectively with other health professionals must be developed in order to collaborate and work in a team-based setting.
- Roles and responsibilities – Participants in an interprofessional learning setting must have an understanding of what people actually do.
- Benefits – Interprofessional learners should have knowledge of the benefits of this approach for patients, professional practice and personal growth.

Additionally, effective leadership and supportive administrative structure, across all levels of the healthcare system, are recognized as critical to the successful implementation and maintenance of interprofessional teamwork and learning (Canadian Health Services Research Foundation, 2006).

Learning Together to Work Together

Building trust and confidence are key elements for IPE and collaborative practice. Creating informal learning opportunities and looking for current and new opportunities for socialization and role integration may help health professionals to incorporate IPE competencies (Oandasan & Reeves, 2005). To develop collaborative skills that can bring down the walls of the professional silos, health professional learners need opportunities to spend time together, to learn and to work together in meaningful ways (Hall, 2005; McNair, 2005). Time should also be available for the team professionals to share information, develop interpersonal relationships and address team issues (D'Amour, Beaulieu, San Martin Rodriguez, & Ferrada-Videla, 2004; Gilbert, 2005; Steinert, 2005). Shared space and equipment for curriculum may also facilitate interaction and collaboration (Gilbert & Bainbridge, 2003). Several authors stress the need for interdisciplinary education curricula (D'Amour et al., 2004; Fagin, 1992; Johnson, 1992; Lindeke & Block, 1998; MacIntosh & McCormack, 2001; Mariano, 1989; Satin, 1994; Walsh, Brabeck, & Howard, 1999). Time tabling may be arranged to schedule the same learning experiences and the program could emphasize multiprofessional learning, each professional looking at themes from its perspective (Harden, 1999; Barr, 2002).

Experiential learning is particularly important in IPE (Hall, 2005) where professionals can engage in reflection-in-action and reflection-on-action (Shön, 1987), that is, reflecting during practice as well as reflecting upon one's practice. Learning in teams is best facilitated by the progressive mastery of more and more complex tasks incorporating the best practices of cooperative learning as part of an experiential learning process (D'Eon, 2005). Workplace learning offers good opportunities for experiential learning. When IPE benefits from space sharing and physical proximity, this facilitates collaboration and reduces professional territoriality and atavistic behaviours, (Gilbert, 2005; Mariano, 1989) especially when conflicts arise (D'Amour, et al., 2004; Lindeke & Block, 1998).

Faculty Development

Hall & Weaver (2001), in a review of the IPE literature, identified several additional factors associated with positive educational outcomes:

- Faculty development – Education for faculty must be provided in order to encourage participation and faculty 'buy-in.'
- Teaching methods – Non-traditional teaching methods, such as interdisciplinary problem-based learning, service/learning, and the incorporation of feminist and post structural theories.
- Role-blurring – Despite resistance on the part of participants, the blurring of roles is necessary for interdisciplinary team functioning.

- Non-clinical skills – Group skills, communication skills and conflict resolution skills should all be taken into account in IPE.

Comprehensive faculty development programs constitute a crucial element in cultural change towards IPE. Faculty development can play a unique role in developing role models, supporting role integration for health professionals involved in a collaborative practice and addressing some of the barriers to teaching and learning that exist at both the individual and the organizational level (Steinert, 2005; Wilkerson & Irby, 1998). Faculty may provide individuals with the knowledge and skills needed to design and facilitate IPE. Therefore, faculty members play a critical role in the teaching and learning of IPE and they must be prepared to meet this challenge. In the context of IPE, a comprehensive faculty development program should include the critical aspects of both individual and organizational development (Steinert, 2005; Wilkerson & Irby, 1998).

At the *individual* level, faculty development should either promote or contribute to:

- Addressing *attitudes* and beliefs that can impede successful IPE and collaborative patient-centred practice;
- Transmitting *knowledge* about interprofessional learning, practice and teaching; and
- Developing *skills* in teaching, curriculum design and interprofessional work.

At the *organizational* level, faculty development should help to:

- Create opportunities for learning together;
- Empower teams and reward collaborative practices; and
- Address systems issues that can impede IPE.

Champions, Governance and Regulatory or Legislative Changes

According to the organizational literature, use of champions (opinion leaders) and their ongoing involvement are key features to overcoming structural barriers to successful organizational change (Barker, Bosco & Oandasan, 2005; Irving Doran et al., 2002; Gustafson et al., 2003). Formal leaders can also set the strategic direction for change, establish structures and parameters for implementation, allocate human and fiscal resources, and stimulate change interest and commitment across a variety of stakeholders (e.g., clinicians, managers, educators, etc.). The development of collaboration between team members is facilitated by the availability of leaders who know how to convey the new vision (Barker et al., 2005; D'Amour et al., 2004; Ginsburg & Tregunno, 2005; Leathard, 2003).

Further, individuals evaluate the value of the benefits they will obtain, whether these benefits will be worth the effort including time commitment of a faculty member or clinical staff, the level of administrative and collegial support, etc. (Gitlin, Lyons, & Kolodner, 1994). Thus, supporting high performance teams may represent a significant lever for collaborative practice and IPE implementation. Such teams have a shared purpose, clear goals, standards for performance, competent members, a result-oriented direction, collaborative climate, external support and recognition, and fair and impartial leaders (Davis, 1995; Gilbert, 2005; Gilbert et al., 2000; Gitlin et al., 1994; Eva, 2002).

The governance and management structures should also offer a collaborative environment for all participating disciplines such as: greater joint curricular development; husbanding of resources; promotion of educational changes that accord with those occurring in the workplace; etc. The governance structure should make it imperative that Faculties recognize and contribute to solutions that overcome traditional faculty barriers (Oandasan & Reeves, 2005). Accreditation at institutions where health professionals work or are trained can act as a powerful force for change and can be a strong lever for advancing interprofessionality if they choose to monitor for collaborative practice and structured interprofessional educational activities (D'Amour & Oandasan, 2005). Flexibility in structure and appropriate funding that may cross borders are mandatory to support academic administrators in their efforts to implement and sustain IPE.

Successful Implementation and Sustainability

Because it is difficult to create a climate for change, an organization's circumstances and needs must be fully analyzed prior to implementation of a change initiative (Argyris, 1970; Ginsburg & Tregunno, 2005). The structures that facilitate interprofessional collaboration need to be sustained and stable, and developed with the full expectation that those who are collaborating will continue to meet again (Gilbert, 2005). Attitudes of senior academic administrators are a major determinant as successful implementation requires the support of senior level leaders (Ginsburg & Tregunno, 2005). Change agents play a key role in establishing a climate for change, as well as implementing and sustaining change (Ginsburg & Tregunno, 2005; Gustafson et al., 2003). As implementation of IPE also requires administrative support (D'Amour et al., 2004), support is needed from senior administrators who have the power to decide on educational policies and control resources. They have a major role to play in the post-secondary settings and the long-term sustainability of initiatives (Moore, Vaughan, Hayes & McLendon, 2000; Oandasan & Reeves, 2005). Associate deans, department heads, and associate directors can also be involved because they are more likely to support a change if they believe that success will promote their organizational goals (Gustafson et al., 2003) and if they feel involved in planning for the change (Ginsburg & Tregunno, 2005; Rousseau & Tijoriwala, 1999).

Barriers and Challenges to Interprofessional Education Implementation

While the factors, previously stated, are associated with successful IPE, there are also a number of barriers to achieving positive outcomes.

National/Political Organizational Level (Macro)

The lack of clear policies governing professional practice in physician and nurse associations or licensing bodies regarding professional jurisdiction represents a macro-structural barrier to IPE projects implementation (San Martin-Rodriguez, Beaulieu, D'Amour & Ferrada-Videla, 2005). An important part of the university funding is based on the number of students in each faculty and there is a lack of flexibility for allocating financial and human resources to interdisciplinary activities. Some regulations must be reviewed to allow more flexible

professional roles and resource allocations (Gilbert, 2005; San Martin-Rodriguez et al., 2005).

Furthermore, the university disciplinary programs are very strongly influenced by, and subject to, barriers erected by external agencies. The majority of health and human service faculty are members of professional associations (Gilbert, 2005). Professional compensation (fee-for-service), especially for physicians, is a two fold hindrance to collaboration, since time must be allocated to the team process and fee-for-service systems create potential competition in some areas and among some clienteles (San Martin-Rodriguez et al., 2005). Additionally, salary levels range widely across professions and these differentials establish a class structure, which itself becomes a barrier to practice and education (Gilbert, 2005).

University/Medical Organization (Meso)

Implementing an IPE program can present many logistical challenges. The literature regarding the timing of such an approach is inconclusive with some scholars advocating for early implementation; some for middle stages, and some for post-basic level (Horsburgh et al., 2001). In addition to scheduling, the following elements have been described as difficulties: discrepancies in numbers from the different professions; divergent learning and assessment styles; different curricular periods; lack of commitment or buy-in; limited resources; etc. (Horsburgh et al., 2001). As well, lack of financial resources, lack of administrative support, problems with scheduling/calendar, rigid curricula and turf battles figure among the identified potential barriers to the implementation of interdisciplinary learning in the didactic setting as identified by the academic administrators in Canadian schools of health professional education (Curran, Deacon, & Fleet, 2005).

Additionally, factors related to "accreditation" that may differ between professions represent potential barriers to interdisciplinary education efforts (Curran et al., 2005). Without inclusion of IPE in accreditation standards, there is no reason for academic programs to engage in IPE (Gilbert, 2005). Finally, a certain level of "unwillingness" on the part of both students and faculty members alike to experiment with new ways of teaching and learning (Curran et al., 2005; WHO, 1988) as well as hidden curricula[1] may undermine efforts in IPE implementation. Overall, a lack of resources and genuine commitment at the highest levels of academic decision-making can negatively influence IPE initiatives (Parsell & Bligh, 1999; Gardner, Chamberlin, Heestand, & Stowe, 2002).

Individual/Faculty (Micro)

Attitudinal factors have also been identified as challenges to IPE. Key challenges relate to biases which may exist between the professions, as well as attempts to augment knowledge and understand professional roles (McNair; 2005; Parsell & Bligh, 1999; Wood, Douglas & Priest, 2004). McNair (2005) acknowledges that these difficulties, while exigent, are amenable to change through education. However, this must include a critical approach to understanding the social contexts of IPE. In this context, it is also important to acknowledge the concept of hidden curriculum. It is important to raise awareness that any educational

[1] Sociologist Philip Jackson was noted to have coined the expression in his work Life in the Classroom, 1968.

context is more than the sum of its curriculum and content – education is also a socialization process. Hidden curriculum, those behaviours and expectations that influence in ways that are not necessarily intended, involves the subtle transmission of social norms and values, which may constitute positive or negative forces in the complex process of institutional change (Stephenson, Higgs & Sugarman, 2001). For example, if an unstated abiding value for patient-centred care is a feature of the hidden curriculum at a faculty level, this would potentially positively impact the socialization process of professional education.

The differences in learning environments for various health professional students may reflect and contribute to reinforce the homogeneity of the culture within each profession. As an example, nurses learn early in their career to work as a team whereas physicians learn independently in a highly competitive academic milieu (Hall, 2005). They are also trained to assume responsibility for decisions. Learning to share leadership in an interprofessional team setting is a challenge. Such differences in professional values and culture can contribute in creating barriers between the professions. Furthermore, health professionals bring to interprofessional activities these preconceived models based on the learned culture, beliefs, skills and values from their discipline.

Professional readiness for interprofessional learning may have a significant impact. A recent study evaluating health professional readiness for interprofessional learning demonstrated significant differences between professions. The teamwork and collaboration index indicates that general practitioners (GPs) place less value on this factor than do nurses, pharmacists and allied health professionals ($P<0.0001$) (Reid, Bruce, Allstaff, & McLernon, 2006). These findings suggest that medical students were less likely than either nurses or pharmacists to consider that shared learning would increase their ability to understand clinical problems. Using tools to evaluate the readiness of health professionals for interprofessional learning may help in identifying gaps as well as understanding individual and professionals' needs.

Lack of opportunities for knowledge exchange is another barrier that may contribute to maintaining and even reinforcing stereotypical perceptions of other professionals. Additionally, lack of space and time to meet and even geographic locations of the schools within the university limit possible interprofessional interactions (Drinka & Clark, 2000; Hall, 2005) that could help professionals to learn from, and know more about, each other. Finally, in gathering health professionals, one of the challenges is getting an equal mix of professionals to achieve group balance for effective IPE (Gill &Ling, 1995). The risk remains that exposing one group to another may serve only to confirm prejudices and stereotypes (Barr, 2002; Leathard, 2003).

Social Issues and Interprofessional Education

In light of attitudinal issues, which are arguably the more pervasive difficulties in achieving success in IPE, a more critical understanding of educating and working in a team-based setting is required. Linking theories of teams and teamwork to the practice of health care may contribute to moving beyond such barriers (Gray, 1999; Gray & Wood, 1991; Scott & Thurston, 2004). An obvious limit in current theorizing of interprofessional team function has been the very limited exploration of the role of social context (Scott & Thurston, 2004). This includes issues such as gender, social class, and racial identity.

Theorists, such as Scott & Thurston (2004), have argued that in order to be successful, collaborative practice, both in workplace and educational settings, must be informed by a critical 'theory-based' approach. This requires "a level of responsiveness to social context that is not currently evident in Canadian health and social systems" (Scott & Thurston, p. 483). A wealth of empirical research from the discipline of management clearly indicates that teams, and team work, are fundamental to the function of contemporary institutions (Metcalfe & Linstead, 2003). This team-based approach, of course, is a central component of IPE of health professionals. Katzenbach and Smith (2005 cited in Metcalf & Linstead, 2003, p.101) have defined a team as "[a] small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable." The focus of this analysis of teams is on performance. Focusing on the performance of the team creates what Fletcher (1999) has described as "baseline relational conditions for growth-in-connection" (p. 74).

While issues of performance are of obvious concern with respect to patient care and health outcomes, it is important to take a step back and consider context. In order for a team to perform effectively, the literature indicates that social context is of critical importance (Scott & Thurston, 2004). Thus, education, particularly of an interprofessional nature, must occur in a setting where context and difference are taken into account (Frank & MacLeod, 2005). Despite this recognition, teamwork research has generally centered on the interpersonal dynamics of teams (Neumann, Holti & Standing, 1995). In particular, the cognitive and behavioral requirements of the group, such as multi-tasking, problem-solving and decision making have been the focus (Metcalfe & Linstead, 2003). This continued focus on performance rather than context may arise from historical definitions of teams.

Power and Gender

Traditionally, our understandings of teamwork have emerged from organizational theorizing, which has emphasized a gender and social-class neutral conceptualization of work and workers (Evetts, 2000; Metcalfe & Linstead, 2003). However, workplaces and educational spaces are not gender neutral (Acker, 1991). The recognition that gender (and other social issues such as class and race) plays an integral part in institutional processes means that not only is professional identity developed through distinctions between masculine and feminine, but also the distribution of power is based on such notions (Acker, 1991; Evetts, 2000; Katila & Merilainen, 1999, 2002).

As members of society, participants in interprofessional learning contexts are not immune to such gendered and class-based characterizations of professions. Certainly, people do not leave such socialization at the door when engaging in educational processes (Gutek & Cohen, 1987). Thus, ignoring these dimensions may, in fact, undermine attempts to truly engage in IPE: "Asserting gender's irrelevance to workplace structures and operations presumes a kind of gender institution that simply does not exist" (Martin, 2006, p. 255).

While blatant examples of sexism and gender bias are considered unacceptable in workplaces, more subtle incidences often remain unrecognized and are not acted upon:

> *As a rule, only members who experience them at the 'raw end of power' even know they exist. Women more than men, but also people with less human capital and members of other disadvantaged groups - race/ethnic minority, older, gay or lesbian and foreign workers – are most familiar with their dynamics and effects. (Martin, 2006, p. 255)*

Such issues undoubtedly have an influence on the function of any interprofessional setting. Interwoven into such social considerations are issues of power. Power is not equally distributed across professions in an IPE, or workplace, setting (Scott & Thurston, 2004). Rather, power has been more readily attributed to historically male, middle to upper class professions (for example – medicine and dentistry) versus female, middle to working class professions (for example – nursing and dental hygiene) (Evetts, 2000). In order for an interprofessional approach to thrive, relations of power must not only be recognized but also strategically dealt with (Scott & Thurston, 2004). This also involves paying attention to the use of language which "is embedded within institutions and organizations and influence[s] the relations of power within them" (Atkinson, 1999, p. 61).

In order for IPE to be successful and make a critical contribution to the Canadian health care system, it must be conceptualized as more than "an opportunity for attitudes to alter" (Horsburgh et al., 2001, p. 882). Rather, those engaging in an interprofessional endeavor must critically examine the issues described above with a particular focus on the social constructions of professional roles. Stated frankly, if we are not conscientious about the ways in which interprofessional learning is conceptualized, we may be re-producing, with a vengeance, the very professional behaviours which IPE was designed to break down.

III. System Based Change Management

Using the Greenhalgh Diffusion of Innovation Model to Assess Readiness and Stage of Change in the Adoption and Implementation of IPE Curricula in Canadian Health Sciences Faculties

Towards effective Systems Transformation: Change Management

The benefits of interprofessional team based practice in improving health outcomes have been well documented in practice and in the literature. To realize these benefits on a national scale beyond regional adoption and implementation, system based change management strategies need to be introduced both in the practice and education domains in order to shift the health culture over time towards interprofessionalism. Current health education programs, while highly effective in producing competent practitioners in their respective professions, do not explicitly teach students to work collaboratively with other professions, which the paradigm that interprofessional collaboration requires. Further, ideas about what an IPE curriculum should contain, when or how it should be taught are unclear.

In the larger context, health education needs to be synchronized with the practice environment in order to bring effective knowledge translation and mobilization towards systems change. The Canadian Institute of Health Research (CIHR) defines knowledge translation as "the exchange, synthesis, and ethically-sound application of knowledge - within a complex set of interactions among researchers and users - to accelerate the capture of the benefits of research for Canadians through improved health, more effective services and products, and a strengthened health care system" (CIHR, 2004). The Social Sciences and Humanities Research Council of Canada (SSHRC) defines knowledge mobilization as "moving knowledge into active service for the broadest possible common good." SSHRC further contextually defines knowledge to be "…understood to mean any or all of (1) findings from specific social sciences and humanities research, (2) the accumulated knowledge and experience of social sciences and humanities researchers, and (3) the accumulated knowledge and experience of stakeholders concerned with social, cultural, economic and related issues" (SSHRC, 2006). The central issue for this paper through the lens of knowledge translation/mobilization then becomes: how do we best transform and entrench IPE through leveraging the academy, based on evidence and knowledge that we currently have on IPE and health/patient outcome?

This chapter starts with the exploration of fundamental driving forces that guide cultural change – from individual to systems level. This is followed by an investigation of a multidimensional adoption model framework to partition change management towards IPE into its various dimensions and contexts.

Understanding Motivation to Change

Effective and sustainable change management requires synchronized efforts at different levels (Senge, 1994): the *individuals* carrying out the vision towards change, *teams* of individuals working together to drive the culture, and *systems* level transformation to motivate and guide groups to permit certain types of behaviour and encourage the formation of commitment to change. Getting peoples' commitment to change, demonstrating the contributions that they would make and providing them with appropriate compensation (either monetary or not) are powerful driving forces to motivate change on an individual level. Key factors to promote effective change on the teams' level include: jointly owning a shared vision towards an important goal; having effective and distributive leadership for members to effectively contribute; sharing mutual trust and accountability to each other in carrying out the necessary work; having an effective conflict resolution mechanism to bring differences respectfully to the table for dialogue and resolution; and achieving and celebrating collective success (Katzenbach & Smith, 2005). Important change management levers such as adjusting the recognition and reward systems; understanding the social and economic impact beyond health care service delivery; supporting the spirit of innovation to generate new evidence and pathways against existing standards; and promoting transfer of functions as part of division of labour, and systems' reflection for continuous quality improvement, can only be set in motion in the systems' level.

Last but not least, success in sustainable knowledge translation or mobilization requires *harmonization* of motivations in the individual, team, and system's levels. For example, health professional education towards team based practice cannot move forward by academia alone without innovative policy translation by the policy makers, patient and health consumer demand or preference, or health system redesign and implementation by health administrators. Aligning these different groups to synchronize their respective changes will accelerate knowledge translation toward effective change. Best practice models and "prototypes" to highlight successes and illustrate strategies to successfully implement IPE have the potential to galvanize the resolve of individuals, teams, and systems to effect change. Finally, innovative spirits to adopt best practices from one jurisdiction to their local contexts are needed, as translation of best practices is not a straightforward and mechanical task, but rather a complex and adaptive process based on solid principles and united steadfastness.

Change Management – Adoption Model Framework

While there is an extensive IPE literature (Carlisle, 2004; San Martin-Rodriguez, 2005; Gilbert, 2005; Lahey & Currie, 2005; Zwarenstein, 2005), to our knowledge, IPE has not been examined through an adoption model framework. Without such a systematic examination, it is possible to underestimate the barriers that could lead to adoption and sustainability of a new program.

For our examination of IPE, we have adopted the Greenhalgh model (Greenhalgh et al., 2004, 2005). While there are other adoption models (see Estabrooks, 2006 for overview), the Greenhalgh model is based on a large systematic literature review using a meta-narrative review approach to examine the diffusion of innovation in health service organizations. The

model distinguishes between "diffusion (passive spread), dissemination (active and planned effort to persuade target groups to adopt an innovation), implementation (active and planned effort to mainstream an innovation within an organization), and sustainability (making an innovation routine until it reaches obsolescence)" (Greenhalgh et al., 2004, p. 582). Their unifying conceptual model (see figure 1), derived from the synthesis of theoretical and empirical findings, is intended primarily as an 'aide de memoire' for considering the different aspects to be considered when adoption of an innovation such as IPE is being considered. We discuss IPE adoption in Canadian health sciences education programs separating IPE innovation into pre-clinical and clinical training. We conclude by summarizing the critical tensions which this model identifies.

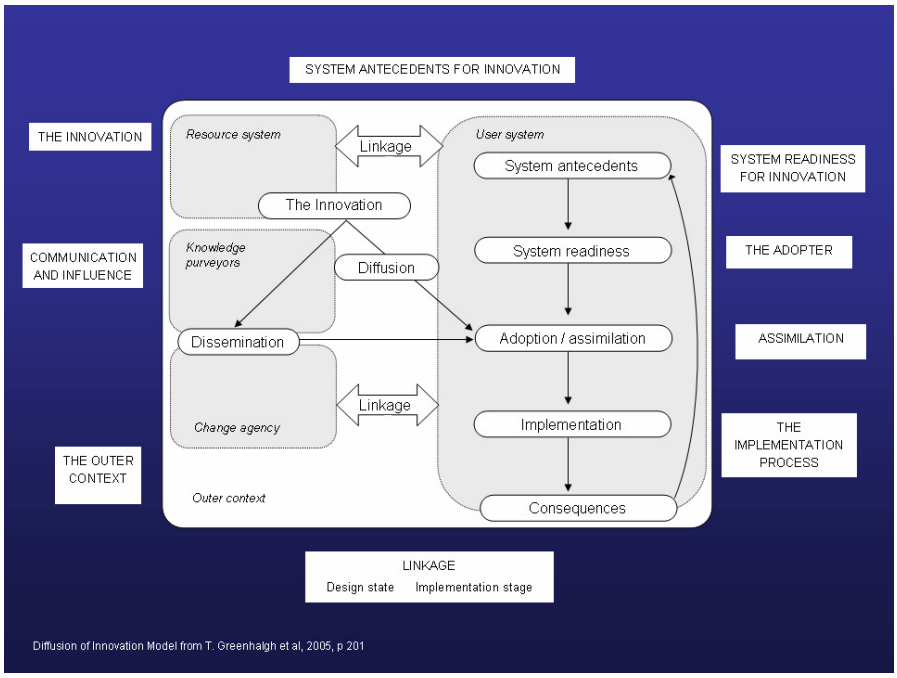

Figure 1: The Greenhalgh Model

The Innovation

Introducing IPE as an educational initiative within a medical school requires that we identify the perceived key issues of the intended user as well as the key operational attributes of the innovation. At the pre-clinical level, IPE appears to offer few advantages to Faculties who are very successful at what they do—developing identities and professional expertise within a discipline. On that basis IPE is not likely to be compatible with the beliefs faculty members have about identity formation and the best approach to train for each discipline. Introducing an IPE curriculum for pre-clinical students is complex. It requires training people together who might not otherwise cross paths (Oandasan & Reeves 2005a; Hall, 2005). IPE requires significant revisions to curricula with implications for space, teaching facilities, and training. The development of an IPE curriculum at the pre-clinical stage will be complicated by the nature and focus of the original training of the Faculty members, philosophical approaches and historical ways of working (Ginsburg & Tregunno, 2005; Hall, 2005). With commitment from faculty members and a willingness to re-align curriculum schedules, it may be possible

to trial IPE in limited ways. However, adoption will be impeded by the few examples of sustained IPE at the pre-clinical level to draw upon, observe and adapt. At an operational level, IPE probably complicates training and its feasibility is in question without strong directed leadership.

At the clinical level, some faculty members are already engaged in interprofessional care, particularly those caring for the elderly or patients with chronic diseases, mental illnesses, palliative care and those providing surgical care. Learning in these settings is often through observation and mimicry (Lingard, Reznick, Espin, Regehr, & DeVito, 2002). While faculty members may see IPE as an advantage, they may fail to recognize that they have achieved a tacit knowledge and skill base in interprofessional care. They need to be attentive to making their interprofessional care base explicit, particularly when confronted by novices who are still trying to master aspects of their own profession. This may be confusing as learners rotate through different units in which the roles, scope of practice and medical-legal issues may vary affecting the work professionals undertake. IPE in clinical environments can be tested in small discrete ways in units, where people are committed and have stable and positive working relationships. In areas where interprofessional care is well established and IPE has been routinized in professional practice there may be opportunities for observation by others. However, a 'one size fits all' formula for IPE may be difficult as it requires some adaptation in different interprofessional care settings. While the assessment of IPE as an innovation suggests it is easier for clinical rather than pre-clinical training, formalization of the clinical learning curriculum will be necessary to make interprofessional care explicit to learners.

Adoption and Assimilation

At the pre-clinical level, the adopters are faculty members, students, and administrators (e.g., curriculum and evaluation chairs, Deans). For the faulty members and administrators, IPE represents a challenge and a need to re-orient beliefs, values and knowledge for effective teaching. Negotiation across Faculties and between leaders will be required to develop curriculum. The faculty members will require reassurance that this additional work will not compromise their ability to be promoted or recognized for their work (Gilbert, 2005). Faculty members may not have the skill set, confidence, social networks or political capital to undertake an IPE curriculum (Steinert 2005; Ginsburg & Tregunno, 2005). For many, IPE would be seen as a significant add-on in terms of work, logistics, and relationship building for uncertain gain. For students, the challenges may relate to the dissonance of trying to form an identity in one field while being in environments in which other identities are also being formed. Simple things such as discrepancy in age and differing places on the life cycle could negatively impact the students' experience. The adoption decision has to be collective across Faculties; it is unlikely that a totally top down approach would be acceptable. Concerns at the pre-adoption stage need to focus on the competence of the graduates and practical concerns like making it work given the current physical facilities and teaching loads as well as the imperatives of teaching in one curriculum while planning for a very different curriculum. At the early stage of adoption, concerns will focus on overcoming logistical barriers. Later the focus will shift to how to make it work. As such, implementation is likely to be a staged model with set-backs.

At the clinical level, the educator-adopters are professionals in the workplace who have an orientation to and experience with interprofessional care. They are likely motivated and see the benefit of interprofessional care and by extension IPE. Furthermore, the workplace is likely to support IPE (Ginsburg & Tregunno, 2005) with some modification to ensure space and changes in routines to accommodate learners. Resistance possibly will be encountered from health professionals concerned about their ability to care for a volume of patients while teaching. Even for those comfortable with interprofessional care at a tacit level, it may be difficult to make what they do and how they do it explicit to novices as interprofessional care is likely to have been routinized (and forgotten) in their behaviors and orientation to care. The nature of the adoption decision is more likely to be authoritarian and imposed by institutional leaders and educators. At the pre-adoption stage, there may be concerns about whether patients will accept being seen by students. Other concerns might include funding, staffing, supervision, space and capacity. It is likely that IPE would be implemented and adjusted in stages. In the early stages, concerns may focus on whether the benefits are being realized. Later the concern may be about results and improvement. Overall IPE will be more easily assimilated in the clinical education environment than the pre-clinical environment.

Diffusion and Dissemination

Greenhalgh suggests that of diffusion and dissemination be examined specifically considering the nature of the networks through which influence about the innovation is likely to diffuse and through an examination of the main agents of social influence. At the pre-clinical level, it is likely that the networks will be centrally and hierarchically driven, and require the support of education leaders, primarily academics, to endorse it. Local champions will also be needed. The biggest challenges will be the lack of contact with and knowledge of faculty members from other Faculties (Hall, 2005). If health science Faculties and their faculty members are located in close physical proximity, uptake will be easier. This will be facilitated if there are boundary spanners- faculty members who have appointments in more than one Faculty, serve on committees in another Faculty, or conduct research with people from different Faculties. Without geographic proximity and boundary spanners, naturalistic approaches to dissemination and diffusion may be limited (Hall, 2005; Ginsburg & Tregunno, 2005). These difficulties may be compensated for, in part, if at the level of the Deans and Associate Deans, it is possible to forge alliances, gain agreement for joint ventures, and implement new curricula particularly if funds and the potential for scholarly work are made available and explicit. Formal dissemination techniques (newsletter, e-mail, presentations at Faculty meetings) can help with knowledge translation and buy-in.

For IPE in the clinical environment, adoption will occur more quickly if there are both formal and informal mechanisms, which can spread through informal horizontal networks of professionals. These environments are more likely to have technologies available for communication (e-mail, newsletters, videoconferencing) across disciplines and units. Current concerns about patient safety and its integration into the culture of the workplace provides another stimulus for health professionals to collaborate and to take time from the workplace to learn how to communicate, transfer information, and build functioning teams (Baker, 2005; Greiner & Knebel, 2001; Kohn, 2000). Diffusion will be faster in these environments if peer and expert opinion leaders support IPE. On the whole, it is likely there will be more champions in the clinical environment for IPE, and institutional communication and

influence channels will support diffusion and dissemination more rapidly than at the pre-clinical level for which communication exists within but not across Faculties.

The Inner Context

The inner context for IPE at the pre-clinical education phase requires an examination of each Faculty and organization (e.g., university, community college). They will vary in terms of size, maturity, complexity, differentiation, and availability of excess resources. Likely there will be few resources and most decision making will be decentralized to individual faculty and often specifically to the unit of teaching. For most, resources are likely to be sufficiently limited that additional faculty members will be required to help develop a curriculum for IPE. It is likely that the receptive climate will also vary from discipline to discipline. Universities may find it difficult to accommodate IPE given the way that promotion and tenure decisions are reached and academic schedules are determined. At the clinical level IPE will fare better in larger organizations due to the mix of professionals and their skill sets and their ability to observe interprofessional care and IPE across units. In health care organizations already involved with clinical teaching, it is likely there will be receptiveness for IPE given that they have learners on the units already. Efforts to make processes and procedures more effective and efficient through interprofessional care will be appealing to the leaders. Further, IPE is likely to be reasonably compatible with the organizational and funding goals, objectives and expectations. In conclusion, we suggest that the inner context of universities is less likely to be supportive of IPE for pre-clinical learners than hospitals and health care organizations are for IPE of clinical learners.

The Outer Context

At the pre-clinical level, expectations are beginning to build for IPE. However, accreditation standards do not require IPE. Incentives are mainly intrinsic, although there are a few competitive grants to experiment with new models of teaching. These grants usually fund a trial but without intent to sustain the innovation or the staffing beyond the trial. Currently there are few long term examples of IPE at the pre-clinical level that can be observed. At the clinical level, there is a positive climate at provincial and federal levels. Increasingly health care funding mandates interprofessional care along with a growing interest in systems that have been shown to work in other areas and other countries. In addition, patient and consumer groups support interprofessional care and IPE. We suggest that the outer environment is more likely to support initiatives at the clinical level than at pre-clinical stages. Health care organizations provide a real infrastructure for interprofessional care making IPE more easily integrated into care practices, particularly as the learners become more experienced and require less supervision.

Implementation and Institutionalization

At the pre-clinical level, there is little evidence for implementation other than in small pockets. The components identified above will need to be established. At the clinical level, implementation is occurring. It is typically implemented by individuals or groups of interested clinicians and only subsequently extended throughout the organization. There has been little work done to measure the effectiveness of IPE. Similarly, there has been little

done to promote IPE throughout the organization. Consequently development occurs slowly and in an ad hoc way.

The Role of External Agencies

The major change agency for both pre-clinical and clinical IPE is represented by government bodies who believe that IPE is appropriate. Clinician academics within medical schools appear to lag behind in that belief. Governments have provided some funding for demonstration projects; however, the nature of the funding and its lack of sustainability have led academic institutions to question the appropriateness of the funding and its goals. There are no formal dissemination programs. While governments are well intended, their role in promoting IPE is often viewed with suspicion and concern by academic institutions.

Critical Tensions

As we applied the Greenhalgh model to IPE, it became clear to us that there were important differences in the pre-clinical and clinical environments would make us believe that adoption would be more readily acceptable in the clinical teaching environment. At the clinical level, IPE is more compatible with what is happening in the workplace, faculty members' needs are met by interprofessional care, there is an infrastructure which makes it easier to accommodate and assimilate multiple learners from different disciplines, and communication is enabled by proximity and workplace communication structures (e.g., newsletters). IPE is further supported by very real pressures within and outside the health care facility including consumer groups, patient safety initiatives, and health resource planning work. The latter two have both identified that interprofessional care is critical if we are to manage the demand on health care resources. By contrast, at the pre-clinical level there is less certainty that IPE is appropriate. In fact, some of the barriers philosophically and geographically make innovation in IPE problematic and its potential adopters resistant. The geographic and philosophical distance presented by the housing of undergraduates across a variety of institutions (community colleges, technical institutes, and universities) complicates discussion and decision-making. It makes implementing even simple trials unduly challenging and the ways that these institutions are funded makes sustainability even more problematic.

The Greenhalgh model provided a robust way of considering the adoption and sustainability of IPE at both the pre-clinical and clinical levels. It suggests that at the present time, IPE will be difficult to achieve in other than small pilot projects at the pre-clinical level. For trainees in pertinent clinical environments however, it is to be supported and likely even expected. At the pre-clinical level, we suggest that pilot projects will have to be undertaken and disseminated widely to show its promise and acceptability. Educational organizations will have to work together, however, to identify ways to recognize and reward collaborative efforts and move from small trials into sustainability. At the clinical level, while IPE is a more natural outcome of interprofessional care, work continues to be needed to make the skills of successful collaboration in the workplace explicit for both learners and faculty members.

IV. Lessons from the Canadian Interprofessional Education Experience

The Dynamic Interface between Academia and Interprofessional Collaborative Patient-Centred Practice

This section describes a number of Canadian programs, which illustrate the interface between academic communities that have instituted IPE opportunities, and established interprofessional practices. There are other reports that provide comprehensive lists of interprofessional programs in Canada and elsewhere, notably the paper by David Cook published in the May 2005 special edition of the *Journal of Interprofessional Care*.

For the purposes of this paper, five Canadian interprofessional educational programs were selected to illustrate different models, challenges, and lessons to be learned. The key leaders in the programs were approached and all agreed to participate by sharing their experiences. One to three key individuals from each program were interviewed on the telephone using a semi-structured interview format.

We gathered two general sets of data: (1) descriptions of the programs; and (2) the programs' experiences as IPE programs in academia. In particular, we were interested in the following:

- How they were able to get established, including dealing with barriers they confronted.
- How academia influenced their work, and how they, in turn, influenced the academic environment around them, particularly how their influence has made academia think differently about IPE.
- What the ongoing challenges are in maintaining the programs.
- Some insights into how their experiences might be used to help others in establishing their own programs. What were the lessons learned?
- Expressed hopes for the future of IPE.

Description of the Five Programs

The following five program descriptions have been presented in geographic order from West to East.

College of Health Disciplines, University of British Columbia

This College is unique and provides a model framework for the organization of interprofessional learning. It offers a number of interprofessional elective educational courses and projects for pre-licensure students, and is seen as a successful model for IPE in academia in Canada. The College was formally established in 2002. Learners in seven faculties participate in the program: Land and Food Systems, Applied Sciences, Arts, Education,

Dentistry, Medicine, and Pharmaceutical Sciences. The constituent partners include faculty members from all health and human service programs (e.g. audiology, speech-language pathology, clinical and counselling psychology, dietetics, human kinetics, nursing, medicine and dental hygiene, social work and family services).

Interprofessional Education Course, University of Alberta

This is a 35-hour case-based interprofessional course for pre-licensure students, which includes a community-based group exercise. It was established in the early 1990s as an elective; it has been compulsory for all ten Health Sciences programs at the University since 1999 and includes learners from medicine, nursing, physical therapy, occupational therapy, nutrition and recreational therapy. The team is in the process of developing an interprofessional learning office which will coordinate IPE activities.

SCO Health Service Rural Palliative Care Program, University of Ottawa

This is an interprofessional continuing professional development course developed with rural communities in eastern Ontario that specifically focuses on local communities of practice in palliative and end-of-life care. It is coordinated through the SCO Health Service Palliative Care Program and has been in place since 1994. The target audience is a mix of family physicians, community hospital and home care nurses, social workers, pharmacists, occupational and physical therapists, dieticians and spiritual care providers.

Pre-clinical Learner Program, Dalhousie University

This is a compulsory program that has evolved since its establishment in 1994. A series of five IPE learning modules are presented over the pre-clinical years in small group format. The first two modules, given in the first year focus on teamwork and professionalism, and the other three are given sequentially over the rest of the undergraduate curriculum. The final three modules build on the knowledge, skills and attitudes of the first two modules, and focus on specific topic areas (family violence; disability; palliative care) through case-based discussions and interactions with expert panels. The Tri-faculty Academic Advisory Council (Tri-IPAAC) coordinates the program. The Faculties of Health Professions, Dentistry and Medicine collaborate to insure that approximately 900 students in 22 different programs are able to participate. Students involved include medicine, dentistry, nursing, pharmacy, occupational therapy, physiotherapy, health and human performance and speech pathology.

Interprofessional Education Program, Memorial University

The team for this program is currently developing compulsory and elective courses at the undergraduate/pre-licensure, postgraduate and continuing professional development level. The program involves the four schools at Memorial: Medicine, Nursing, Pharmacy and Social Work. The practice settings and continuing professional development components include occupational therapy, physical therapy, and speech and language therapy. The learning modules at all levels will be based on small group work and workshops, focusing on particular patient populations that require collaborative patient-centred practice for optimal care. Videoconferencing will play a large educational role, especially at the continuing

professional development level. The program is coordinated through the Centre for Collaborative Health Professional Education, which began offering IPE modules in 1999.

The Programs' Experiences

The information presented here is a collation of the main points brought out during the telephone interviews. Some of the points are well expressed by quotes from the conversations.

The Beginnings of Successful Programs

Everyone reported that the programs would not have started without key champions. These people brought energy, dedication, persistence and a willingness to invest large amounts of time to the cause.

> *…having champions, I think, was absolutely critical for it to happen. Areas that we've seen have more difficulty ... bringing in, are those we've not had real champions in right away. (Interview participant)*

These champions put IPE on the agenda, moved the idea forward and made the program happen. Though ideas leading to the establishment of the programs may already have been discussed, it was the key champions who started to build on them. Some champions were well established in the University hierarchy, several were Deans, Associate Deans and Directors in their Faculties. Others were at the start of their careers. They all developed links and supports with the upper University administration in order to advance the programs. The support from Deans and Academic Vice presidents was considered essential for their success. Under the influence of the champions, students and learners in different disciplines began to show more interest in learning others' roles and helped promote the initiatives.

Developing organizational structures that facilitate the interprofessional collaboration was a common thread through out all the programs. The importance of dialogue and developing common perspectives and objectives between all stakeholders was emphasized.

> *…heads of all those professions meet together and so the will to do this has been easier than if we might have been separated into a lot of different faculties. (Interview participant)*

In addition to the theoretical model of improved care for complex patient populations and caregiver satisfaction linked to collaborative teamwork, an important stimulus for the programs beginnings was recognition that this model may help the sustainability of the Canadian health care system. Faculties started to allocate funds for the IPE programs. Continuing professional development programs combined funds from discipline-specific envelopes to create IPE initiatives. The funds allowed opportunities to hire human resources to help with coordination and program development.

IPE programs are still facing challenges in developing new initiatives. Funding often is dependent on providing proof of success, and the evaluation data to date has not shown

strong links between IPE, better collaborative patient-centred practice and patient outcomes. The large investment of time and energy by champions has not been recognized by the universities, making it a challenge to recruit more champions. As well, there is a well-established hierarchy of faculties, and initiatives to level the playing field require clear gains for all involved before the program can be moved forward.

> *If you can't move people to a place where they understand what's in it for them, then you can't move. So a huge amount of time and energy, as I said, was spent really developing good will and developing a clear understanding that there is something in this for people, and it's an exciting place to be. (Interview participant)*

The programs found that a huge challenge in getting started is coordinating all the learners' schedules to facilitate IPE activities. The different faculties have to cooperate to change organizational structures to allow students to take part in IPE.

> *…[A big challenge is] logistical – when and how it's offered. We need to navigate through a complex terrain of timetables and schedules, so there have been a number of adaptations about the frequency of the modules and when they're offered within the schedule. (Interview participant)*

> *…We would choose times that seemed to work most effectively for most of the curricula, and the classes would be cancelled in everything else across the three faculties. (Interview participant)*

The learning initiatives all used small groups of representatives from the different schools and faculties. There was an emphasis on experiential learning methods, which were either case-based (with complex issues requiring many perspectives to address the issues), clinical experiences, or community-based projects for a specific patient population. The continuing professional development course at the University of Ottawa includes venues for discipline-specific education, but always includes small group interprofessional learning activities where learners apply their new knowledge to clinical situations. Courses were developed as a result of needs and opportunities identified by practitioners, academics and students. Overall, building relationships that fostered a spirit of collaboration and expressed willingness by everyone to compromise in program development were essential.

Influences On and Influences Of Academia

The IPE programs began before there was much recognition in academic circles of its value in the changing health care needs of the population. The champions needed the support from high levels in their institutions to move the projects forward. The hierarchy of the professions in academia, especially those between medicine and nursing, required the educators to learn how to get along with each other before developing IPE initiatives. They had to learn how to model collaborative team work and had to recognize that everyone had something to gain. Individual faculty members had to be willing to go beyond the traditional boundaries of their jobs.

Academia, on the other hand, brought the demand of research and scholarship to IPE. With increasing IPE initiatives, academics have more opportunities to work together, share course loads and collaborate on research projects.

> *[IPE] has influenced us as faculty members...we have a reason to work together and to identify other interests in research areas. (Interview participant)*

Some of the programs have received substantial research funding – this helps to raise the profile of IPE. Research increases knowledge and interest in IPE and opens academic opportunities for new champions.

The organizational structures developed for IPE require meetings that are often the only time when senior people from different faculties come together. This provides an opportunity for faculty leaders to consider other issues such as curriculum development, clinical placements, resource allocation and opportunities for research. Accreditation standards for an increasing number of professions that require IPE will be an important new driver.

Interviewees from all the centres felt that the programs' initiatives had increased the recognition of roles of other health care providers in their organization. Increased attention was being paid to practitioners in the community settings who recognize the importance of collaborative patient-centred team work. The community-based experiences and projects have helped the universities in addressing issues such as social accountability. As a possible solution for sustainability of the health care system, the programs contribute to an increasing awareness by universities and by government of the need to prepare students for collaborative patient-centred practice.

On-going Challenges

Sustainability remains a challenge. New champions need to be supported and mentored by those with experience, before they retire or move on to new challenges. Funding is an on-going issue, and requires contributions from all faculties involved. A central coordinating body with support staff is an essential element of all the successful programs. However, the actual organizational model must reflect the needs, characteristics and culture of each institution, creating flexible frameworks. Developing relationships with faculty members across schools to build programs based on collaboration and mutual respect is crucial. The support for this work must come from the upper administrative levels, including the Vice-President and Provost, at each faculty, school and university. The academic work done by faculty members participating in IPE must be recognized appropriately for promotion and tenure.

The pedagogical challenges of a diverse group of learners cannot be ignored. Identifying clear goals and objectives is essential. However, selecting the appropriate subject areas and methodology to enhance learning with, from and about each other to improve the quality of patient care is only part of the challenge. For example, developing a meaningful experiential learning encounter for a class of 120 medical students (many with Masters or PhD degrees), 80 nursing students (recently graduated from high school), 30 rehabilitation students (a Masters level program) and six spiritual care students (mature students returning for

professional training) poses not only the challenges of numbers, but also the issues of appropriate representation in small groups and widely differing levels of learner maturity.

Lessons Learned and Hopes for the Future

The programs have learned collectively that it is important to celebrate their successes. Articles should be published both in local venues (e.g., school newspapers, local press, university publications) and in academic journals. People in the programs should participate and present at conferences and workshops to learn from each other.

The process of developing an IPE program takes time. Opposition and resistance from faculty and students are to be expected. But challenges and barriers can change over time. The IPE team must be prepared to continue to learn as they go and to be patient – programs take time to evolve. Communication is crucial and much effort must be devoted to developing and maintaining relationships. It is important to be up-front and collaborative. Planning is an essential component of all IPE initiatives. Evaluation should address learner satisfaction, impact on knowledge, attitudes and skills, and impact on practice and patient outcomes. Each IPE program requires a recognized central coordinating body to develop, administer and evaluate the program, with a director, knowledgeable educators and support staff.

As these program descriptions attest, a number of innovative and effective IPE programs are now well established in Canada. So people are hopeful about their future viability and impact. These hopes are well summarized by one interview participant:

> *We'll have students learning together in common courses and working together in small group projects. We'll have students doing activities in the community in interprofessional teams. We'll have a number of practice settings, across the province, which are established as interprofessional learning sites. And we'll have an ongoing annual continuing professional education series focusing on the interprofessional teamwork. These are great dreams but they're not really dreams. I think they'll be reality. It's just going to take a few years. (Interview participant)*

V. Synthesis: Recommendations

As earlier stated, this paper is written from the perspectives of leaders within Canadian medical schools, and that may lead to a conclusion that Deans of Medicine are the primary target audience for this paper and its recommendations. This is not the case; rather, the intended audience is an interprofessional one, inclusive of Deans, directors and academic leaders of schools of nursing, pharmaceutical sciences, medicine and other health professional training institutions. It is hoped that this paper not only addresses sufficient generality to apply to all disciplines, but that it also sheds light on the context of medicine faculties in working towards interprofessionalism.

The key points of this paper are clustered and organized in the synthesis and recommendations sections so readers can use it towards practical applications, and take it to committees to stimulate discussion and implementation. It is important to recognize that there are entrenched barriers in the academic institutions that are going to need the help and leadership of the deans and directors to get things done. What are the key drivers that are evidence based? This paper is intended to stimulate the target audience and readers to engage in exploration and implementation of IPE. The following sections highlight learnings and recommendations, with a proposed synthesized pathway to link these tactical recommendations into a general strategic pathway.

Extracted Learnings

1. Lesson: Change is Complex and Multi-dimensional

IPE and collaborative practice require change in different domains (education and practice) and at different levels in the system (individual/team, organizational, system/policy). Academic institutions and faculty can play a unique and crucial role in the teaching and learning of IPE. For successful implementation, potential barriers to the implementation of IPE need to be addressed, namely lack of financial resources, lack of administrative support, lack of perceived value, problems with curricula and time-tabling and also attitudinal factors from both faculty and learners.

2. Lesson: Change Takes Time and Must be Approached Strategically

The process of developing an IPE program takes time. Opposition and resistance from faculty and students are to be expected. But challenges and barriers can change over time. The IPE team must be prepared to continue to learn as they go and to be patient – programs take time to evolve.

3. Lesson: Look at Levers Collaboratively vs. Competitively

Another important consideration in developing interprofessional strategies are levers and facilitating factors like, acknowledging and valuing the differences between professions, creating informal learning opportunities to forge links of trust and respect, looking for current and new opportunities for socialization and role integration; supporting faculty development, getting genuine commitment from senior academic administrators; involving leaders that can set the strategic direction for change; establishing structures and parameters for implementation; allocating human and fiscal resources; and stimulating change interest and commitment across a variety of stakeholders (e.g. clinicians, managers, educators, etc.).

Strategic Tactics: Recommendations for Meaningful Change

The following recommendations will look at strategic tactics at each specific level of intervention from the individual to the academy. Table 1 (found on page 31) summarizes the recommendations at various levels of action into a practical strategy that can be applied to propel IPE forward.

1. *What Individuals Can Do*

The following recommendations concern actions and strategies that can be achieved by individuals in and associated with the academic institutions. This includes but is limited to faculty members in health professional schools, clinical educators and health professionals. This level concerns the individual person and states what one can do to foster, promote, and improve IPE. For instance, the power of individual champions is illustrated in the experiences of Canadian IPE programs described in the previous section. In educational contexts, educators who are champions of the IPE cause are influential in encouraging students and learners in different disciplines to take interest in learning others' roles, which in turn, helped promote the IPE initiative.

1.1 Build enthusiasm and buy-in through voluntary, intrinsic approaches; engage stakeholders to improve and promote the benefits of extrinsic approaches to change.

1.2 Engage and participate in research that builds the body of evidence that IPE improves care; foster opportunities for building on this evidence through practice-based research.

1.3 Co-develop and engage in research that not only creates evidence, but is also a context for interprofessional collaboration.

1.4 Celebrate successes and build enthusiasm through publication and communication at local and community as well as academic venues.

1.5 Use the promotion of awareness of successful programs as a means of advocacy.

1.6 Make an effort to learn and apply effective ways of communicating and maintaining relationships.

2. *What Faculties/Schools Can Do*

The following recommendations concern actions and strategies that can be achieved at the Faculty or School level. Faculties and Schools refer to the disciplinary or professional education branches within an institution (e.g., School of Nursing, Faculty of Medicine). At the faculty level, support must come from the upper administrative levels towards systematizing the appropriate recognition for the academic work done by faculty members participating in IPE towards promotion and tenure. Further, allocation of funding by Faculties was identified as a success factor in IPE program start-up. For example, IPE was advanced in practical terms through continuing professional development programs combining funding from profession specific funding envelopes to create IPE learning opportunities.

2.1 Build and promote mechanisms for reflective practice and research that takes a critical approach to the social construction of professional roles and systems.

2.2 Find and support ways to engage, promote, and widen the scope of "champions."

2.3 Support individual level change by valuing commitment and contributions in various ways including remuneration, recognition amongst peers, and public awards.

2.4 Support teams in practice through promoting shared vision and effective, distributive leadership versus reifying top-down hierarchical leadership.

2.5 Promote and support faculty members to engage in faculty development that teaches interprofessional practice in an interprofessional context.

2.6 Foster institutional advocacy and work collaboratively for system level change through advocacy and action.

2.7 Recognize that planning, communication and comprehensive evaluation are success factors and implement strong project management to ensure success.

2.8 Celebrate successes and build enthusiasm at an institutional level through accessing the institution's communications resources.

3. *What Institutions Can Do*

The recommendations in this section are focused on the level of the institution. For the purposes of this paper, institution refers to universities, colleges, or other public education establishments where health professional training takes place. These recommendations include institution-level actions and strategies for advancing IPE. For example, a success factor in current programs was the cooperation among Faculties within an institution in changing organizational structure to allow students to participate in IPE courses in order to overcome the challenge of coordination and scheduling to facilitate IPE activities.

3.1 Support faculty and professional development initiatives that foster the building of interprofessional community, and integrate curriculum on effective communication, and intercultural understanding.

3.2 Build and promote mechanisms that create safe spaces for dealing with issues of power in education and practice settings.

3.3 Convene stakeholder faculties to solve the "time-tabling issue," and in so doing, build upon the organizational work done in and lessons learned from extant IPE programs.

3.4 Start with strong needs assessment to understand professional perspectives, when developing or implementing programs.

3.5 Develop, promote and evaluate faculty development that teaches interprofessional practice in an interprofessional context.

3.6 Partner with policy makers at the regional and national levels in advancing evidence based policy translation through evaluation of policy and feedback thereof.

3.7 Provide infrastructure (e.g., for centralized coordination and staffing) to build programs based on collaboration and mutual respect.

4. *What the Academy Can Do*

Academy is defined as a society of learned persons organized to advance art, science, or literature (Merriam-Websters, 2006). For the purposes of this paper, the term Academy refers to the consortium of universities and educational institutions on a systems level in their commitment to research and training in the health professions. The recommendations in this section represent actions and strategies for promoting IPE on a national level. For example, the Academy can drive IPE and advance its sustainability by making it an accreditation requirement for an increasing number of professions.

4.1 Celebrate successes and build enthusiasm to communicate to the widest possible audience, best practices, and effective models as well as to foster and support networks dedicated to implementation and evaluation of IPE.

4.2 Recognize and reward collaborative efforts – build on “grass roots” projects by providing support for evaluation and sustainability.

4.3 Develop, promote and implement system level incentives and rewards for local action.

4.4 Invest in collaborative evaluation strategies to contribute to strong evidence linking IPE, better collaborative patient-centred practice and patient outcomes.

4.5 Promote the generation of evidence that IPE improves care; foster opportunities for building on this evidence through practice-based research and implementation.

4.6 Fine tune professional accreditation systems to promote life long learning through interprofessional team based practice models.

4.7 Partner with decision makers and research institutions to monitor the efficacy of policy through evaluation.

As earlier stated, Table 1 summarizes the recommendations at various levels of action into a practical strategy that can be applied to propel IPE forward.

Table 1. Synthesized Strategy

Level of Intervention	Empowered Body	Functions	Tactic#
Academy	Knowledge Exchange Network consisting of senior academic leaders, senior representatives from national government, researchers in IPE	• National visioning of IPE • National level evidence based policy translation • Continuous evaluation of success and lessons learned • Sharing of best practices across country towards harmonization and exchange • National funding to support mutual learning	4.1 4.7, 4.6 4.4, 4.7 4.1, 4.2 4.2, 4.3 4.4, 4.5
Institution	Interfaculty committee with participation of Faculty/School leads, VP academic, senior representative from regional government	• Institutional/regional visioning of IPE (contextually driven) • Regional evidence based policy translation • Continuous evaluation of success and lessons learned • Regional funding to support clinical practice (as health delivery is a provincial responsibility)	3.2, 3.2 3.4, 3.5 3.6 3.6 3.1,3.7
Faculty/ School	Operational committee consisting of recognized opinion leaders in IPE together with senior decision makers and researchers	• Faculty/school visioning of IPE • Recommend, implement IPE solutions that are contextually sensitive • Evaluate on a programmatic level IPE effectiveness and generate evidence	2.1,2.5 2.2,2.3 2.4,2.7 2.7,2.8
Individual	Recognized IPE champions	• Diffuse, disseminate and recommend effective IPE models • Generate project based evidence to support faculty/school/institutional roll out • Participate in and provide expert advice to Faculty/School and institutional IPE visioning	1.1 1.2, 1.3 1.4,1.5 1.6

Conclusion

Interprofessional education is both timely and highly relevant for the current context of health team based practice towards patient centred care. Academic institutions and their members can be significant contributors in both individual and systems levels to influence positive change. The findings and recommendations in this paper are meant to stimulate dialogue and provide a forum upon which inspiration, illumination, and animation of IPE can be nurtured and thrive. The authors feel privileged to have this opportunity to contribute to this dialogue, and hope that the recommendations form a meaningful set of actionable items for individuals and organizations to consider and vivify in their respective contexts.

References

Acker, J. (1991). Hierarchies, Jobs, Bodies: A Theory of Gendered Organizations. In Judith Lorber & Susan A. Farrell (Eds.), *The Social Construction of Gender* (pp. 166-179). London: Sage.

Argyris, C. (1970). *Intervention theory and method : A behavioral science view.* Reading, MA: Addison-Wesley.

Atkinson, R. (1999). Discourses of partnership and empowerment in contemporary British urban regeneration. *Urban Studies, 36*, 59-72.

Axelrod, R. (1997). *Collaborations*. Princeton, NJ: Princeton Univ. Press.

Baker, D., Salas, E., King, H., Battles, J., & Barach, P. (2005). Teamwork and Communication. The role of teamwork in the professional education of physicians: current status and assessment recommendations. *Journal of Quality and Patient Safety, 31*, 135-202.

Barker, K. K., Bosco, C.& Oandasan, I.F. (2005). Factors in implementing interprofessional education and collaborative practice initiatives : Findings from key informant interviews. *Journal of Interprofessional Care, Suppl 1*, 166-176.

Barr, H. (2002). Interprofessional education : Today, yesterday and tomorrow. A review. UK : The UK centre for the advancement of interprofessional education.

Baxter, S. (2004). Perspectives and practice: speech and language therapy student views of an interprofessional learning experience. *Learning in Health and Social Care, 3*, 102-110.

Brodie, J. (1995). *Politics on the Margins.* Halifax, NS: Fernwood Publishing.

Canadian Institutes of Health Research. (2004). Knowledge Translation. Retrieved May 31, 2006, from http://www.cihr-irsc.gc.ca/e/24213.html

Canadian Institutes of Health Research. (2004). Knowledge Translation. Retrieved May 31, 2006, from http://www.cihr-irsc.gc.ca/e/24213.html

Canfield, J., Hansen, M. V., & Hewitt, L. (2000). *The Power of Focus*. Deerfield Beach, FL: Health Communications Inc.

Carlisle, C., Cooper, H., & Watkins, C. (2004). "Do none of you talk to each other?": The challenges facing the implementation of interprofessional education. *Medical Teacher, 26*, 545-552.

Choo, A. L. (2005). A Better Way to Share Patient Information. Retrieved October, 20, 2006, from http://www.publicaffairs.ubc.ca/ubcreports/2005/05oct06/share.html

Collins, J. (2001a). *Good to great: why some companies make the leap... and others don't*. New York, NY: HarperBusiness.

Collins, J. (2001b). Level 5 Leadership. *Harvard Business Review, January*.

Cook, D. A. (2005). Models of interprofessional learning in Canada. *Journal of Interprofessional Care, Suppl 1*, 107-115.

Curran, V. R., Deacon, D.R. & Fleet, L. (2005). Academic administrators' attitudes towards interprofessional education in Canada schools of health professional education. *Journal of Interprofessional Care, Suppl 1*.

D'Amour, D., Beaulieu, M. D., San Martin-Rodriguez, L., & Ferrada-Videla, M. (2004). Conceptual basis for interprofessional practice. In D. D'Amour, M. Zwarenstein, B. Keegan,
M. Purden, MD Beaulieu & et al (Eds.), *Interdisciplinary education for collaborative patient-centred practice.* Toronto,ON: Health Canada.

D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education : An emerging concept. *Journal of Interprofessional Care, Suppl 1*, 8-20.

Davis, J. R. (1995). *Interdisciplinary courses and team teaching : New arrangements for learning.* Phoenix, Arizona: ACE/Oryx.

D'Eon, M. (2005). A blueprint for interprofessional learning. *Journal of Interprofessional Care, Suppl 1*, 49-59.

Drinka, T., & Clark, P. (2000). *Health Care Teamwork: Interdisciplinary Practice and Teaching.* Westport, Connecticut: Auburn House.

Estabrooks, C., Thompson, D., Lovely, J., & Hofmeyer, A. (2006). A guide to knowledge translation theory. *Journal of Continuing Education in the Health Professions, 26*, 25-36.

Eva, K. W. (2002). Teamwork during education : The whole is not always greater than the sum of the parts. *Medical Education, 36*, 314-316.

Evetts, J. (2000). Analysing Change in Women's Careers: Culture, Structure and Action Dimensions. Gender. *Work and Organization, 7*, 57-67.

Fagin, C. (1992). Collaboration between nurses and physicians : No longer a choice. *Nursing and Health Care, 13*, 354-363.

Fletcher, J. K. (1999). *Disappearing Acts: Gender, Power and Relational Practice at Work.* Cambridge, MA: MIT Press.

Frank, B., & MacLeod, A. (2005). Beyond the 'four Ds of Multiculturalism': taking difference into account in medical education. *Medical Education, 39*, 1178-1179.

Gardner, S. F., Chamberlin, G. D., Heestand, D. E., & Stowe, C. D. (2002). Interdisciplinary didactic instruction . *Medical Education, 7*, 179-190.

Gilbert, J. H. V. (2005). Interprofessional learning and higher education structural barriers. Journal of Interprofessional Care, Supplement 1, 87-106. *Journal of Interprofessional Care, Suppl 1*, 87-106.

Gilbert, J. H. V., & Bainbridge, L. (2003). Interpersonal education and collaboration: Theoretical challenges, practical solutions. Retrieved, from http://cte.umdnj.edu/clinical_education/clined_interdisciplinary.cfm

Gilbert, J. H. V., Camp II, R.D., Cole, C.D., Bruce, C., Fielding, D.W. & Stanton, S.J. (2000). Preparing students for interprofessional teamwork in health care. *Journal of Interprofessional Care, 14*, 224-235.

Gill, J., & Ling, J. (1995). Interprofessionnal shared learning: A curriculum for collaboration. In K. Soothill, L. MacKay & C. Webb (Eds.), *Interprofessional relations in health care.* London: Edward Arnold.

Ginsburg, L., & Tregunno, D. (2005). New approaches to interprofessional education and collaborative practice : Lessons from the organizational change literature. *Journal of Interprofessional Care, Suppl 1*, 177-187.

Gitlin, L. N., Lyons, K.J. & Kolodner, E. (1994). A model to build collaborative research or educational teams of health professionals in gerontology. *Educational Gerontology, 20*, 15-34.

Gray, B. (1999). The evolution of collaborative research in the last decade: toward a dynamic theory. In S. Schruijer (Ed.), *Multi-Organizational Partnerships and Cooperative Strategy* (pp. 9-16). Tilberg: Dutch University Press.

Gray, B., & Wood, D. J. (1991). Collaborative alliances: moving from practice to theory. *Journal of Applied Behavioral Science, 27*, 3-22.

Greenhalgh, T., Robert, G., Bate, P., Macfarlane, F., & Kyriakidou, O. (2005). *Diffusion of innovations in health services organizations: A systematic literature review*. Malden, MA: Blackwell Publishing.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Quarterly, 82*, 581-629.

Greiner, A. C., & Knebel, E. (Eds.). (2001). *Health Professions Education: A Bridge to Quality*. Washington, D.C.: The National Academies Press.

Gustafson, D., Sainfort, F., Eichler, M., Adams, L., Bisognano, M. & Steudel, H. (2003). Developing and testing a model to predict outcomes of organizational change. *Health Services Research, 38*, 751-776.

Gutek, B., & Cohen, A. (1987). Sex ratios, sex-role spillover, and sex at work. *Human Relations, 40*, 97-115.

Hall, P. (2005). Interprofessional teamwork : Professional cultures as barriers. *Journal of Interprofessional Care, Suppl 1*, 188-196.

Hall, P., & Weaver, L. (2001). Interdisciplinary education and teamwork : A long and winding role. *Medical Education, 35*, 867-875.

Hanson, C. M., Carr, D.B. & Spross, J.A. (2000). Collaboration. In A. B. Hamric, J. A. Spross & C. M. Hanson (Eds.), *Advanced nursing practice. An integrative approach. (2nd ed.) (pp.315-347)*. Philadelphia: W.B. Saunders.

Harden, R. M. (1999). *Effective multiprofessional education : A three dimensional perspective.* Dundee :AMEE Guide No.12.

Harris, D. L., Henry, R.C., Bland, C.J., Starnaman, S.M. & Voytek, K.L. (2003). Lessons learned from implementing multidisciplinary health professions educational models in community settings. *Journal of Interprofessional Care, 17*, 7-20.

Herbert, C. P. (2005). Changing the culture : Interprofessional education for collaborative patient-centred practice in Canada. *Journal of Interprofessional Care, Suppl 1*, 1-4.

Horsburgh, M., Lamdin, R., & Williamson, E. (2001). Multiprofessional learning: the attitudes of medical, nursing and pharmacy students to shared learning. *Medical Education, 35*, 876-883.

Irvine Doran, D. M., Baker, G. R., Murray, M., Bohnen, J., Zahn, C., Sidani, S., et al. (2002). Achieving clinical improvement : An interdisciplinary intervention. *Health Care Management Review, 27*, 42-56.

Johnson, N. D. (1992). Collaboration. An environment for optimal outcome. *Critical Care Nursing Quarterly, 15*, 37-43.

Katila, S., & Merilainen, S. (1999). A Serious Researcher of Just Another Nice Girl?: Doing Gender in a Male-Dominated Scientific Community. *Gender, Work and Organization, 6*, 163-173.

Katila, S., & Merilainen, S. (2002). Metamorphosis: From 'Nice Girls' to 'Nice Bitches': Resisting Patriarchal Articulations of Professional Identity. *Gender, Work and Organization, 9*, 336-354.

Katzenbach, J. R., & Smith, D. K. (2005). The discipline of teams. *Harvard Business Review, 83*, 162-171.

Kohn, L., Corrigan, J., & Donaldson, M. (Eds.). (2000). *To err is human: Building a safer health system*. Washington, DC: National Academies Press.

Lahey, W., & Currie, R. (2005). Regulatory and medico-legal barriers to interprofessional practice. *Journal of Interprofessional Care, Suppl 1*, 197-223.

Leathard, A. (2003). *Interprofessional collaboration: From policy to practice in health and social care.* New York, NY: Brunner-Routledge.

Lindeke, L. L., & Block, D. E. (1998). Maintaining professional integrity in the midst of interdisciplinary collaboration. *Nursing Outlook, 46*, 213-218.

Lingard, L., Reznick, R., Espin, S., Regehr, R., & DeVito, I. (2002). Team communications in the operating room: Talk patterns, sites of tension and implications for novices. *Academic Medicine, 77*, 232-237.

MacIntosh, J., & McCormack, D. (2001). Partnerships is identified within primary health care literature. *International Journal of Nursing Studies, 38*, 547-555.

Mariano, C. (1989). The case for the interdisciplinary collaboration. *Nursing Outlook, 37*, 285-288.

Martin, P. (2006). Practising Gender at Work: Further Thoughts on Reflexivity. *Gender, Work and Organization, 13*, 254-276.

McNair, R. M. (2005). The case for educating health care students in professionalism as the core content of interprofessional education. *Medical Education, 39, 456-464*.

Merriam-Websters. (2006). Merriam-Websters Online Dictionary. Retrieved October, 2006, from http://www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=academy&x=0&y=0

Metcalfe, B., & Linstead, A. (2003). Gendering teamwork: Re-writing the feminine. *Gender, Work and Organization, 10*, 94-119.

Moore, M. E., Vaughan, K. T., Hayes, B. E., & McLendon, W. (2005). Developing an interdisciplinary collaboration center in an academic health sciences library. *Medical Reference Services Quarterly, 24*, 99-107.

Neumann, J., Holti, R., & Standing, H. (1995). *Change Everything at Once! The Tavistock Institute's Guide to Developing Teamwork in Manufacturing.* Oxfordshire: Management Books 2000.

Oandasan, I., & Reeves, S. (2005a). Key elements for interprofessional education. Part 1 : The learner, the educator and the learning context. *Journal of Interprofessional Care, Suppl 1*, 21-38.

Oandasan, I., & Reeves, S. (2005b). Key elements for interprofessional education. Part 2 : Factors, processes and outcomes. *Journal of Interprofessional Care, Suppl 1*, 39-48.

Parsell, G., & Bligh, J. (1999). The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical Education, 33, 95-100*.

Reid, R., Bruce, D., Allstaff, K., & MaLernon, D. (2006). Validating the Readiness for Interprofessional Learning Scale (RIPLS) in the postgraduate context: Are health care professionals ready for IPL? *Medical Education, 40*, 415-422.

Romanow, C. (2002). *Guidé par nos valeurs : L'avenir des soins de santé au Canada.* Rapport Final.

Rousseau, D., & Tijoriwala, S. (1999). What's a good reason to change? Motivated reasoning and social accounts in promoting organizational change? *Journal of Applied Psychology, 84*, 514-528.

San Martin-Rodriguez, L., Beaulieu, M-D, D'Amour, D. & Ferrada-Videla, M. (2005). The determinants of successful collaboration : A review of theortical and empirical studies. *Journal of Interprofessional Care, Suppl 1*, 132-147.

Satin, D. G. (1994). A conceptual framework for working relationships among disciplines and the place of interdisciplinary education and practice : Clarifying muddy waters. *Gerontology & Geriatrics Education, 14*, 3-24.

Scott, C., Home, T., & Thurston, W. (2000). *The differential impact of health care privitization on women in Alberta.* Winnipeg, MN: Prairie Women's Health Centre of Excellence.

Scott, C., & Thurston, W. (2004). The Influence of Social Context on Partnerships in Canadian Health Systems. *Gender, Work and Organization, 11*, 481-505.

Senge, P. M. (1994). *The fifth discipline*. New York, NY: Currency Doubleday.

Shön, D. (1987). *Educating the reflective practionner: Toward a new design for teaching and learning.* San Francisco, CA: Jossey-Bass Wiley.

Social Sciences and Humanities Research Council. (2006). Knowledge impact in society. Retrieved May 15, 2006, from http://www.sshrc.ca/web/apply/program_descriptions/knowledge_impact_e.asp

Social Sciences and Humanities Research Council. (2006). Knowledge impact in society. Retrieved May 15, 2006, from http://www.sshrc.ca/web/apply/program_descriptions/knowledge_impact_e.asp

Sorrels-Jones, J. (1998). Practitioner Response. *Journal of Health Care Management, 43*, 203-204.

Steinert, Y. (2005). Learning together : Interprofessional education and faculty development. *Journal of Interprofessional Care, Suppl 1*, 60-75.

Stephenson, A., Higgs, R., & Sugarman, J. (2001). Teaching professional development in medical schools. *The Lancet, 357*, 867-870.

Tri-faculty Interprofessional academic advisory committee. (2003). Interprofessional learning (IPL). Retrieved, from http://ipl.dal.ca/index.html

Walsh, M. E., Brabeck, N.M., & Howard, K.A. (1999). Interprofessional collaboration in children's services : Toward a theoretical framework. *Children's Services: Social Policy, Research & Practice, 2*, 183-208.

Wilkerson, L., & Irby, D. M. (1998). Strategies for improving teaching practices: A comprehensive approach to faculty development. *Academic Medicine, 73*, 387-396.

Wood, I., Douglas, J., & Priest, H. (2004). Education and training for acute care delivery: a needs analysis. *Nursing in Critical Care, 9*, 159-166.

World Health Organization. (1988). *Learning together to work together for health.* Paper presented at the Technical Report Series 769, Geneva:WHO.

Zwarenstein, M., Reeves, S. & Perrier, L. (2005). Effectiveness of pre-licensure interprofessional education and post-licensure collaborative interventions. *Journal of Interprofessional Care, Suppl 1*, 148-165.

Interprofessional education (IPE) has become a key focal point in medical education across all health care environments during the last decade. As a demonstrative factor, the recent ACPE Standards 2016 [93] identifies Standard 11, Interprofessional Education, to be one of the keystones in pharmacy education.Â By leveraging this technological familiarity, many educators are seeking to apply their studentsâ€™ innate interest in technology to clinical practice. Some pharmacy schools and health care institutions are creating innovation labs to spur new disruptive services across the health care environment, by capitalizing on their staff and student body to foster new ideas to put into practice. Faculties (i.e., schools) of medicine along with their sister health discipline faculties can be important organizational vehicles to promote, cultivate, and direct interprofessional education (IPE).Â The authors conclude by recommending what is needed for institutions to entrench IPE into core education at three levels: micro (what individuals in the faculty can do); meso (what a faculty can promote); and macro (how academic institutions can exert its influence in the health education and practice system).