USING ONLINE COMMUNICATIONS TECHNOLOGIES AND COMMUNITIES OF PRACTICE TO STRENGTHEN RESEARCHER-DECISION MAKER PARTNERSHIPS

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by

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ABSTRACT

Successful knowledge transfer is all about relationships. As anyone who has conducted research with non-academic partners knows, it takes a considerable amount of time and effort for these relationships to be fruitful. The great benefit of placing this work within the context of a community of practice is that it gives researchers and decision makers a structure within which to interact.

This study explored ways in which a community of practice framework can be used to develop and nurture relationships between researchers and decision makers. Further, it investigated how these communities of practice can be supported by online communications technologies. Its major contribution is the development, testing and refinement of a checklist of six ways that researchers can connect with decision makers in communities of practice, both in person and online. This checklist provides concrete, practical suggestions on how to develop an effective community of practice. Items in the checklist are based on both the academic literature on knowledge transfer and communities of practice, and the author's experience as part of an academic research unit focused on conducting collaborative research with community and government partners. Each item in the checklist was validated through interviews with members of two communities of practice. While the initial checklist had five items, a sixth was added following analysis of the interviews.

This checklist is generalizable, in that it can help guide any kind of community of practice, not just those in which members work on early childhood development issues, nor those communities in which researchers and decision makers interact. It is a valuable contribution to knowledge transfer methods at a time when both interest levels and efforts to improve knowledge implementation are widespread. The final checklist reads as follows:

A community of practice should:

1. provide opportunities for regular interaction between community members;
2. allow members to participate at varying levels that can change over time;
3. provide both public and private spaces for interaction;
4. document its goals, activities and outcomes, in order to develop a knowledge repository;
5. identify and document the value of the community itself; and
6. enlist the guidance of a technology champion in order to use online communications technologies effectively.

ACKNOWLEDGMENTS

For Taynamera, who got me to "fish or cut bait"

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CHAPTER ONE: INTRODUCTION

1.1 Overview of the thesis, and this chapter

Over the past few years, the terms knowledge transfer (often abbreviated as KT), knowledge translation (also abbreviated as KT), knowledge exchange (KE), and knowledge transfer and exchange (KTE) have been used repeatedly in health and social sciences literature. It is difficult to pick up a book on research methods, browse a journal article, or look through a request for proposals without coming across one of these terms or its synonyms.[1] While the terms vary, the basic idea stays the same—it is the act of moving research knowledge into action. The Canadian Institutes of Health Research (2010), Canada's major health funder, defines it as "the exchange, synthesis and ethically-sound application of knowledge—within a complex system of interactions among researchers and users—to accelerate the capture of the benefits of research for Canadians" (para. 1). Knowledge transfer involves research organizations communicating their findings to lay audiences in ways that they can understand, but it goes further: it seeks the input of these lay audiences to improve the research process, so that knowledge will inform policy making and practice.

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[1] The Canadian Institutes of Health Research uses the term "knowledge translation", and the Canadian Health Services Research Foundation now uses "knowledge exchange." These organizations have been instrumental in promoting this process in Canada. Another widely used term is "knowledge transfer and exchange", often abbreviated as KTE. A common abbreviation is KT, with the K standing for knowledge, and the T standing for either transfer or translation. It is my sense that the term "knowledge transfer" is well understood and has been used the most extensively in the past ten years; which Graham corroborates (Graham et al., 2006), so I have chosen to use it, unabbreviated, with the understanding that this is a bidirectional process (an exchange) between researchers and decision makers.

Communities of practice have been identified in the knowledge transfer and exchange literature as good places in which to develop and nurture the kinds of relationships between researchers and decision makers that lead to research uptake (Gagnon, 2009). Communities of practice are informal groups of people who share a common interest, and come together to reflect on and improve their practice together (Wenger, McDermott, & Snyder, 2002). Buysse, Sparkman and Wesley (2003) listed three critical characteristics of communities of practice to differentiate them from other groups: members share goals and meanings that go beyond "meeting for a specific time to address a particular need;" members are connected to something larger, beyond the community itself; and communities have a reproduction cycle so that they can regenerate by admitting new members (p. 267). It is believed that they cannot be directed or managed, only "enabled, facilitated, or supported" (Bate & Robert, 2002, p. 659). As is described more fully in the next chapter, communities of practice differ from project teams, formal work groups, and informal networks in how they define what it is they do, how they exist over time, and how they decide who members are (Wenger, 1998; Wenger 2000).

This thesis makes the claim that there are practices that can help build effective communities of practice, that these practices can strengthen relationships between community members, and that stronger relationships will lead to knowledge generation, transfer and uptake. To support this claim, I undertook a qualitative case study of two communities of practice, investigating how they met a number of needs (the practices), in both face-to-face and computer-mediated interactions. These needs were previously identified through a literature search and reflection on collaborative work done in a university-based population health research unit. This thesis consists of five chapters: this chapter, Chapter One, is the Introduction; Chapter Two is a literature review of knowledge transfer and communities of practice; Chapter Three describes Methodology and Methods; Chapter Four reports on Data Analysis and Findings, and Chapter Five is a Discussion and Conclusion that includes major research contributions, how this work is being put to use, and possible future research directions. This introductory chapter addresses why communities of practice is an interesting field of study; research questions and methods employed; and the scope, assumptions, limitations and contribution of this thesis.

1.2 Why study communities of practice?

As is discussed more fully in the literature review in Chapter Two, while the idea of knowledge transfer is simple to grasp, but difficult to put into practice. This situation has been well

documented in the academic literature in the past decade. Getting researchers and decision makers together early in the research process, and keeping them involved, are critical to overcoming some of these barriers. The findings from numerous studies show, as Lomas et. al say in their 2003 article, that the "best predictor of research use is the early and continued involvement of relevant decision makers" (p. 370; Landry, Lamari, & Amara, 2001).

Ross et al.'s (2003) study of the impact of partnerships found that there is considerable value in supporting researcher and decision maker interactions outside the research process, and recommended that funders consider funding these interactions. From within the partnerships themselves, researchers commented that "[relationships that cut across projects and time].. is where the real payoff is, not around particular projects," and that the regular, informal interactions they had with their partners were critical in terms of "building up to formal interaction" (p. S32). These comments speak directly to the value of a researcher-decision maker community of practice in which these kinds of activities could take place.

My own experiences being involved in research partnerships have borne out these findings. Since 2004, I have worked as a research and knowledge transfer officer in the Healthy Children research team at the Saskatchewan Population Health and Evaluation Research Unit (SPHERU, www.spheru.ca), a bi-university academic research unit (Universities of Saskatchewan and Regina) with offices in Saskatoon, Regina and Prince Albert, Saskatchewan. Knowledge transfer is a key part of the research work that we do in our team, and in much of this work, we collaborate with non-academics in government and community-based organizations.

I arrived at SPHERU in the midst of the longest running collaborative study in the Healthy Children research program conducted to date: Understanding the Early Years in Saskatoon, which ran from 2000 to 2007 and was funded by what is now Human Resources and Skills Development Canada. This study was conducted as a community-university partnership, co-led by Sue Delanoy, executive director of Communities *for* Children, Saskatoon's Planning Council for a child and youth friendly community, and Nazeem Muhajarine, a research faculty member in SPHERU and leader of its Healthy Children research team. In this study, we examined children's social and physical environments from birth to age five (their families and communities), and how they related to their educational outcomes once these children were in kindergarten. We worked closely with both school boards in Saskatoon, as well as other organizations working with young children.

In 2007, as this project was drawing to a close, neither partner wanted the relationship to end, as we felt there was still work to be done on early childhood development issues in Saskatchewan. Fueled by the momentum of our seven-year study, other collaborative projects, and the start of four new Understanding the Early Years studies in Saskatchewan, we elevated what had been our local early years network to a provincial level. In late 2008, we were successful in receiving "Knowledge to Action" funding from the Canadian Institutes of Health Research for this network. We have now formalized it as kidSKAN, the Saskatchewan Knowledge to Action Network for early childhood development, and are organizing it as a community of practice.[2]

I was aware of the academic literature on partnerships and communities of practice when we were establishing kidSKAN, and realized that many of same benefits attributed to partnerships would also apply to researcher-decision maker communities of practice, with a few important additional benefits. First, members of the community of practice would not need to be working on a specific research project in order to join the community, although they may get involved in a project as a result of their interactions in the community. Second, communities of practice can have a lifespan beyond any project, providing a way to stay connected with people who share interests on an ongoing basis. Framing our network as a community of practice helped create some structure for it, but I felt that the literature was lacking in terms of guidance to develop such a community to strengthen relationships with researchers and decision makers, with the ultimate intention of using research knowledge to have a positive impact on policy and practice.

Previously I had developed and published a five-item checklist on our decision maker-based approach to conducting research projects with decision makers (Macqueen Smith et al., 2008; Muhajarine, Delanoy, Macqueen Smith, & Ellis, 2006a). My interest in developing a practical tool such as this came from my reading of the knowledge transfer literature up to the early part of this decade, where I found that it tended to concentrate more on *what* knowledge transfer is and *why* researchers should do it, not on *how* it can be done (Lomas, 1997; Gold, 2002; Canadian Health Services Research Foundation, 2003).[3] We have found this checklist to be a useful guide

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[2] Although we call kidSKAN a network in the acronym, as this term is better understood, we are positioning it as a community of practice as we feel this is a more flexible approach; for more information on the differences between different kinds of groups, see 2.5 What are communities of practice, and how can they help overcome these barriers?

[3] Considerably more literature has since been published on methods, although it is still focused on case studies, which do not necessarily hold wider implications. In a 2007 review and synthesis of knowledge transfer and exchange literature, Mitton, Adair, Mackenzie, Patten and Perry found that "there is actually very little evidence that

for our collaborative research projects. As a result, I could see the value in developing a similar practical tool for guiding our work in developing a community of practice of researchers and decision makers. Further, I wanted to be able to validate this checklist by researching communities of practice, rather than drawing only on the academic literature and our own experiences with decision makers, as I had when developing our previous checklist on working with decision makers.

1.3 Research Questions and Methods Employed

The purpose of this study was to explore ways in which a community of practice framework can be utilized to develop and nurture relationships between researchers and decision makers, which are critical to successful knowledge transfer and exchange. Further, it investigated how these communities of practice might be supported by online communications technologies.

The central question guiding the study was:
1) We know that relationships are crucial to researchers and decision makers developing and conducting research projects together that can have a positive impact on policy and practice. How can the concept of communities of practice be used to create a viable framework in which to nurture these kinds of relationships?

In order to answer this question, I needed to answer several related sub-questions:
2) What are some important needs of a community of practice? Through the literature review and consideration of our research unit's practices in conducting research with decision makers, I created a model of five important needs.
3) How have these needs been met in a specific community of practice? This question was addressed through two case studies of researcher-decision maker communities of practice.
4) How have online communications technologies, such as websites, discussion forums, email, blogs, wikis, helped meet these needs? This question was addressed through two case studies of researcher-decision maker communities of practice.

In order to conduct this study, I first developed a model of five important needs of a community of practice, drawn both from the literature and careful consideration of research work being

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can adequately inform what KTE [knowledge transfer and exchange] strategies work in what contexts"(p. 756). While the authors called for more research on knowledge transfer and exchange itself, to establish evidence-based practices, which I agree is needed, this is not the direction of this study.

conducted in our research unit, and identified how these needs can be supported by online communications technologies. Using a instrumental case study approach, I then tested this model with two existing researcher-decision maker communities of practice, so as to identify both how these technologies have helped the community meet its needs, and opportunities for better use of these technologies. I developed a semi-structured interview guide, which I used to guide interviews with nine members of two communities of practice who had varying levels of involvement in their communities. Interviews were transcribed, and transcriptions shared with interviewees so information could be clarified or corrected. After these interviews, I revised the checklist based on findings from the case studies.

The final checklist reads as follows:

A community of practice should:

1. provide opportunities for regular interaction between community members;
2. allow members to participate at varying levels that can change over time;
3. provide both public and private spaces for interaction;
4. document its goals, activities and outcomes, in order to develop a knowledge repository;
5. identify and document the value of the community itself; and
6. enlist the guidance of a technology champion in order to use online communications technologies effectively.

1.4 Thesis Scope, Assumptions, and Contribution

The major contribution of this research is the development, testing and refinement of a checklist of six ways that researchers can connect with decision makers in communities of practice, both in person and online. Items in the checklist are based on both the academic literature on knowledge transfer and communities of practice, and the author's experience as part of an academic research unit focused on conducting collaborative research with community and government partners, and validated through interviews with members of two communities of practice.

Successful knowledge transfer is all about relationships (Canadian Institutes of Health Research, 2006). As anyone who has conducted research with non-academic partners knows, it takes a considerable amount of time and effort for these relationships to be fruitful. The great benefit of placing this work within the context of a community of practice is that it gives researchers and decision makers a structure within which to interact. There is no longer the need for relationships between researchers and decision makers to end as a specific project draws to a close; nor is there a need for researchers and decision makers to be working on specific projects together at all in order for them to interact regularly. Further, we are living in a time in which there is an explosion of technologies that people are using to communicate and collaborate (Kimble, Hildreth & Bourdon, 2008). These technologies have the potential to support partnerships and communities of practice, and to contribute to more effective knowledge transfer. This study provides insight into how communities of practice function, how they are using technology, and how they can improve their use of technology. It is a valuable contribution to the literature at a time when both interest levels and efforts to improve knowledge implementation are widespread (Straus, Tetroe & Graham, 2009a).

The underlying assumptions in this thesis is that there is value in putting research knowledge into practice, that it is part of the research process, and as such, it should be of interest to academics. As the literature demonstrates, knowledge is best viewed not as a product to be transferred, but as a process. It is common for knowledge to be tacit—stuck in people's heads—rather than explicit, by being documented somewhere. This is why it can be more easily transferred by

personalized means. A community of practice offers a way of managing knowledge by encouraging the relationships that get knowledge flowing. The checklist which I developed in this research is a set of practical suggestions, developed from several kinds of evidence on knowledge transfer and communities of practice, to provide a guideline to strengthening the relationships in communities of practice, so that they are better able to support knowledge generation, transfer and uptake. To develop this checklist, I used evidence from several sources: drawn from the academic literature, my own experiences in collaborative research projects, and the experiences of members of two communities of practice. It is a guideline only, not an exhaustive list. While I believe it is generalizable, it is not known definitively that it is: what works in one community may not work in another. The ideas in the checklist may be easy to understand, that does not mean they are easy to put into practice. Items in the checklist are heterogeneous: while some are best understood as practices, others may be better understood as values.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview of this Chapter

This chapter presents a review of literature on knowledge transfer and communities of practice. An understanding of the literature in these areas illuminates the opportunities for communities of practice to be used as tools to improve knowledge transfer. Since 2004, I have been reviewing literature on knowledge transfer. In 2006, I started to review literature on communities of practice. In the early days of searching, I used PubMed, Google and Google Scholar to search for articles earlier on in the process, as well as referring to the required and recommended reading in the Topics in Knowledge Utilization course I took at the Centre for Knowledge Transfer at the University of Alberta in 2006 (this Centre has since closed). In April 2008, I undertook several other searches. I searched Web of Science for literature which used the terms "communities of practice" and "technology" (results needed to cite both terms) and "knowledge transfer" and "information technology" (again, results needed to cite both terms). I searched all of www.ewenger.com, Etienne Wenger's website on communities of practice, and looked at the 82 articles that cited his 2000 article "Communities of Practice and Social Learning Systems" at that time. I also searched the SAGE subject collection "Communication and Media Studies", which includes full text of 31 SAGE journals, using search terms "knowledge transfer" and "communities of practice" (results reviewed included either of these terms).

Since then, I have continued to review literature mainly located using Google Scholar, particularly in areas that I had not explored very fully, such as the relationship between communities of practice and theory, and power relationships in communities of practice. Recent systematic reviews on knowledge transfer (Mitton et al., 2007) and communities of practice (Li et al., 2009) were very useful, as were two edited collections that were published in the past year: *Communities of Practice: Creating Learning Environments for Educators* (volumes one and

two), edited by Chris Kimble, Paul Hildreth, and Isabelle Bourdon (2008); and *Knowledge Translation in Health Care: Moving from Evidence to Practice*, edited by Sharon Straus, Jacqueline Tetroe and Ian D. Graham (2009b). These literature reviews and books all note that the fields that they cover, knowledge transfer and communities of practice, are emerging ones, such that the literature is growing quickly.

Topics covered in this chapter include responses to following questions: what is knowledge transfer, and why is it important; what are the barriers to knowledge transfer; overcoming these barriers; what are communities of practice, and how can they help overcome these barriers; and limits to communities of practice.

2.2 What is Knowledge Transfer, and why is it important?

The idea that researchers should be more involved in transferring the results of their work to potential users is not a new one. Social science researchers such as Carol Weiss (1977), a Harvard education professor, have been writing about using research to inform public policy since the 1970s. Gradually the concept of knowledge transfer has taken hold in health. Initially it was centered on using research evidence to improve clinical practice (Anderson, Cosby, Swan, Moore, & Broekhoven, 1999). However, since the mid-1990s knowledge transfer has been discussed widely in health services, public and population health research (Anderson et al., 1999; Ross et al., 2003; Dobbins, DeCorby, & Twiddy, 2004; Kiefer et al., 2005; Graham et al., 2006; Frank, Di Ruggiero, Mowat, & Medlar, 2007; Mitton et al., 2007).

Knowledge transfer is becoming increasingly important to all of the major stakeholders in research: researchers, decision makers, research organizations and funding agencies. Some researchers find that their knowledge transfer efforts help focus their research, improve outcomes and increase the likelihood that their findings will be put to use (Ross et al., 2003; Lomas, 1997). Many decision makers see knowledge transfer as a way to access research information more easily (Dobbins et al., 2004). Organizations such as the University of Saskatchewan see knowledge transfer as a way to increase their profile and relevance in an age of fiscal restraint (Warden, 2004). Funding agencies are also concerned with relevance, and many disburse public funds for which they need to be accountable (Dobbins, Ciliska, Cockerill, Barnsley, & DiCenso, 2002; Canadian Institutes of Health Research, 2010a). Knowledge transfer is important to the

Canadian Institutes of Health Research (2010a) both because "the creation of new knowledge often does not lead on its own to widespread implementation or impacts on health," and because CIHR has a responsibility to "demonstrate the benefits of investment of taxpayer dollars in health research by moving research into policy, programs and practice" ("Knowledge Translation and CIHR", para. 1). Health research knowledge, when widely disseminated and put into practice, can improve the health of individuals and populations (Pang, 2004).

2.3 What are the Barriers to Knowledge Transfer?

While the idea of knowledge transfer and exchange is simple to grasp, it is difficult to put into practice. Turning research results into policy or practice is fraught with barriers. As noted in the Introduction, this situation has been very well documented in the past twelve years; see for example Jonathan Lomas's 1997 article on improving research uptake in the health sector, subtitled "Beyond the Sound of One Hand Clapping" and his 2000 article on using linkage and exchange to move research into policy at the Canadian Health Services Research Foundation John Lavis et al.'s 2003 article on how researchers can more effectively transfer research knowledge to decision makers, and Ian Graham et al.'s 2006 article, Lost in Knowledge Translation: Time for a Map?"[4] In late 2007, Mitton et al. published a review and synthesis of the knowledge transfer and exchange literature that summarized the evidence base for knowledge transfer and exchange, in which they reported that barriers and facilitators for knowledge transfer are "perhaps the most frequently addressed topic area in the KTE [knowledge transfer and exchange] literature on health policy decision making" (p. 735).

For researchers, developing relationships with decision makers takes a lot of time, something already in short supply in an environment that mainly rewards academics based on their grants and scholarly publications (Lomas et al., 2003). It also takes a different set of skills, that researchers may not have, or have the time or interest to develop (Walter, Davies, & Nutley, 2003; Mitton et al., 2007). Researchers often work in isolation from each other, let alone potential decision makers, so identifying decision makers to work with is difficult (Anderson et al., 1999; Pang, 2004; Lomas, 2000). Restructuring and frequent personnel changes in decision maker organizations hamper networking efforts (Walter et al., 2003; Mitton et al., 2007), as does

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[4] At the time, Jonathan Lomas was the inaugural executive director of the Canadian Health Services Research Foundation. John Lavis, PhD was and still is a Canada Research Chair in Knowledge Transfer and Exchange at McMaster University, and shortly after this article was published, Ian Graham, PhD was appointed Vice-President, Knowledge Translation at the Canadian Institutes of Health Research.

the nature of the research process itself: it can take a long time to get results, and decision makers may not be able to wait (Lomas, 2000; Mitton et al., 2007).

Decision makers face similar barriers: they also have difficulty finding time to develop relationships, and lack of encouragement for spending time in this way (Lomas, 2000). They have trouble identifying and connecting with academics, and in understanding the ones they do find (Lomas, 1997; Anderson et al., 1999; Mitton et al., 2007). Often they don't know much about how research is conducted, and have very few opportunities to learn about it (Lomas, 1997; Lomas, 2000; Mitton et al., 2007). They may not have access to academic journals, or the skills to find and evaluate research results, and find that the amount of research evidence available is overwhelming (Anderson et al., 1999).

2.4 Overcoming these barriers

Getting researchers and decision makers together early in the research process, and keeping decision makers involved, are critical in overcoming barriers. The findings from numerous studies have shown that the "best predictor of research use is the early and continued involvement of relevant decision makers" (Lomas et al., 2003, p. 370). A large Canadian study of social scientists found that how researchers disseminated their findings was far more important to uptake than their research methods: the more resources researchers invested in connecting with decision makers, exchanging ideas and disseminating their research findings, the greater their results were in terms of the use of their research (Landry et al., 2001). Partnerships in which researchers and decision makers collaborate to improve research results are recognized widely as effective (Walter et al., 2003). Additionally, both researchers and decision makers who have worked together have reported that the benefits of such collaborations outweigh the resource costs (Ross et al., 2003; Denis & Lomas, 2003). By working together earlier in the research process, both researchers and decision makers will have a better understanding of the views and expectations of the other community (Lomas, 2009), so they can move from "an understanding of knowledge as a product to an understanding of knowledge generation as a process" (Dickinson, 2004. p. 55). Lomas (2009) advises that the "multiple stages of the decision-making and research processes argue for far more ongoing communication of priorities, approaches, choice points and constraints between the two communities" (p. xiii).

Denis (2003) points out that trust is the basis of collaborative research, and such trust can only build up over time and through shared experiences. Seeing results from an organization's knowledge transfer efforts will take time and patience, and need support. Academic organizations need to recognize and reward knowledge transfer efforts (Anderson et al., 1999, Jacobson, Butterill, & Goering, 2004) making them part of the "real" work of research (Lavis et al., 2002, p. 146), and decision maker organizations need to seek out and incorporate research into decision-making (Anderson et al., 1999). Additionally, universities must invest in knowledge structure infrastructure to support the knowledge transfer activities of academics with resources like support units staffed with people with knowledge transfer skills, funds for knowledge transfer activities, and training opportunities (Jacobson, Butterill, & Goering, 2004).

Our work in developing collaborative projects with decision makers in the Saskatchewan Population Health and Evaluation Research Unit has borne out these findings (Muhajarine et al., 2006a; Muhajarine, McIntosh, Labonte, Klatt, Vu & Macqueen Smith, 2006b; Muhajarine, Vu, & Labonte, 2006c; Macqueen Smith et al., 2008). In 2003, Suzanne Ross, John Lavis and their colleagues published the results of their qualitative study on experiences of researchers and decision makers who had conducted research projects together as partners. For this study, they conducted semi-structured interviews with researchers, research staff, and decision makers in seven partnerships funded by the Canadian Health Services Research Foundation. Ross et al. (2003) identified a number of benefits to partnerships: they provide an opportunity for partners to learn about each other's respective cultures; to keep the research policy and practice-relevant; to learn new skills; and to connect with other researchers and decision makers outside the partnership.

Partnerships and collaborative research have also been acknowledged as important in frameworks and conceptual models developed around knowledge transfer, and in several organizations' definitions of knowledge transfer. One such organization is the Canadian Institutes of Health Research (CIHR), Canada's major health funding agency, which has been one of the pivotal organizations in Canada to advance the knowledge transfer agenda (note that it uses the term "knowledge translation.") It is important to pay particular attention to CIHR's work in this area because as a funding agency, it is able to compel researchers to address its strategies for knowledge transfer in their funding proposals, and reward those who comply with funding.

Created by an act of parliament in June 2000, the Canadian Institutes of Health Research (CIHR) has enshrined in its mandate a focus on both knowledge creation and translation (2010a): "The objective of the CIHR is to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system" (2010a, "Knowledge Translation and CIHR", para.2).

CIHR has also done considerable work in defining and framing what it means by "knowledge translation", and has developed strategic directions with objectives, and short and long term outcomes in its Knowledge Translation Strategy, 2004-2009 (2010b):

- to support KT research, i.e., research on KT concepts and processes;
- contribute to building KT Networks, i.e., Networks of researchers and research users;
- strengthen and expand KT at CIHR, i.e., improve capability to support KT research and, with partners, KT itself;
- and support and recognize KT excellence, i.e., build and celebrate a culture of KT ("CIHR's Knowledge Translation Strategic Directions", para. 2).

CIHR (2010a) has further revised its definition of knowledge translation, reflecting a focus on collaborative research by defining knowledge translation as taking place at two points for CIHR-funded research: end of grant knowledge translation and integrated knowledge translation. The end of grant KT is what may be thought of as dissemination: "[i]n end of grant KT, the researcher develops and implements a plan for making knowledge users aware of the knowledge that was gained during a project." Integrated KT is their term for conducting collaborative research with decision makers: "[i]n integrated KT, stakeholders or potential research knowledge users are engaged in the entire research process ("Two Types of Knowledge Translation at CIHR," paras. 1 and 3).

As part of its focus, CIHR (2010a) is using a Knowledge to Action process diagram (Figure 1) that "conceptualizes the relationship between knowledge creation and action, with each concept comprised of ideal phases or categories" ("Knowledge to Action Process", para.1).

This knowledge to action framework shows a "knowledge creation" funnel in the centre of the diagram, which depicts three phases in knowledge creation: inquiry, synthesis, and tools or product creation. As knowledge filters through this funnel, it becomes more refined, and thus potentially more useful to end users. Around the outside of the funnel is the action cycle, which depicts the stages that knowledge goes through as it is being applied. This cycle shows steps that involve identifying a problem, selecting knowledge, adapting it to the local context, implementing it, evaluating the effect, and sustaining knowledge use. CIHR has adopted this cycle as their model as a framework for the knowledge transfer process (Straus, Tetroe & Graham, 2009a).
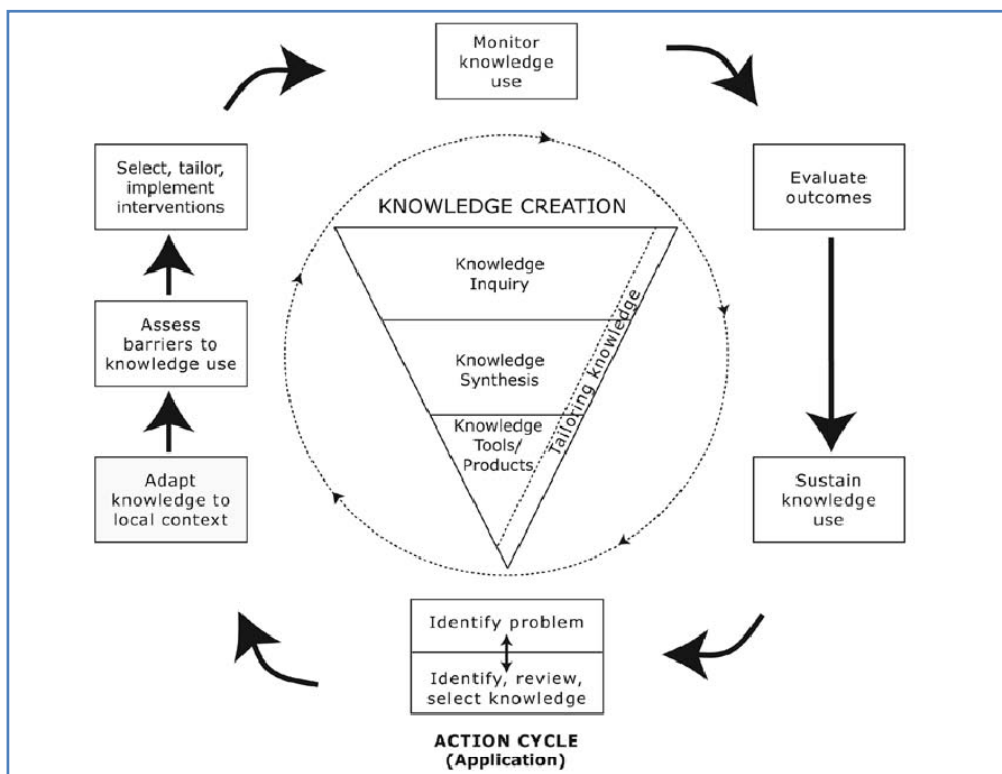
Figure 1: The Knowledge to Action Framework (Graham et al., 2006, p. 19)

SPHERU researchers have also produced models and frameworks to conceptualize their knowledge creation and action process in conducting policy and practice-relevant research. The organization as a whole conceptualized its research and operational framework in its successful 2006 team grant to the Saskatchewan Health Research Foundation (see Figure 2). It shows how both investigator driven and collaboratively driven research strategies are used to fulfill the SPHERU research mandate.

SPHERU RESEARCH AND OPERATIONAL FRAMEWORK

Research Mission

*Promoting health equity by understanding and addressing
health disparities through policy relevant research*

Health status and health outcomes

Research Themes

- *Northern and Aboriginal Health*
- *Rural Health*
- *Healthy Children*

Research Strategies

Strengthening Capacity of Researchers and Trainees

Investigator Driven Research

Creation of New Knowledge
Research rooted in testing or applying theoretical and/or conceptual frameworks for understanding determinants of health

…with policy makers
Research into policy choices and options for the reduction of health inequities and evaluation of existing policies and programs

Policy Analysis
Research rooted in understanding policy determinants, choices and impacts related to determinants of health

…with communities
Research with communities on sources of and strategies to reduce health inequity

Collaboratively Driven Research

Strengthening Capacity of Policy Makers and Communities

Knowledge Mobilization, Transfer and Exchange

- *with researchers*
- *with policy makers*
- *with communities and citizens*

Figure 2: SPHERU's Research and Operational Framework (Jeffery, Muhajarine et al., 2006, p. 10)

As well, members of the Healthy Children research program at SPHERU have published their own model for working with decision makers (Figure 3), showing the overlap between elements of research, policy and practice to enhance child well-being as it exists within a dynamic social context. We have also published a five-step checklist on our decision maker-based approach to conducting research (Macqueen Smith et al., 2008) mentioned previously:

1. Identify decision makers: as partners or collaborators
2. Work with them early: from the outset of the project
3. Work with them often: so they can help guide the research process
4. Conduct research they can use: that is relevant to policy and practice
5. Give them results they can understand: fact sheets, reports, websites using plain language, with key findings
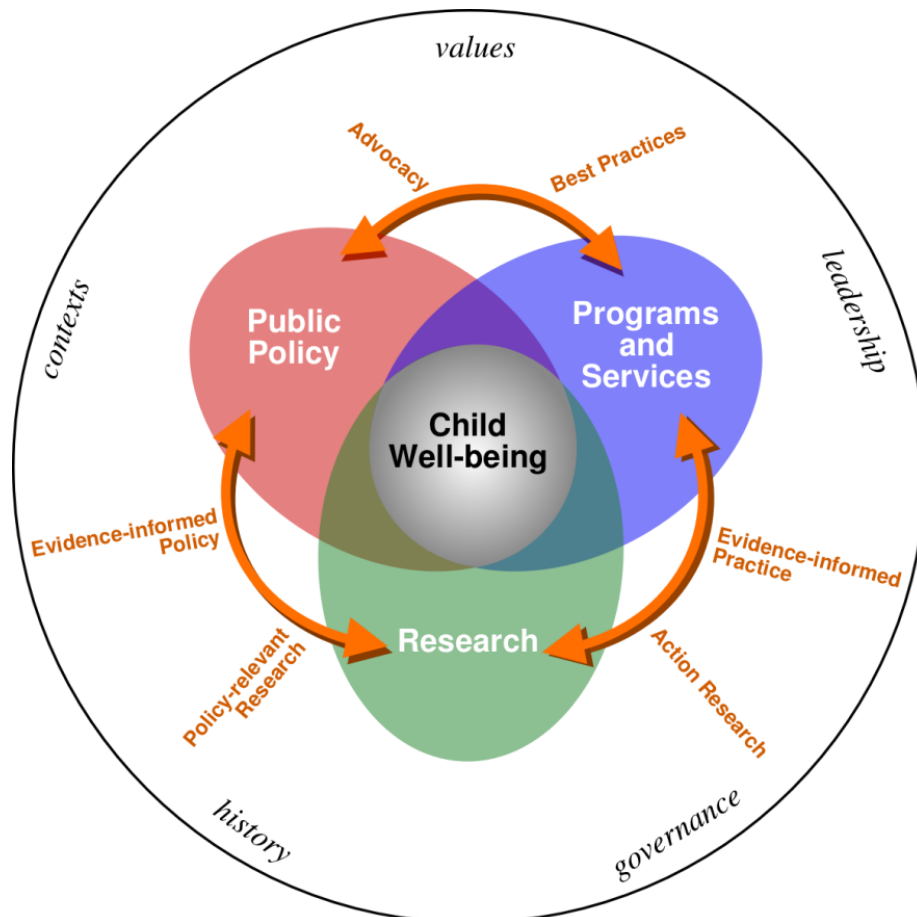
Figure 3: SPHERU Healthy Children's model for working with decision makers (Muhajarine et al., 2006c, p. 214)

These conceptualizations help illustrate how knowledge transfer can be an integral part of the research process, particularly through the use of partnerships and collaborative research processes. Lavis et al. (2002) wrote about this in their study examining the use of health services research in public policymaking in Saskatchewan and Ontario, stating, "[r]esearchers (and research funders) should create more opportunities for interactions with the potential users of their research. They should consider such activities as part of the "real" work of research, not a superfluous add-on" (p. 146).

2.5 What are communities of practice, and how can they help overcome these barriers?

Communities of practice have been identified in the knowledge transfer literature as good places in which to develop and nurture the kinds of relationships between researchers and decision makers that lead to research uptake (Gagnon, 2009). Communities of practice are informal groups of people who share a common interest, and come together to reflect on and improve their practice together (Wesley, 2001). Buysse et al. (2003) listed three critical characteristics of communities of practice to differentiate them from other groups: members share goals and meanings that go beyond "meeting for a specific time to address a particular need" (p. 267); members are connected to something larger, beyond the community itself; and communities have a reproduction cycle so that they can regenerate by admitting new members.

The concept of "community of practice" comes from the work of Jean Lave and Etienne Wenger. Lave is a social anthropologist and professor of education at the University of California, Berkley, and Wenger was at that time a research scientist at the Institute of Research on Learning at Palo Alto, California who had previously worked as a teacher, and then completed a PhD in artificial intelligence. In their 1991 book *Situated Learning: Legitimate Peripheral Participation,* Lave and Wenger described learning as a social activity, firmly rooted in our daily experience.

They argued that learning takes place in communities of learners in which newcomers start at the periphery, where they are granted legitimate access, and gradually move toward the centre of the community as they gain experience. People learn by observing more knowledgeable others and taking on tasks themselves, starting small but with ever increasing levels of skill and responsibility. The book used an apprenticeship model to describe learning in communities, with case studies of the apprenticeships of midwives, tailors, butchers, quartermasters and

nondrinking alcoholics that could be generalized to other social groups. While the communities in this book appear to be homogenous, "composed of people from the same discipline or function" (Wenger et al., 2002, p. 25), one of his later books clarified that that communities of practice can be homogenous or heterogeneous. Wenger et al. (2002) wrote: "It is often easier to start a community among people with similar backgrounds, but having a problem in common is also a strong motivation for building a shared practice, even among people who share little else" (p. 25). The community of practice concept contrasts sharply with how organizations often treat learning: as "an individual process that has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching" (Wenger, 1999, p. 3).

In much of his writing, Wenger has described what he sees as the differences between communities of practice and other kinds of groups. As he said in a 1998 article, "Communities of practice are not a new kind of organizational unit; rather, they are a different *cut* on the organization's structure—one that emphasizes the learning that people have done together rather than the unit they report to, the project they are working on, or the people they know. Communities of practice differ from other kinds of groups found in organizations in the way they define their enterprise, exist over time, and set their boundaries" (p. 3). This same article then described the differences in some detail. In a 2000 article, Wenger summarized these differences in a chart which I have recreated below (see Figure 4). As such, they can be seen as a more flexible way of working, in that members are involved based on their own needs, interests and motivation.

A SNAPSHOT COMPARISON

Communities of practice, formal work groups, teams, and informal networks are useful in complementary ways. Below is a summary of their characteristics.

A SNAPSHOT COMPARISON	What's the purpose?	Who belongs?	What holds it together?	How long does it last?
Community of Practice	To develop members' capabilities; to build and exchange knowledge	Members who select themselves	Passion, commitment, and identification with the group's expertise	As long as there is interest in maintaining the group
Formal Work Group	To deliver a product or service	Everyone who reports to the group's manager	Job requirements and common goals	Until the next reorganization
Project Team	To accomplish a specific task	Employees assigned by senior management	The project's milestones and goals	Until the project has been completed
Informal Network	To collect and pass on business information	Friends and business acquaintances	Mutual needs	As long as people have a reason to connect

Figure 4: A snapshot comparison of communities of practice, formal work groups, project teams, and informal networks (Wenger, 2000, p. 142)

Lave and Wenger originally described communities of practice as informal, self-organizing entities with self-selecting members that occur naturally (Lave & Wenger, 1991) Wenger later revised this definition, saying that they do not have to arise naturally—they could be created— and that they may not be that informal after all (Wenger et al., 2002; Gabbay, le May, Jefferson, , Webb, Lovelock, Powell et al., 2003). As of March 2010, Wenger's website has a simple definition of communities of practice that focuses on interaction: "Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (2010, What are communities of practice, para. 2). They resist hierarchies and cut across organizational boundaries; some business communities of practice even involve members from competitors' organizations (Wenger et al., 2002). They offer a space for collaborative reflective inquiry where members can improve their practice together (Wesley, 2001).

Several authors, including Wenger, have suggested that communities of practice should use stewards to cultivate them (Wenger et al., 2002; Canadian Health Services Research Foundation, 2007). Bate and Robert's (2002) study of communities of practice and knowledge management in the private sector conducted to inform communities of practice and knowledge management in health said that knowledge management directors are "'directing' nothing. Learning communities and networks cannot be directed, only enabled, facilitated, or supported" (p. 659). Kramer and Wells's (2005) article on knowledge transfer for networks made a similar case, saying "a network is not an end in itself. It is created and maintained by facilitating the flow of information, services, resources or products" and "one cannot say one 'has' a network. A network is a dynamic entity and needs constant nurturing through intensive and sustained interactions" (p. 442). While this article did not mention communities of practice, this element of networks is very similar to communities of practice, which makes it worth noting.

2.5.1 The role of communities of practice in knowledge management

Following the publication of *Situate Learning* (1991)*, Lave and Wenger's communities of practice concept was quickly embraced in the knowledge management community (Li et al., 2009). Knowledge management has been concerned with codifying organizational knowledge, making it explicit by separating it from the knower and documenting it so that it can be shared more easily. Hansen, Nohria and Tierney (1999) Hansen et al. labeled this process as a codification strategy (people-to-documents), contrasting it with a personalization strategy, in which knowledge is managed by connecting people to other people.

Complex tacit knowledge has proven particularly problematic to codify, as it is "developed and internalized by the knower over a long period of time, [that] is almost impossible to reproduce in a document or database" (Davenport & Prusak, 1998, p. 72). Further, many researchers have argued that people prefer personalized strategies to manage complex knowledge: they are much more likely to confer with colleagues than look to books or journals for answers (Hansen et al., 1999; Wasko & Faraj, 2000; Bate & Robert, 2002; Parboosingh, 2002; Innvaer, Vist, Trommald, & Oxman, 2002; Estabrooks, 2003; Gabbay et al., 2003; Gabbay & leMay, 2004). This may be because personalized strategies are sensitive to context in a way that codified strategies will never be. Wasko and Faraj (2000), in a study on why people share information online, comment that "[t]he codification of knowledge only increases the amount of 'static' knowledge available to individuals, but does not ensure that people actually access this knowledge. In many cases, people seek information that is the most easily accessed (such as asking co-workers) rather than for the best information" (p. 159).

Argote (1999) cautioned that "individually held tacit knowledge is a 'precarious way of storing, maintaining and transferring knowledge'" (as cited in Bate and Robert, 2002, p. 649). Wasko and Faraj (2000) spoke to the idea of the socially constructed nature of knowledge when they recommended that organizations consider a third perspective for knowledge: neither as object to codify, nor as something embedded in individuals, but as "social phenomena and an integral part of a community" (p. 160). From this perspective, communities of practice provide an ideal way to share this knowledge.

In later work on using communities of practice for knowledge management, Wenger (2004) commented that "[u]nless you are able to involve practitioners actively in the process, your ability to truly manage knowledge assets is going to remain seriously limited" (p. 1). Bate and Robert (2002) cautioned that "much greater attention will need to be paid to the social dimensions of Collaboratives—creating a social network and providing the necessary informal knowledge exchange mechanisms for tacit knowledge flows to occur" (p. 659).

2.5.2 How can communities of practice help overcome barriers to knowledge transfer?

As previously noted, Ross et al.'s (2003) qualitative study on partnerships between researchers and decision makers identified a number of benefits: they provide an opportunity for partners to

learn about each other's respective cultures, to keep the research policy and practice-relevant, to learn new skills, and to connect with other researchers and decision makers outside the partnership. These same benefits would result from participating in a researcher-decision maker community of practice, but there are a few important additional benefits. First, researchers and decision makers do not need to be working on a specific research project in order to join the community, although they may get involved in a project as a result of their interactions in the community. Second, communities of practice can have a lifespan beyond any project, providing a way for members to stay connected with people who share their interests on an ongoing basis. Ross et al. (2003) found that there is considerable value in supporting researcher and decision maker interactions outside the research process, and recommended that funders consider funding these interactions. From within the partnerships themselves, researchers commented that "[relationships that cut across projects and time].. is where the real payoff is, not around particular projects," and that the regular, informal interactions they had with their partners were critical in terms of "building up to formal interaction"(p. S32).

In a community of practice with researchers and decision makers, it is clear that each member brings their own knowledge to the table—it is not all in the hands of the researchers (Buysse et al., 2003). Buysse et al.'s (2003) article on using communities of practice to integrate educational research and practice cited Waddock's comment that this model requires a fundamental shift in thinking: "from working *on* to working *with* the world of practice" (p. 266), which is echoed by others in the education literature, such as Smythe (as cited in Triggs & John, 2004) and Estabrooks (2003). The community of practice approach challenges the idea of the researcher as the expert, and the practitioner as the learner. Buysse et al. (2003) wrote:

> The potential for practitioners and researchers to co-construct knowledge exists in this model because communities of practice represent an ongoing enterprise that invites both groups to share, build upon, and transform what they know about effective practices. Because the focus is not on a single research study or professional development program, but rather the development of a professional community, fundamental changes in how researchers and practitioners establish mutual trust and sustain long-term relationships can be expected (p. 265).

These comments speak directly to the value of a researcher-decision maker community of practice in which these kinds of activities could take place. There is no longer the need for relationships between researchers and decision makers to end as a specific project draws to a close, as they can continue to interact in a community of practice. Such a community of practice could exist as long as its members, who are self-selecting, are interested in working together in this way (see Figure 4).

2.5.3 The role of technology in communities of practice

We are living in a time in which there is an explosion of computer-mediated communication technologies that people are using to collaborate (Kimble et al., 2008; Daniel, 2009) The internet has become "imbedded in everyday life, a routine appliance for communicating and being informed "(Wellman & Hogan, 2004, p. 60). Communicating by email and online message boards has been a standard way of working for some time, even for people who are physically located quite near each other (McMahon, Lowe, & Culley, 2004).

Web personalization, in which users view customized websites based on their user preferences, profiles and navigational behaviour, is becoming increasingly common (Eirinaki & Vazirgiannis, 2003; Daniel, 2009). While websites may initially appear to use a codified strategy of knowledge management, these new ways of implementing them are much more conducive to personalized strategies. McMahon et al. (2004) refuted the idea that knowledge management is an either/or proposition—that you either choose personalization or codification of knowledge. "We disagree that the two viewpoints are mutually exclusive," they wrote, in response to Hansen et al.'s (1999) argument that companies must choose one or the other, as "both personalization and codification are necessary in any designing organization. It is nevertheless important to align the emphasis and the choice of tools to the organization's circumstances" (p. 318). They also noted that the alternative to "allowing the user to search for information as required is to push information to the user according to a profile of the user's information needs or to acquired information about the user's current activities" (p. 315).

Goh, Luyt and Lee (2008) developed a useful knowledge management model of knowledge access, creation and transfer (K-ACT) using web portals, focusing on customer relationship management principles of knowledge *for* customers, knowledge *about* customers, and knowledge *from* customers. Knowledge access includes access to the portal, search and browse abilities, user-driven and system-driven personalization, accessibility and information display. Knowledge creation includes user information acquisition, feedback, and domain data acquisition. Knowledge transfer includes online collaboration (organization-to-user and user-to-user), information alerts, user support and resource sharing. They argued effectively that knowledge management is "a crucial consideration in e-government portals to ensure that knowledge flows efficiently between governments, citizens, and organizations" (p. 356). Their analysis of 60 randomly-selected e-government portals in North America and Asia showed that

on average, these portals featured about 36 percent of the knowledge management mechanisms identified in their K-ACT model, such that there are considerable opportunities for using this model to identify improvements to web portals so that they can provide "improved access to information, increased collaboration, greater use of existing applications, and effective integration between applications" (p. 351).

In the most comprehensive Canadian study of knowledge transfer prevalence to date, conducted in 2001, John Lavis, Canada Research Chair in Knowledge Transfer and Uptake at McMaster University, and his colleagues (2003) found that while almost all of the 175 applied research organizations he surveyed used websites for knowledge transfer (91%), fewer supported them with other communications infrastructure such as list-serves (33%) or newsletters (60%), and only slightly more than one-third (37%) informed users when new information had been posted to their sites. These strategies were all ones that his research team had identified as best practices for knowledge transfer, after an extensive literature review. Lavis commented that, by and large, these research organizations are not taking advantage of existing technologies to personalize information on their websites for different target audiences. Again, clearly there exists a tremendous opportunity for research organizations interested in improving knowledge transfer to capitalize on these technologies.[5]

Online communities may help overcome the burdens associated with having to locate, track and update people's expertise, as this could be done as part of participating in the online community (Wasko, 2000). Wasko and Faraj (2000) found that people participating in online communities of practice value the "rich interaction" that takes place in them (p. 167). Jian and Jeffres (2006), in a study on understanding employees' willingness to contribute to shared electronic databases, commented that:

> [i]nformation contribution and maintenance of an electronic database is part of the collaboration process among organizational members. An electronic database is not a simple aggregate of every individual's contribution of information. Instead, one's contribution has to be written, collected, assessed, accepted or rejected, revised, and frequently updated. Levels of interaction among the collaborative parties can range from simple to complex, depending on the complexity of the shared information (p. 248).

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[5] In 2006/07, Lavis conducted another survey with knowledge transfer organizations in the health sector, but as of March, 2010, results from this updated survey have yet to be published.

Researchers are well-advised to learn more about these collaborative networking technologies, alternately known as Web 2.0 tools, or social media, although these terms may mean different things to different people (Daniel, 2009), and how they can use them when collaborating with other researchers and decision makers, as they have the potential to support both partnerships and knowledge transfer activities in a timely and cost-efficient way. Creating and sharing online repositories of research knowledge, and inviting interested stakeholders also to contribute, can help develop a research culture in which research knowledge is created collaboratively by researchers and decision makers; where decision makers can be full partners in the process, and their knowledge is recognized and valued. This view of knowledge reinforces the view that it is a process, not a product (Dickinson, 2004, Straus et al, 2009).

That being said, some communities of practice have focused too much on technology, and not enough on people or processes (Gongla & Rizzuto, 2001). Numerous authors have noted that online technologies used in communities of practice should exist to *support* communities, not be superimposed on top of existing face-to-face communities (Wasko & Faraj, 2000; Ardichvili, Page, & Wentling, 2003; Schlager & Fusco, 2003; Gongla & Rizzuto, 2001; Hildreth, Kimble, & Wright, 2000; Kimble et al., 2008). Ardichvili et al.'s (2003) qualitative study of introducing online communities noted that they found "these types of personal networks and CoPs are not going to be replaced by an online KN [knowledge network], and that the task is not to figure out how to fit [these] existing communities of practice into the knowledge network, but rather how to make sure the knowledge network supports the existing communities of practice" (p. 71).

Discussion of how technology is used in communities of practice appears quite early in the community of practice literature; for example, Brown and Duguid's 1991 article on organizational learning and communities of practice cites a 1981 Feldman and March article, saying "information cannot be assumed to circulate freely just because technology to support circulation is available"(p. 54). An organization's culture has more to do with whether knowledge circulates freely than the organization's technology does (Wasko & Faraj, 2000; Wenger, 2009).

Comments such as the following capture the sentiment of many authors:

> One of the great myths of the Information Age is that technology will create collaboration….For years, the IT people have rolled out technology, thinking that communities will cluster around it…It doesn't happen that way. Common work

issues and desire to learn from one another are the drivers behind these communities,
not technology.
—*former Chief Information Officer, now head of research in knowledge management*
at a large management consulting firm (Stamps, 1997, p. 40)

It is time to acknowledge that the role IT can play has probably been blown up out of
proportion
—*academics reflecting on their experiences introducing online learning into a*
business ethics university course (Lozano, Folguera, & Arenas, 2003, p. 109)

Brown and Duguid (1991) cautioned that you cannot use technology to "uproot" the narratives
that are shared in a community of practice to codify them, as they lose valuable context without
which they cannot survive. Researchers have found that the most successful online communities
are ones in which people have had some face-to-face contact with other members, which helps
build trust more quickly (Ardichvili et al., 2003; Gongla & Rizzuto, 2001; Hildreth et al., 2000;
Kimble et al., 2008). Bate and Robert (2002) wrote that many authors agree that there is no
substitute for "real face-to-face working and extended social contact" (p. 659). Dickinson (2004)
noted: "Investigations of the media of dissemination initially held out great hope for information
and communication technologies to make good-quality research findings available to users in a
timely and cost-efficient fashion. It was found, however, that person-to-person interaction is the
best determinant of research utilization" (p. 53). The full breadth of face-to-face interaction has
yet to be replicated online. While "telepresence" systems such as those made by Cisco, may
come closer, at this point their high cost—more than $100,00 for a basic system, with monthly
connection fees of at least several thousand dollars—puts these out of reach for most
communities (Shein, 2010).

Further, online interactions are quite different than face-to-face interactions. Ardichvili et al.'s
(2003) study of motivation and barriers to participating in online communities found that
participating in online communities could be perceived as risky, as people may fear that their
information is not correct or valid, and that there is more risk of losing face than with in-person
interactions. If there is an approval process for posting that is time consuming or intimidating,
this can also be a barrier to participation.

2.6 Limits to Communities of Practice

In the last few years, several authors have published intense criticisms of communities of practice; for example, Andrew et al. (2008) reported on Kupferberg's (2004) "rigorous critique" of what he calls the Lave-Wenger paradigm of learning, contesting "Wenger's belief that CoPs exist everywhere and at every level. He argues that Lave and Wenger (1991) and Wenger (1998) have systematically 'misread the modern landscape of learning' through their narrow interpretation of the underpinning theory" (p. 248).

Similarly, Roberts' 2006 critique of communities of practice cited the academic literature on issues concerning power, trust and predispositions. To this list she added further challenges she had identified, related to communities' size and spatial reach, the nature of the community, and accelerated business environment. "While it may be possible to identify communities of practice in both small groups of people working in close proximity and in globally distributed communities of 1,500 people, there is surely a significant difference between these two types of communities of practice," she wrote, asking: "Is it really possible to apply exactly the same principles to these two communities?" (p. 630) She cited Contu and Wilmott (2003) who argued that a renewed emphasis on situated learning theory may be of value (if indeed it is a theory, as is discussed further below).

Stroberg-Walker's 2008 attempt to develop an applied theory of communities of practice, based on Wenger's 1998 "theory", leads her to argue that Lave and Wenger "do not explicitly take recognized theory-building steps (Dubin, 1978; Torraco, 2005) to develop an applied theory of CoPs that researchers can test, apply, and adapt" (p. 556). While the concept of communities of practice "builds on a long line of learning theories," (p. 563) Wenger's "word choices and definitions were neither consistent nor specified to the degree required for applied theory building" (p. 568). She stated that Wenger "sidestep[s] rigorous theoretical analyses" (p. 565), preferring to situate himself in the practice side of communities of practice. Further, she noted that researchers have selectively adapted elements of communities of practice to suit their own needs, further muddying the waters. Stroberg-Walter suggested that the community of practice concept has perhaps been "stretched…beyond its original domain" (p. 556).

Several authors have commented on the lack of attention paid to power relationships in communities of practice. Li et al. (2009) wrote "[t]he inherent assumption was that members of a

CoP are naturally collegial, honest, and respectful of each other, and that they put aside their personal agendas for the common good" (p. 6) Stated this way, it is obvious that these assumptions are naive. Contu and Wilmot (2003) explored this idea extensively in their article on the importance of power relationships in learning theory, arguing:

> Lave and Wenger's embryonic appreciation of power relations as media of learning is displaced by a managerial preoccupation with harnessing (reified) "communities of practice" to the fulfillment of (reified) corporate objectives" … When it comes to illustrating practices of situated learning, Lave and Wenger are inclined to overlook the significance of the wider institutional contexts and media of learning practices in favor of a focus on relations between "community" members and their significance for processes of identity (re)formation (see, for example, Lave and Wenger 1991, p. 115). A conservative formulation of situated learning then emerges in which "communities of practice" become the self-referential founts of all relevant knowledge and learning (p. 292).

Two authors have conducted comparative reviews of seminal community of practice works: Cox in 2005, and Li et al. in 2009. They both wrote about how Lave and Wenger's 1991 book *Situated Learning: Legitimate Peripheral Participation* described how newcomers acquire knowledge from more knowledgeable community members (an apprenticeship model)—essentially a way of sharing existing knowledge with new members, while Brown and Duguid, also published in 1991, viewed a community as an informal group of workers at the same level, who collaborate to create new knowledge. Both papers then discussed Wenger's 1998 book *Communities of Practice: Learning, Meaning and Identity*, which focused more on trajectories through a community, and introduced a set of 14 indicators to detect a community of practice, described by Cox (2005) as "relatively clearly defined concepts" (p. 531) and by Li et al. (2009a) as "rather abstract" (p. 5). However, the point is most likely moot as Cox noted that these 14 indicators have not been widely referenced in the community of practice literature, if at all. Li et al. managed to find a government document in the grey literature whose author used these indicators to classify a particular group as a community of practice in order to study it. In looking at the report (Carlson, 2003), I determined that it was based on the author's PhD research, and did not appear to have been published in the academic literature. Both Cox and Li et al. then noted the sharp turn Wenger took with co-authors McDermott and Snyder in their 2002 management handbook, *Cultivating Communities of Practice*. Cox called it "a popularization and simplification but also a commodification of the idea of community of practice" (p. 533); Li et al. said "this work suggests organizations can engineer and cultivate CoPs to enhance their competitiveness" (p. 6). These articles help clearly identify the difficulty in defining the concept of community of practice, especially as Wenger himself seems to have

capitalized on it as a management tool (and thus, as he describes on his website, he now makes his living as a consultant to organizations seeking to optimize its use (2010; see "services").

On evaluation of communities of practice, Li et al.'s (2009b) systematic review of communities of practice said:

> Perhaps one of the reasons that the CoP has not inspired much evaluative research is that it is actually not a theory of social learning; rather, it is a broad conceptualization of how learning occurs in a social environment, and forms the basis for middle-range theories that are more concrete and address specific problems. However, the process of developing middle-range theories is complicated by the marked divergences in the focus of the CoP concept over the years. The concept originally promotes self-empowerment and professional development [1,2], but as it evolves, it becomes a tool for managing the knowledge flow within organizations with the main purpose of improving organizations' competitiveness [3]. The tension between satisfying individuals' needs for personal growth in the earlier version of the CoP concept versus the organization's bottom line is perhaps the most contentious of the issues that make the CoP concept challenging to interpret and apply [57] (p. 6).

These are serious criticisms indeed, and call into question the use of communities of practice. However, even authors such as those cited above agree that there is value in studying communities of practice, as they are being used as vehicles for knowledge transfer, and "provide us with a means to explore the transfer of tacit knowledge in a social context" (Roberts, 2006, p. 637). Li et al. (2009b) suggested in their article on the evolution of communities of practice that "[b]ecause CoP is an evolving concept, it may be premature to set concrete boundaries to differentiate CoPs from other types of group structure. Nonetheless, the CoP concept can be used to provide some guidance for the development of groups, teams and networks" (p. 7). It is in this spirit that I am pursuing this research; while the concept may indeed be murky and need further clarification, there has been enough valuable work done in the area of communities of practice, and they resonate strongly enough with many groups who have come together for reflective practice, that they remain a worthwhile topic of investigation. Further, building a model of how an effective community of practice can function, and then testing and refining this model, helps add some clarity to this discussion.

CHAPTER THREE: METHODOLOGY AND METHODS

3.1 Overview of this Chapter

This study examines how communities of practice can be used to overcome barriers to exchanging research knowledge between researchers and decision makers. We know that relationships are crucial to researchers and decision makers developing and conducting research projects together that can have a positive impact on policy and practice. The central question guiding the study is: How can the concept of communities of practice be used to create a viable framework in which to nurture these kinds of relationships? This chapter describes the concept that informs the concept of communities of practice, how a conceptual model of important needs to build effective communities of practice was developed, and the methodology and methods used to test this model.

3.2 Communities of Practice: the concept

A number of theories have been linked with communities of practice; Wenger himself originally stated that communities of practice are part of "situated learning" in his 1991 book with Jean Lave, *Situated Learning: Legitimate Peripheral Participation* , but in his later work (1999), he identified communities of practice as part of "social learning". As well, in these works situated learning and social learning are referred to sometimes as theories, and other times as concepts, models or systems. Theories are explanatory tools used to explain reality, and as such they are expected to be testable and generalizable (Terstappen, Muhajarine, Nickel, & Green, 2008). However, due to confusion over definitions and uses, this is not really possible with communities of practice (see Section 2.6: Limits of Communities of Practice). Instead, communities of practice are better referred to as a concept or framework, which is descriptive in nature, as opposed to explanatory.

Etienne Wenger (1999) described "learning as social participation," in the sense that people are "active participants in the *practices* of social communities, and constructing *identities* in relation to these communities " (p. 4; emphasis in original). The communities of practice concept describes learning as taking place in communities of learners in which newcomers start at the periphery, where they are granted legitimate access, and gradually move toward the centre of the community as they gain experience. People learn by observing more knowledgeable others and taking on tasks themselves, starting small but with ever increasing levels of skill and responsibility. Lave and Wenger (1991) called this "situated learning", and that the learners are granted "legitimate peripheral participation" in these communities. This view of learning contrasts sharply with how learning has often been characterized: as "an individual process that has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching" (Wenger, 1999, p. 3).

John Seely Brown is a researcher who specializes in organizational studies; his 1991 article with Paul Duguid, "Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation," is a seminal work in communities of practice. In a 2008 article with Richard Adler, they made a similar argument:

> social learning is based on the premise that our *understanding* of content is socially constructed through conversations about the content and through grounded interactions, especially with others, around problems or actions. The focus is not so much on *what* we are learning, but *how* we are learning…. The emphasis on social learning stands in sharp contrast to the Cartesian view of knowledge and learning—a view that has largely dominated the way education has been structured for over one hundred years. The Cartesian perspective assumes that knowledge is a kind of substance and that pedagogy concerns the best way to transfer this substance from teachers to students. By contrast, instead of starting from the Cartesian premise of 'I think, therefore I am,' and from the assumption that knowledge is something that is transferred to the student via various pedagogical strategies, the social view of learning says, "We participate, therefore we are" (p. 3; emphasis in original).
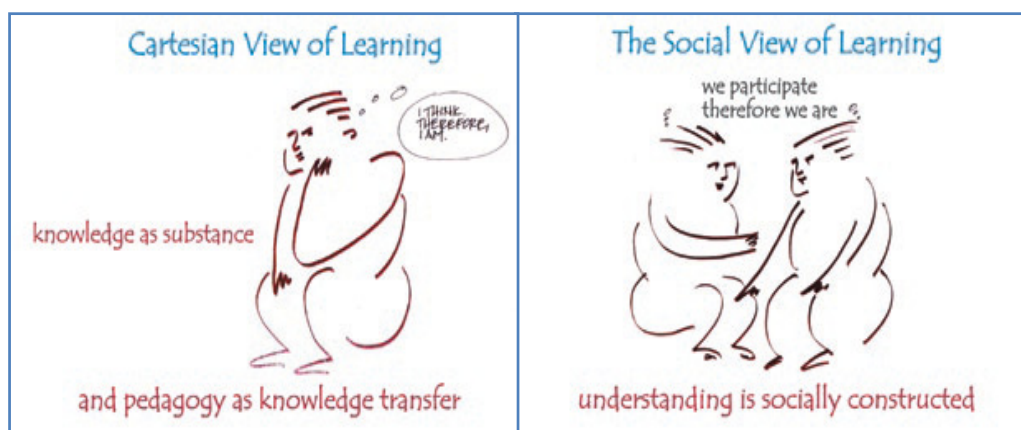
Figure 5: Brown and Adler's depiction of Cartesian versus social learning (2008, p. 4)

Communities of practice have been identified as a way to overcome barriers to knowledge transfer. As described more fully in Chapter Two: Literature Review, the literature describes many barriers to research knowledge transfer. Getting researchers and decision makers together early in the research process, and keeping them involved, are critical to overcoming these barriers (Walter et al., 2003). The findings from numerous studies show that the "best predictor of research use is the early and continued involvement of relevant decision makers" (Lomas et al., 2003, p. 370; Landry et al., 2001). Both researchers and decision makers who have worked together have reported that the benefits of such collaborations outweigh the resource costs (Ross et al., 2003; Denis & Lomas, 2003). Our work in developing collaborative projects with decision makers in the Saskatchewan Population Health and Evaluation Research Unit has borne out these findings (Muhajarine et al., 2006a; Muhajarine et. al, 2006b; Muhajarine et al., 2006c; Macqueen Smith et al., 2008).

These same benefits would result from participating in a researcher-decision maker community of practice, but there are a few important additional benefits. First, researchers and decision makers do not need to be working on a specific research project in order to join the community, although they may get involved in a project as a result of interactions that take place there. Second, communities of practice have a lifespan beyond any project, providing a way for members of a community to stay connected with others who share their interests on an ongoing basis.

This study explores this idea more fully by developing and testing a model of important needs of communities of practice, and how these needs can be supported, in both face-to face and online interactions. While the benefits of face-to-face interactions are well understood, online interactions are not as well understood, as this environment is so much newer (Daniel, 2009).

3.3 Research Design

The study carried out in this thesis was an instrumental case study, as defined by Stake (1995), in which the case study is intended to shed light on an issue, or refine a theory. It is expected that understanding the complexities of each case studied is secondary to understanding something else—the individual communities of practice studied will lead to a better understanding of how such communities of practice are functioning, how these communities are using online communications technologies, and opportunities for improvements in both community

functioning, and in the use of technology. The boundary for the case in this case study is the individual community of practice; Stake (1995) notes that cases are "bounded systems" such as a person or a program, or in this case, a community of practice. Data for case studies can be drawn from many sources. For this study, I conducted semi-structured interviews with key informants in researcher-decision maker communities of practice, reviewed documents that the key informants were able to provide or identify, including public websites, and later did some content analysis of the interview transcripts by making each one into a tag cloud.

Yin (2002) defined a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (p. 18). This approach seems appropriate to study communities of practice, which are bounded systems in which the phenomenon and context are intermingled, and for which multiple sources of evidence are available—multiple people with different experiences within the community to interview, and multiple documents to review.

3.3.1 Research Questions

As stated earlier, we know that relationships are crucial to researchers and decision makers developing and conducting research projects together that can have a positive impact on policy and practice.The central question guiding the study was:
1) How can the concept of communities of practice be used to create a viable framework in which to nurture these kinds of relationships?

In order to answer this question, I needed to answer several related sub-questions:
2) What are the some important needs of a community of practice? Through the literature review and consideration of our research unit's practices in conducting research with decision makers, I created a model of five important needs.
3) How have these needs been met in a specific community of practice? This question was addressed through two case studies of researcher-decision maker communities of practice.
4) How have online communications technologies, such as websites, discussion forums, email, blogs and wikis, helped meet these needs? This question was addressed through two case studies of researcher-decision maker communities of practice.

To answer these questions in depth, I created a conceptual model of important needs of communities of practice, drawn from both a literature review and careful consideration of the practices in collaborative research projects conducted in our research unit. This model is described in the next section. I then tested and refined this model by conducting case studies with two communities of practice, collecting data through semi-structured interviews with members and document review of documents they provided. This model appears in the next section.

3.3.2 A Conceptual Model of Effective Communities of Practice

A community of practice should:

1. provide opportunities for regular interaction between community members;

2. allow members to participate at varying levels that can change over time;

3. provide both public and private spaces for interaction;

4. document its goals, activities and outcomes, in order to develop a knowledge repository; and

5. identify and document the value of the community itself.

Need 1. The community should provide opportunities for regular interaction between community members. This first need is the most basic one: a community needs to provide opportunities for regular interaction between community members. This need is so fundamental that it almost appears too simplistic to include it, yet we can probably all think of communities that have never gotten off the ground because they have not met regularly enough to "develop momentum" (Wenger, 2000). Wasko and Faraj's (2000) qualitative study of three electronic communities of practice found that people participated in them as they wanted to exchange knowledge with like-minded individuals, and that they valued the "rich interaction" in these communities—the sense that if they helped someone today, others would help them in the future (p. 167). There is no quantification for what constitutes "regular interaction", and this will probably vary significantly from community to community. As such, it will need to be defined by members of individual communities.

Need 2. The community should allow for members to participate at varying levels that can change over time. This need was inspired by Etienne Wenger's (2002) work on facilitating

communities of practice, described in his book *Cultivating Communities of Practice.* Wenger described communities as having three kinds of members: core members, who are leaders; active members, who are regularly involved; and peripheral members, who are occasionally involved. While he has described newcomers in the community as entering in the periphery and gradually moving to the centre, he also explained that members' involvement may vary over time, with members moving in and out of these various membership categories. Wenger (2002; 2004) also discussed the idea of a community coordinator or steward, sometimes called a "community champion"; most likely a core member, who is able to put sustained effort into developing and maintaining the community.

Need 3. The community should have both public and private spaces for interaction. This third need is another of Etienne Wenger's (2002) principles for the design of an in-person community of practice, described briefly in *Cultivating Communities of Practice.* Schlager and Fusco (2003) argued that public and private meeting places are often not very well represented in online design.

Need 4. The community should document its goals, activities and outcomes, in order to develop a knowledge repository. This fourth need looks at how knowledge that is created in a community is shared. With the rise of the internet as a normal means of communicating and collaborating, the potential for technology to support communities of practice is very well documented in the literature; see for example Buysse et al., 2003; Schlager & Fusco, 2003; Gongla & Rizzuto, 2001; and Jian & Jeffres, 2006. Gongla and Rizzuto (2001) said that communities need both a place to put explicit knowledge so that current and future community members can access it, and ways in which members can learn more about the community itself through surveys, polls, and search tools to search through the knowledge gathered there, and locate experts with which to confer. As communities grow, so do their needs for technology to help manage the documentation and storage of the knowledge they create.

Need 5. The community should identify and document the value of the community itself. More recently in the knowledge transfer literature, people have started to talk about the value of evaluation of the methods they are using (Graham et al., 2006). This discussion suggests that we have moved from the idea that "we need to do something", in which people have been trying out many different knowledge transfer methods, to a more thoughtful process in which we pay more attention to what is working, what isn't, and why. This need seeks to inform this process.

3.3.3 Site and Participant Selection

The sampling techniques used for qualitative research are generally more flexible than those used for quantitative research since qualitative sampling is not aimed at generalizability. For these interviews, critical case sampling was used to select a small number of important cases that were expected to "yield the most information and have the greatest impact on the development of knowledge" (Patton, 2001, p. 236). While this method may not yield broadly generalizable findings, it can allow researchers to develop logical generalizations from studying several cases in depth. As well, researcher-decision maker communities of practice have been quite difficult to identify, so there are not an abundance of cases from which to draw. Even once I had identified communities and commenced interviewing members, I found some were not familiar with the concept of a community of practice, and would not have self-identified as members of a community of practice as a result.

The cases studied were identified by contacting professional adults (academics and practitioners) involved in researcher-decision maker communities of practice in Canada that I had been able to identify over the course of my research work to date, through literature and internet searches and discussions with other professionals. I identified four such communities with which I made contact. Two communities were recommended to me by two different colleagues, and the other two I found through internet searches. Three of these communities I approached by email, presenting information about the study to key people involved in these communities of practice, asking whether they would be interested in being interviewed, and providing the consent form and semi-structured interview guide (see Appendix B: Consent Form, Semi-Structured Interview Guide, and Transcript Release Form) to describe the study in greater detail. Prior to approaching study participants, I had acquired ethical approval from the Behavioural Research Ethics Board of the University of Saskatchewan (see Appendix A). For the other community under consideration, my colleague provided an email introduction, introducing both me as a researcher, and the study, to gauge interest in participation.

Ultimately, gatekeepers for two of these communities agreed to provide email introductions to some of their members from which I could solicit participants. My relationships with these gatekeepers was important as they helped me establish my credibility to their members; one gatekeeper was a colleague, and the other was familiar with our research unit's work. This was fortuitous, as I had underestimated the difficulty in accessing communities. Gatekeepers at the

other two communities I approached expressed tentative interest, but neither felt they could provide access to their members at that time due to time constraints.

I had proposed in my research proposal to interview four to six participants in each community of practice to be studied, with one to two in each of the "core group" (key organizers or leaders), "active group" (very involved members) and "peripheral group" (occasional participants). I approached participants in all of these categories in both communities. Ultimately, I recruited five participants in one community: one core group member, three active group members, and one peripheral member; and four in the other community: one core member, and three active members. I categorized these members based on data gathered in the interviews. Peripheral members proved hard to reach, which was not unexpected, as by definition they were on the periphery of the community and were not very engaged in its activities. While 11 participants consented initially to participate, two were not interviewed, as one became ill, and the other too busy, such that I was not able to interview either of them in a timely manner. However, I judged that the data gathered in the nine other interviews was sufficient, such that these two were not needed.

3.3.4 Data Collection

This research involved both interviews with key informants in researcher-decision maker communities of practice, and document reviews, to the extent that I was provided with documents about the community of practice, or was able to examine the website of a community of practice with a public online component. Both of these methods are well-established methods for collecting qualitative data, which are appropriate for case study research (see for example Yin, 2002; Cresswell, 1998). I developed a semi-structured interview guide that allowed for the collection of some systematic information from each participant on each of the important needs of a community of practice, and how they were meeting these needs (Appendix B). Open-ended questions in the interview guide explored how the community met the five identified needs: 1) how it provides opportunities for regular interaction; 2) how it allows members to participate at varying levels; 3) how it provides both public and private spaces for interaction; 4) how it manages documentation about its goals and activities so as to develop a knowledge repository; and 5) whether it has ways of identifying and documenting the value of the community itself. Additional open-ended questions asked about the value of the community in developing research partnerships, how to integrate more online communications technologies into the community, and for interviewees to identify suitable documents for review.

This guide and the consent form were provided to potential participants as attachments to email messages, both when seeking participants, and when arranging interview times with those who responded positively, so that participants would have a sense of how the interview would proceed. However, as I reiterated with participants, this interview guide served as a general guide for our discussion; while I made sure that we covered the five key questions on needs in each interview, I conducted the interviews as "guided conversations" (guided by the questions in the interview guide), such that we jumped around from question to question, spending more time on some, and less on others, depending on the participant's experiences and interest in the topics.

All of these interviews were conducted over the phone, rather than face-to-face, as most respondents were not from Saskatoon. Participants were told in the consent form to expect interviews of 30 to 60 minutes; actual interviews lasted from roughly 30 to 90 minutes, with three of 30 minutes, three of 40 minutes, two of 45 minutes, and one of 92 minutes. Interviews were tape recorded and then transcribed, with permission. I used two methods for recording interviews: putting phone calls on speaker phone and recording using digital tape recorders (always using two, so I had a backup in case of equipment failure); and making internet phone calls using Skype, and recording them with "Pamela for Skype" recording software. In both cases, I was able to save digital mp3 files of the interviews, which I could play easily on my computer. These interviews were transcribed by a professional transcriber. When she found that she could not decipher words, she made a note of the minute and second in question, and I was able to listen to this section and fill in the missing words, for the most part.

Key informants interviewed were asked if they had documents or other artifacts (for example, websites, podcasts or videos) that I would be able to review. Only a few participants identified documents for review, which I did review, but this did not prove a very useful method of analysis, as the documents in question did not capture much information about how members of the communities were interacting. While one community was using a collaborative website to interact, I was unable to examine this website as members considered it private. By chance, I became involved in a research project in SPHERU that was using the same collaborative website that one of the case study communities was using, which was useful as it gave me a greater understanding of how that collaborative website structure functioned, and its strengths and challenges. However, with the richness of the interview data I collected, I felt that I did not need to be concerned about the lack of usable data from document review.

3.3.5 Data Analysis: "noticing, collecting and thinking about interesting things"

After the interviews were transcribed, I went through them to decipher missing words, and remove identifying information. I then loaded them into a qualitative software package and coded them to develop and populate analytic categories from which interpretations were drawn. When choosing software, I examined four packages: Nvivo, for which the University of Saskatchewan has a site licence, ATLAS.ti and The Ethnograph, which we had in our research unit, and Weft, a free software package available under a public domain license. As I did not have a large number of interviews to code, I decided that both Nvivo and ATLAS.ti were more complex than I needed. I also did not have access to either of these packages outside of the university campus, so could not use them on my home computer. Initially I began using The Ethnograph, but quickly discarded it when I had some difficulty marking more than one line of text for coding in favour of Weft. Using Weft appealed to me when I came across it while researching computer assisted qualitative analysis software on the internet. Weft was written by Alex Fenton while he was writing his master's thesis, out of frustration with the high cost of commercial packages, extensive learning curve in mastering many of them, and what he perceived as their forcing of particular methodologies which he felt often were not relevant for many users. Choosing Weft also fit with my ongoing interest in exploring open source tools, such as Skype and Weft, to broaden my understanding of these kinds of tools for communication and collaboration, many of which are in the public domain. The availability of these kinds of tools, loosely grouped as part of Web 2.0, has contributed greatly to community building, information and knowledge sharing, and collaboration online (Daniel, 2009).

Using Weft, I coded each interview into six major categories: one for each of the five important needs (N1, N2, N3, N4 and N5), and an "extra" category for material that did not readily fit into any of these categories. Within these six categories, I further subdivided them into 44 codes. As I was coding the interviews, I referred back to codes used in other interviews, collapsing some, renaming them, and moving some to new categories. When I had coded all the interviews, I exported each code to an HTML file. I then printed the codes and put them in a binder (hereafter known as the "code printout binder"). I read and re-read them, highlighting parts with highlighter pens that stood out as particularly significant, and handwriting notes in the margin, especially as in many cases I had coded large sections of text. From there, I typed up another file, reducing my 68 single-spaced pages of coded text to a nine-page, single spaced document, noting the major findings in each category that seemed significant, as denoted by the highlighting and marginal

notes on the coded pages in the code printout binder. As I was writing up my findings, I referred to a printout of this "notes on coding and analysis" file, to the code printout binder, and sometimes to the original transcribed interviews. (See Section 4.1.2 for a screenshot of the original categories and codes, and a table of the final categories and codes).

Although I did not use The Ethnograph, there was one very valuable piece of information that I obtained from its website: a way of thinking about qualitative analysis that I used as an analytic framework of sorts for conducting my analysis. John Siedel, the qualitative researcher who wrote The Ethnograph, has a paper on the site that was originally part of The Ethnograph's manual in which he describes qualitative analysis as an iterative process of "noticing, collecting and thinking about interesting things" (Seidl, 1998). I kept these three ideas firmly in mind while doing my analysis, going back to them again and again as I worked to make sense of the rich data I had collected: 6.5 hours of interviews, which when transcribed yielded 181 pages of single spaced text.

After completing my coding and analysis of the interviews, I decided to do some rudimentary content analysis on the interviews by creating tag clouds of each interview, so that I had another way of looking at my data as document review had not proved fruitful. Tag clouds are graphics that show the frequency of words in a text by making words which appear more often larger. Since tag clouds are representations of word frequency, they can be considered a form of content analysis. The clouds I created are shown and discussed in Section 4.2.7.

In the consent form, I had offered participants the opportunity to review the transcripts as part of member checking. I also suggested in the consent form that they may be offered the opportunity to review data, analytic categories, interpretations and conclusions as part of the member checking process, to help establish validity. I did send participants transcripts of their interviews, and also provided the mp3 recordings to those who requested them. I did not end up asking participants to review data, analytic categories, interpretations or conclusions, as when I was conducting analysis I did not feel that it was necessary; the topic was not a controversial one, and in general participants did not express concern about how their views would be represented. All participants expressed interest in learning more about my findings, and I have shared the graduate seminar presentation I made in Interdisciplinary Studies on this research with them, and intend to send them a link to the Electronic Thesis Document (ETD) once it is available on the University of Saskatchewan ETD system.

3.4 Strengths and Weaknesses of this Approach

As previously mentioned, the cases selected for study were critical ones expected to yield a lot of information to develop knowledge. A limitation of this case study approach is that we cannot assume that these particular cases are generalizable to other cases. While initially I had considered doing only one case, I was able to gain access to two communities with contrasting characteristics, which helped broaden the discussion: one is a small, fairly new community, geographically dispersed, primarily using online methods to collaborate; the other is a much larger community that has existed for a number of years, based in one city, using primarily face-to-face methods to collaborate. Conducting more case studies might shed more light on how representative the data is of the population from which it is drawn. However, it is beyond the scope of this study to do many case studies, if indeed enough researcher-decision maker communities of practice could be identified for analysis.

Further, being overly concerned with generalizability is not appropriate for qualitative methods. Unlike sampling in quantitative methods, which is concerned with ensuring that the sample is representative of the whole population, qualitative methods use "purposive" sampling that is intended to "describe processes involved in a phenomenon, rather than its distribution" (Liamputtong & Ezzy, 2005). Qualitative methods seek to shed light on the phenomenon in question, "to generalize about the nature and interpretive processes involved in the experiences" (Liamputtong & Ezzy, 2005). Patton, a well-known qualitative researcher, suggests that some "logical generalizations" are possible with case studies (Patton, 2001). In many fields, such as medicine, nursing, law and business, case studies are used extensively as training methods, demonstrating that their knowledge is generalizable. As the author of a text on social methods points out in his description of case studies, where he describes their long use as training tools, "If every case were totally unique, there would be no transferability of knowledge from one case to another, and little point in the case method of training " (Punch, 2005).

Although this method of analysis has limitations, there are strengths associated with it. I intended to, and feel that I did reach saturation in many areas of discussion; in some topics, I found overwhelmingly that people were telling me the same kinds of things (see for example the importance of face-to-face interaction). This assisted me in developing a good understanding of processes and experiences in the communities of practice studied. Such understanding, when

disseminated, will provide knowledge for other groups of researchers and decision makers in how communities of practice can help them further knowledge transfer in their own communities, in the guise of lessons learned and promising practices gleaned from these communities. Qualitative methods such as case studies help provide understanding when a field is not well developed (Patton, 2001), as is the case with the study of both knowledge transfer and communities of practice, both of which could be considered emerging fields of study (Graham et al., 2006; Li et al., 2009). They can be viewed as the best methodological "fit" for studying the problem in question (Cresswell, 1998). As is explained more fully in the next chapter on data analysis, themes from my interviews helped to validate my choices of important needs for a community of practice, and provided enough additional material to refine this checklist of needs further by adding a sixth one. The next chapter describes the analysis and findings in detail.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Overview of this chapter and the analysis methods

As described more fully in Chapter Three, Methodology and Methods, through both a literature review, and investigation of the practices of researchers who work extensively with decision makers in the Healthy Children research program of the Saskatchewan Population Health and Evaluation Research Unit, I have identified a number of important needs of communities of practice. They are:

1. the community should provide opportunities for regular interaction between community members;

2. the community should allow members to participate at varying levels that can change over time;

3. the community should have both public and private spaces for interaction;

4. the community should document its goals, activities and outcomes, in order to develop a knowledge repository; and

5. the community should identify and document the value of the community itself.

I then tested this "checklist" by conducting semi-structured interviews with members of two communities of practice. I asked each member about each need, how it was met in their community in person and online, and other opportunities that they could identify to meet these needs, in person and online. The rest of this chapter describes each need, how it was identified as important, based on the literature, and describe what I found in the case studies to validate and refine each need. The chapter concludes with a discussion of a sixth need, for a technology champion, and how tag clouds were used as a method of content analysis.

4.1.1 Description of C1 and C2, the two communities of practice studied

Community 1, hereafter known as "C1," is a small community of about 10 participants spread out across Canada whose members have been working together for the last year to launch a journal. They meet mainly online, using a private collaborative website, Skype and email, with periodic informal meetings at conferences. Community 2, "C2," is a large community of about 100 participants, all located in one city, whose members have been conducting a collaborative research project for several years. They meet mainly face-to-face, but also use email, their public website, and a large email distribution list to communicate. After gaining access to these communities and approaching members, I conducted phone interviews with five people in C1, and four in C2.

4.1.2 Description of how the interviews were analyzed

As described in Section 3.3.5, Data Analysis: "noticing collecting, and thinking about interesting things," using Weft, the qualitative analysis software, I coded each interview into six major categories: one for each of the five important needs (N1, N2, N3, N4 and N5), and an "extra" category for material that did not readily fit into any of these categories. Within these six categories, I further subdivided them into 44 codes. I moved codes around between categories both when I was doing coding using Weft, the qualitative analysis software, and again, when reviewing the codes after I had printed them out and put them in a code printout binder. After reading and re-reading the codes, I did another round of coding by highlighting particularly significant sections of the code printouts, and writing marginal notes. Eventually I created another document, "Notes on Coding and Analysis, which captured the results of this second round of coding; reducing 68 pages of single-spaced coded text to nine pages of single-spaced notes. As I was writing up my findings, I referred first to this nine-page notes document, then to the code printout binder, and occasionally to the original transcribed interviews themselves. See Figure 6 for the original categories and codes in Weft, and Figure 7 for a table of the final categories and codes used for analysis.

As I described in Section 3.3.5, after I had done all my analysis, I decided to create tag clouds using the transcribed text from each interview. Anyone looking at the tag clouds can see which words were mentioned the most frequently in each interview (I excluded most common words).

This could be thought of as a rudimentary form of content analysis in which only word frequency is considered. In creating the tag clouds, I specified that the maximum number of words to show should be 50, and that words should appear at least 10 times in the text of the interview. These tag clouds are shown in Figures 8 and 9, in Section 4.2.7, with a discussion of what I saw when looking at all the tag clouds.
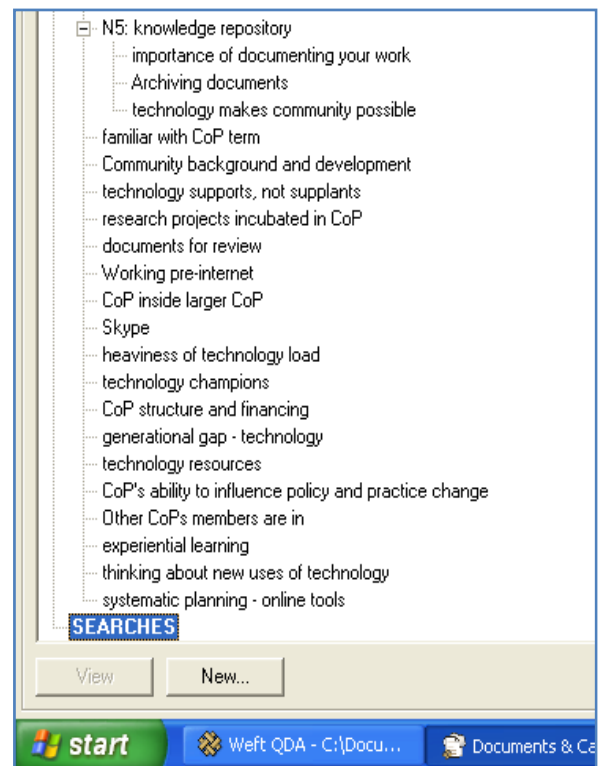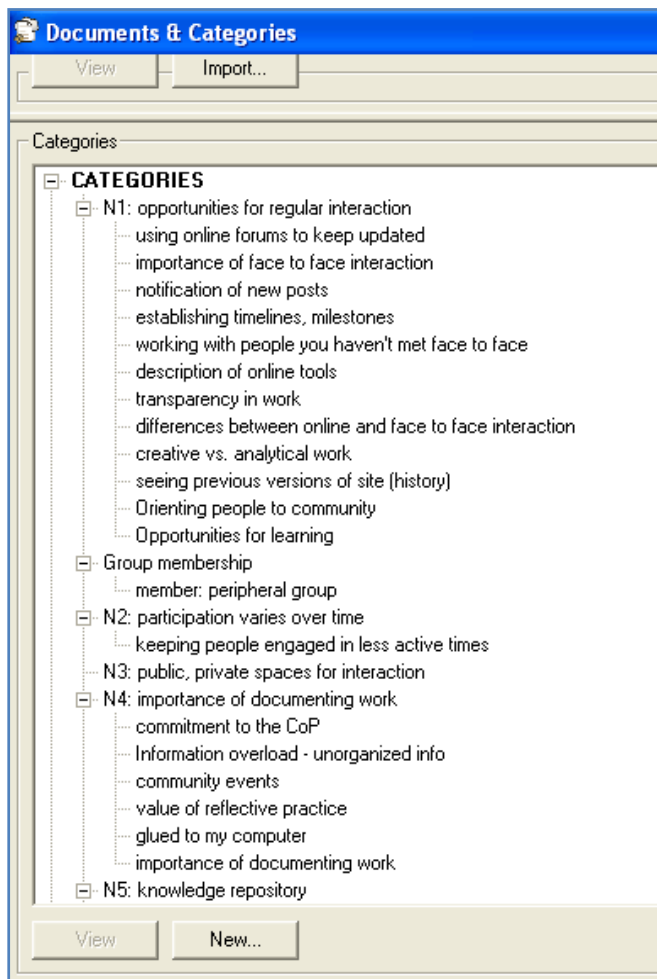
Figure 6: Screenshots of original categories and codes in Weft qualitative analysis software

Categories	Codes
Need 1: Provide opportunities for regular interaction	1. opportunities for regular interaction 2. orienting people to the community 3. importance of face-to-face interaction 4. differences between online and face-to-face interaction 5. working with people you haven't met face-to-face 6. notification of new posts (online) 7. description of online tools 8. using online forums to keep updated 9. orienting people to the community 10. community events 11. establishing timelines, milestones
Need 2: Allow members' participation to vary over time	12. participation varies over time 13. keeping members engaged in less active times 14. member—peripheral group
Need 3: Provide public and private spaces to interact	15. provide public and private spaces to interact
Need 4: Document goals, activities and outcomes	16. importance of documenting work 17. information overload—unorganized information 18. knowledge repository 19. archiving documents
Need 5: Document the community's value	20. value of reflective practice 21. research projects incubated in CoP 22. commitment to the CoP 23. CoP's ability to influence policy and practice change 24. Opportunities for learning
"Extras" on technology **(led to creation of Need 6: Enlist a technology champion)**	25. generation gap—technology 26. glued to my computer 27. heaviness of technology load 28. systematic planning—online tools 29. technology champions 30. technology makes community possible 31. technology resources 32. technology supports, not supplants 33. thinking about new uses of technology 34. working pre-internet 35. Skype 36. Description of online tools 37. Creative versus analytical work 38. Seeing previous versions of site (history)
"Extras" not on technology– background on communities	39. Community background and development 40. CoP inside larger CoP 41. CoP structure and financing 42. Experiential learning 43. Familiar with CoP term 44. Documents to review

Figure 7: Table of final categories and codes

4.2 Key Findings: Refining the Checklist

4.2.1: Need 1: Provide opportunities for regular interaction

4.2.1.1 What the Literature Shows
Need 1 is the most basic one: a community needs to provide opportunities for regular interaction between community members. This need is so fundamental that it almost appears too simplistic to include it, yet we can probably all think of communities that have never gotten off the ground because they have not met regularly enough to "develop momentum" (Wenger, 2000). Wasko and Faraj's (2000) qualitative study of three electronic communities of practice found that people participated in them as they wanted to exchange knowledge with like-minded individuals, and that they valued the "rich interaction" in these communities—the sense that if they helped someone today, others would help them in the future (p. 167).

Etienne Wenger, one of the originators of the community of practice concept, suggests that public events can help a community to develop an identity, and that they need to occur often enough for the community to develop momentum (but not so often that people stop coming) (Wenger, 2000). Gongla and Rizzuto (2001), in their study of 60 electronic communities of practice at IBM, found that as communities are forming, any technology that facilitates communication is useful, such as phone, email, forums and bulletin boards. As communities become more active, they need technology that supports collaboration, such as customized collaborative websites. Wasko & Faraj (2000) noted that posting a question on such a website can be the fastest way to get an answer for a complex problem. Ardichvili (2003) noted that if the approval process for posting in online communities is time consuming or intimidating, that this can be a barrier to participation.

4.2.1.2 What the Case Studies Show
When coding this need, I reduced my original list of 13 codes to five: opportunities for regular interaction; importance of face-to-face interaction; differences between online and face-to-face interaction; notification of new posts; and description of online tools. For what appeared to be such a fundamental need, we spent a lot of time talking about it in the interviews. There were 14 pages of single-spaced text in the code printout binder in this category.

When discussing this need, members of C2, the in-person community, told me about the formal governance structure of the community, which had been "really thought through carefully" when the community was first set up. It has a number of committees that meet regularly, with meetings set far in advance; several mentioned were an operations committee, a project management committee, a communications committee and an advisory group. Committees wrote up regular progress reports, which were distributed throughout the other committees and included as part of the minutes. As C2 was getting established, one or the other of the two core members (leaders of the research project) stewarded the community by attending every one of these formal meetings, and sometimes both of them attended. Several years later, they were still attending most of the meetings.

In between formal meetings, members used phone calls and email to connect, as well as informal meetings. They also held larger, less formal meetings such as training and learning events. One member described these events as "foundational to the project." Many people were invited to participate in these events, as this community of practice considered members to be "anybody who really has a stake in the project and cares about the project." In this way, more active members of C2 were able to involve peripheral members easily by inviting them to these kinds of events.

C2 members did not report much use of online technologies to interact, except to organize in-person interactions. One active member said that she felt face-to-face interactions seemed to have more impact and staying power, especially for older members of the community. "You don't get that same sense of [humour] typing back to each other," she said. "Maybe that's a generational thing, because I notice [that for] the younger people that's just how they operate. They use social networking, they use Facebook, they really take advantage of a lot of [the] technical networking tools out there to operate, where [in our group] it's not built in to how we operate every day." She later commented that "we tend to fall back on what we know," by which she meant more traditional means of interaction, such as face-to-face meetings and phone calls. Members in C2 agreed that this elaborate governance structure, coupled with many regular meetings, meant that there were many opportunities for regular interaction.

In contrast, while members of C1 meet at conferences periodically, their main mode of interaction is a collaborative website where they can log in to post files and hold discussions that

the whole group can see, with more private discussions taking place through email or phone calls. They also hold regular conference call meetings on Skype, a software application for making free audio and video calls over the internet. During these Skype meetings, members sometimes have side conversations using instant messaging programs such as MSN (a means of exchanging text messages in real time). All of these technologies are available wherever there is an internet connection, so that members could and did participate easily while they were not in their home cities. It is not even apparent where members are physically located at any one time, as they do not need to be in a specific physical location to meet online. The continuous availability of their collaborative website meant that there were always opportunities for interaction. The website also notified members of new posts through email messages, so that everyone could keep abreast of conversations happening in the community.

Since members of C1 are spread across the country, members felt that these technologies made their community possible, and that without them, it would probably not exist. One peripheral member of the community said that she really appreciated the way the collaborative website regularly drew her back in to the community at times when she was less involved, as she was receiving regular postings from the website, giving her the opportunity to stay involved in the discussions. When imagining their community without these technologies, she said, "pre-internet everybody would meet up and say, 'Okay, let's do this,' and then what? Send each other letters?" It is interesting to note that as recently as the mid 1990s, research communities including journal editorial boards and conference program committees with members that were not co-located did use the postal service and long distance phone calls to organize journal issues and conferences (Gordon McCalla, personal communication, November 2009). With the advent of online communications, there is an immediacy to interacting that has made these previously common ways of operating seem very outdated, so much so that this community member could barely envision working this way.

However, the idea of a generation gap also came up with this interviewee. While she embraced the ease of communication afforded by the internet, she told this story that illustrated the perception some have that younger people have a different relationship with the internet and computer technology than they, as older people do (note that she was in her mid-thirties):

> [My partner] had a girl working for him [in a manual labour job]. She's 19 or whatever, and was always on her phone, and always texting [with] her Blackberry ... and he said, "[Brittany], put the phone away."And she said, "What, my phone? I can't." Like she couldn't comprehend the possibility that people would not be

able to get ahold of her 24 hours a day. It was just impossible for her to think
about being separated from that phone. And I thought, 'Boy, I grew up with a
rotary dial phone on the wall. Had to fight with my sister to use it.'

In 2001, Marc Prensky published a seminal article on the generation gap he perceived, classing
those who had grown up with computers, video games and the internet as "digital natives", and
those not born into this digital world as "digital immigrants." He argued that digital natives
learning fundamentally differently than immigrants, and that we must transform education to
connect with them. This idea has met with considerable interest and criticism; Australian
research with undergraduate students suggests that the digital native debate lacks empirical
evidence, and that young people's relationships with technology is "much more complex than the
digital native characterisation suggests" (Bennett, Maton, & Kervin, 2008, p. 783). Nevertheless,
the idea is interesting, and we could think of our community of practice member, in her mid-
thirties, as a digital immigrant, and "Brittany", at 19, as a digital native.

Overall, C1 members were quite positive about how these technologies made their community
possible. There were discussions about various issues that they had with the particular
collaborative website system they were using, such as the way it handled notification of new
posts, as it was not always clear which posts were replies to other previous posts, because of how
messages were "threaded" (threads refer to a series of messages that have been posted as replies
to each other, such that each has the same subject line.) The website also did not offer the ability
to modify how often members were notified of new posts—each post generated a separate email,
such that members' inboxes could fill up quickly: as one member commented, "We've had days
where there's been 20 messages coming from [the website]… we've had weeks where there's
been 40 messages during that week, and this has been very useful but at the same time very
discouraging."

One member talked about using a system that allows members to choose how often they are
notified, such as the way Yahoo groups handles notification: group members may choose to
receive email notification of individual posts, a daily digest of all posts, to view posts online
only, or only receive notification of special notices that the group moderator deems should be
sent to everyone. Another member reported that their community was planning to change to
another collaborative website technology, as they felt they had reached the limits of what their

original collaborative website software was able to support. It had been chosen as it was easy to set up and use, so seemed a good choice to get the community started.

These comments touch on the idea of information overload, which is much discussed in the age of the internet. Researchers have explored the effects of dealing with large amounts of information (see for example Bawden & Robinson, 2009) and coping strategies that people are employing, such as filtering and withdrawing (Savolainen, 2007). Community members using online collaboration tools appear to be looking for ways to better manage information flow.

Interestingly, one member of C1 I interviewed talked about the internet as a necessity for modern life: "Everybody needs it. Today it is felt that even the governments have no right to cut internet connections, even to what they call pirates." At the time of the interview, the European parliament was discussing whether internet access was so fundamental a right that it should require court authority for internet providers to cut access to anyone, even so-called pirates who were sharing large numbers of copyrighted digital files illegally. UK Prime Minister Gordon Brown had been quoted as saying that people are entitled to internet access in the same way they are entitled to gas, water and electricity. The European Parliament has already adopted a provision stating that internet access is "critical for the practical exercise of a wide array of fundamental rights" (2009). As yet unresolved as of March 2010, this debate highlights the primacy of internet service in the modern world. The British Broadcasting Corporation added to this discussion very recently by commissioning a poll, published in March 2010, that found that four in five adults in a sample of 27,000 adults in 26 countries considered internet access a fundamental right, agreeing either strongly (50%) or somewhat (29%) with the statement "Access to the internet should be a fundamental right of all people" (2010).

Although their reports on interacting online were positive overall, all five members of C1 interviewed told me that they felt face-to-face interaction was critical to their community's success. One core member had thought a lot about this issue while establishing C2. He said:

> You can't begin with the online interaction and sustain it unless you've got the face-to-face interaction... It's like saying that you can sustain a relationship on the telephone. You talk to anyone who's trying to do it long term—it doesn't work. Ultimately you *need* the face-to-face, you *need* to build the personal, professional relationship which can then be sustained by these other means.

He reported that he had done some research on best practices, and found that "if you begin with the face-to-face you've got a far better chance of sustaining relationships through the sorts of confusions that inevitably come up via technologically mediated means of communication— email being probably the biggest culprit." He went on to describe another project he had been involved in, which people had met mainly face-to-face for a number of years while the team was getting established. When they were funded, reviewers commented favorably on how they had paid attention to "ensuring that we had a proper, solid foundation for our relationships, because they felt that that was key to continued positive working relationships."

Another member said, "I don't think it's even thinkable that we could just manage everything we're doing just by using Skype. Or just by using email or just by using [their collaborative website].You can settle some technical problems using Skype, email or other technological means of communication, but there are things that you just simply cannot fix, or you cannot talk about, or there are things that do not go through email... there's always situations where you need to fix things in person."

A third said, "I could have done everything from home, but there is something really important about me getting down there and actually talking to people." Another said, "I think the face-to-face is essential but I'm surprised that we've gotten as much accomplished with the journal as we have without it... we hadn't had a face-to-face meeting until this past week and I suspect we could have continued to get things accomplished without, possibly without *ever* having one." However, he later commented that over time he felt that community members would disengage if they didn't get some of the intangible rewards that come with meeting with people in person: "getting out and mixing up with people who have similar ideas."

Another theme that emerged both from the interviews, and when I have presented findings from this work is the idea that there are some times when face-to-face interaction is preferable, and other times when online interaction is preferable. One community member said that he felt online interaction gave community members a more equal playing field, so that they could all contribute, as in his experience in face-to-face interaction the more dominant personalities tended to dominate conversations.

That being said, he went on to say that he felt that a face-to-face environment is better for creative work, as you can get into "flow"—a state of engagement in which ideas are bouncing

around and you are getting instant feedback, which he described as a "very energizing state of continual development" that is missing from asynchronous mediated online tools. He felt that in their community the online tools worked best for the more thoughtful, analytical work needed after the idea generation phase, in which ideas are polished and refined. He saw these methods as "serving the two very different but equally important ends of that creative cycle, starting with the chaotic, rapid fire ideation process really, and then transferring towards the more analytic mode where we go back home and begin to work things out either with Skype or with [the collaborative website]."

4.2.1.3 Key Findings

Community of practice members interviewed agreed that this item was an appropriate first item to include in my checklist. A key finding emerging from the discussion of this first item is that face-to-face interaction is important in the development of all communities, whether they meet mainly in person or mainly online. It takes time and shared experiences for people to build the kind of relationships that make for effective communities of practice. In my experience, based on collaborative work conducted in our research unit, I believe it would be quite unusual to have a collaborative project where researchers and decision makers didn't spend at least some time meeting face-to-face. Paying attention to developing these interactions can take a community farther, faster, online. There were also interesting comments around perceived generation gaps in technology use, information overload, and other issues of online interaction, which helped inform the need for a technology champion, discussed in Section 4.2.6.

4.2.2 Need 2: Allow members' participation to vary over time

4.2.2.1 What the Literature Shows

Need 2 was inspired by Etienne Wenger's original work on communities of practice, described in his book *Cultivating communities of practice* (Wenger et al. 2002). Wenger described communities as having three kinds of members: core members, who are leaders, active members, who are regularly involved, and peripheral members, who are occasionally involved. While he has described newcomers in the community as entering in the periphery and gradually moving to the centre, he also wrote that members' involvement may vary over time, with members moving in and out of these various membership categories. Wenger also discusses the idea of a community coordinator or steward, sometimes called a "community champion," most likely a core member, who is able to put sustained effort into developing the community (Wenger, 2004; Wenger et al., 2002).

Schlager and Fusco, in their work on online communities for teachers, note the non-hierarchical nature of in-person communities of practice, and caution that environments that support online communities should be equally non-hierarchical, allowing all members to take on leadership roles (Schlager & Fusco, 2003). This may be easier said than done online, however, as core members may feel that they need to reserve some administrator privileges over what content becomes part of the online community.

4.2.2.2 What the Case Studies Show

For this need, I had only two codes: participation varies over time, for which I had six pages of single-spaced coded text; and keeping members engaged in less active times, for which I had one page of coded text. During the interviews, community members had no trouble describing how their own participation and that of others had varied over time, with one identifying that this flexibility is a real strength of the community of practice approach.

Members in both communities interviewed discussed how their involvement had varied, depending on what else they were involved in, as well as what projects they were doing in the community. As one noted, "The longer the project goes on, the harder it is for people to stay actively engaged." Another, a core member, said that when you are setting up a community, you need to be prepared for people's involvement to vary over time. He also suggested that core members could aid other, less experienced members by helping them to manage their participation so that they don't get overcommitted, burn out and then withdraw from the community, and that with time and experience, these members would be able to self-regulate. He also suggested that core members can ensure that others get out of the community what they need to professionally, such as academic publication credits or other kinds of acknowledgements that count in their professional lives.

One member of C2 was very positive about the flexibility in the community, noting: "I've been in other partnerships, collaborations, projects where if you don't come to every meeting, it's a black mark against you... I think that's a barrier... life happens and you can't be really tight about those things." Another described how someone who started out as a peripheral member "moved

into a major, major role" over time, as it became apparent that her skills were vital to keeping the community running.

In terms of technology, members of C1 praised the flexibility that working in the collaborative website provided. Indeed, online communications technology has made C1 possible, since its members are dispersed widely, without funds in the community itself for travel. A peripheral member of the community described how she enjoyed being able to drop back in at any time to see what people were working on. She felt the online environment provided both transparency, and inclusiveness, commenting: "I've been involved in a lot of conversations that I could have been left out of and been put to the side, and told, 'Look. Just do the design.'"

Another member talked about how "the online tools really allow us to pick and choose our *level* of involvement and the *timing* of our involvement, which is a really important distinction." By this, he meant that he could choose whether or not to post new discussion topics, which posts to respond to, and give a considered decision about what to become involved in, when opportunities were presented online, with time for reflection, and the means to fit community work into their busy schedules. C1 has also developed ways for members to withdraw temporarily, generally by sending out a single email asking that others "leave them alone" for a bit while they focused on other, more pressing tasks. This task has been formalized in some computer-mediated communication tools, which incorporate the status of those participating: people logged into instant messaging services can set their status to available, away, or busy, and people who participate in online gaming environments like EverQuest have avatars that show their status at any given time, even when they are logged out, as their avatar goes to "sleep" (Gutwin et al., 2008, p. 1419).

4.2.2.3 Key Findings
Interviews confirmed that this need is important to capture in a checklist for building effective communities of practice. A key finding that emerged from this discussion is that communities need to be supportive of members' varying involvement, and respect whatever time they are able to give, as peripheral members may later take on larger roles while other, more active members step aside due to other commitments. Operating within a community of practice framework may be more flexible for many projects, as individual members can be seen to have more control over their involvement with the community of practice. There is a sense from the literature, and from

the interviews, that it is a more flexible and adaptive way of working than traditional teams, work groups, or networks.

Online environments can be particularly useful in allowing peripheral members to participate, as they can allow members to read discussions and follow along without posting, and can welcome their contributions when these members feel ready to make them. While this non-participation has been characterized negatively as "lurking," Dennen's (2008) study of student behaviour in online discussions found that it is akin to active listening in a class discussion, allowing people to focus on the content until they feel better prepared to take a larger role by making original contributions. Circumstances may also change for individuals: they may have a change in roles, or a change in their perception of using technology for interacting. Further, on a community level, there may be a change in a community's goals, or a change in a community's technology, that will lead to changes in individual members' participation. This idea of "active listening" in an online community fits very well with Lave and Wenger's (1991) definition of legitimate peripheral participation, in which newcomers "listen" by observing more experienced members, and over time "talking" (by posting to online discussions) more and more, which is how they are taking on greater roles in the community as they gain more experience.

4.2.3 Need 3: Provide public and private spaces to interact

4.2.3.1 What the Literature Shows
Need 3 is another of Etienne Wenger's (2002) principles for the design of an in-person community of practice, described very briefly in *Cultivating Communities of Practice.* Schlager and Fusco (2003) argue that public and private meeting places are often not very well represented in online design.

4.2.3.2 What the Case Studies Show
For this need, I had only one code: public and private spaces for interaction, for which I coded four pages of single-spaced text. Correspondingly, discussion of this need was not lengthy, as members in both communities found it easy to identify both public and private spaces in which to interact. One member of C2 told me how they had met in a variety of public meeting spaces at offices and other venues of the community's many partner organizations, so that community members would become familiar with each other's environments. On a more public level, they

had also held meetings in public event space in their city. Another C2 member talked about how the community of practice had "quite a public face", such that people often approached her, as a core member, to meet privately with them so they could see about getting involved.

A core member in C1 talked about how different means of interaction are appropriate at different times, saying, "for a community to succeed, it has to be well understood either intuitively or made explicitly apparent what each type of venue is important for." Public interaction spaces identified included conferences, meetings, conference calls and the collaborative website that C1 is using, as all sections are open to all members. C1 members understood it to be a public environment in their community, suggesting that email and phone calls would be more appropriate private spaces for interaction; as one said, "I didn't even *think* to look in [the collaborative website]" to interact with other members privately.

This core member talked extensively about the idea of transparency in decision making in a community, which has been identified in the literature as an element of trust crucial to relationship building (Lomas, Fulop., Gagnon, & Allen, 2003; Ardichvili., Page & Wentling, 2003). He said, "while you can meet privately, it wouldn't be appropriate to make a decision on behalf of the group behind closed doors or when someone's having a drink or a private email... You can meet as a group to decide work you are all going to do, and then a few of you can go out and talk about it, but you can't change your decisions." While some decisions may be made by a subset of the community, they need to be clearly understood in the context of the larger group, so they are transparent even if "only in the sense that everyone understands what gets decided or discussed where."

Another C1 member commented that all communications methods have ways for people to interact publicly and privately—at a conference, people may listen to the public talk, while chatting at their table, or get drawn into more intimate conversations at the side of the room or in the hallway between talks, in what he described as "sidebars." In C1's Skype calls, he noted, "it's not unusual for people to be chatting to each other with MSN at the same time... if you give any group of more than two people a communications medium, they're going to figure out a way to have sidebars as well." Ultimately, he felt it was important for people to be able to target their statements to their intended audiences using these different media. Further, just as in face-to-face communication, there are always options for members to opt out of online interaction: by leaving

a conference call part way through, or changing your status in an instant messaging system to show you are no longer available (common settings include busy, away, and be right back).

4.2.3.3 Key Findings
Again, the discussion surrounding this need demonstrated that it is another basic one to include in the checklist. Two key findings emerged from the discussion of this need for public and private spaces for interaction: community members need ways to target information to different audiences; and communities need to establish where, when and how decisions are to be made in front of the whole community, so that its work is transparent. Targeting knowledge to different audiences is a common method of knowledge transfer (Lavis et al., 2003). Online environments can facilitate targeting through web personalization. Web personalization is the ability for users to create accounts and profiles for targeted information delivery, so that they can select and organize what they view on a website; it can be user-driven, so that individual users can modify views based on their own needs, or system-driven, in which content is grouped based on anticipated user types (Goh et al., 2008). To make decision-making transparent, communities of practice can establish governance procedures and terms of reference documents, where decision-making procedures are outlined. Online environments can also promote transparency by documenting decision-making publicly on websites for all community members to see.

4.2.4 Need 4: Document goals, activities and outcomes

4.2.4.1 What the Literature Shows
Need 4, to document a community's goals, activities and outcomes is meant to address a community's need to capture knowledge that they are creating, in order that it may be shared. With the rise of the internet as a normal means of communicating and collaborating, the potential for technology to support communities of practice is very well documented in the literature. Gongla and Rizzuto (2001) said that communities need both a place to put explicit knowledge so that current and future community members can access it, and ways in which members can learn more about the community itself through surveys, polls, and search tools to search through the knowledge gathered there, and locate experts with which to confer. As communities grow, so do their needs for technology to help manage the documentation and storage of the knowledge they create. Jian and Jeffres' (2006) study of employees' willingness to contribute to electronic repositories describes such information contribution and maintenance as an act of collaboration itself, as contributions are not an aggregate of everyone's individual contribution. "Instead, one's contribution has to be written, collected, assessed, accepted or rejected, revised and frequently

updated. Levels of interaction among the collaborative parties can range from simple to complex depending on the complexity of the shared information" (p. 248).

4.2.4.2 What the Case Studies Show
For this need, I had four codes: importance of documenting work, information overload—unorganized information, knowledge repository, and archiving documents, which represented eight pages in the code printout binder.

While community members interviewed agreed that documenting the community's work and building a knowledge repository was a good goal for their community, it became apparent in my discussions that this need represented a huge challenge. This need, more than any other, helped illustrate what may be a weaknesses in the community of practice approach, as it is often loosely structured, and this lack of structure could be an impediment—the interviews showed that neither community had expended much time or thought into documenting their work in anything approaching a coherent process. This is a well-known problem in other areas such as software development, where developers find they spend considerable time locating tacit knowledge from others about code they are developing jointly, and most of this knowledge stays tacit, never getting documented in the code, due to a variety of barriers (LaToza, Venolia, & Deline, 2006).

Some members of C2 expressed embarrassment over the community's use of technology, as they felt there is a lot of untapped potential. One active member lamented, "We could have made so much better use of technology [to organize this documentation], such as a log-in website, a place where we could go in and access all that stuff." She suggested that it would be good to have a repository of community resources that participants could contribute to on an ongoing basis.

Even raising a community's use of technology as a discussion topic was seen as a barrier to accessing some communities, and community members. I found that members had either not really considered how online communications technologies could address issues in their community, or they had a sense that they could do more, but didn't know where to start. The same active member whose comments were mentioned in the previous paragraph said that they needed a "mindshift to capitalize on technology", as when they were "looking at technology.. as soon as that point comes up, it just dies... I know of some possibilities, but I would never lead

that process, and sometimes we harp on it, but you know, [when] you look around the table, [that expertise] is just not at our table." Part of the issue for their community may have been that their project had been running for a number of years, prior to the explosion in social networking that has brought many changes to the notion of what constitutes a community (Daniel, 2009; Wenger, 2009).

However, during the course of interviews with C2 members, several started to identify ways they could put technology to better use, such as: posting more regularly on their website, sending out regular updates on their listserv with links to their website, brainstorming on using their site to engage members during less active phases of their project, and finding ways to increase the community's technology expertise. One identified that the community needed to have someone to champion this process, something explored more fully with my addition of a sixth need.

Members of C1 reported that they were often dealing with the opposite problem: too much documented in their collaborative website, especially as some of it is not well organized. "Sometimes it's a bit overwhelming," one member said. "I think there's a bit of value in *not* knowing... really, for somebody to read over all of our bickering back and forth over design and logos, I mean, *really*." Another suggested that a new person joining their community could go through this log of information to review what they have done, but "unfortunately it's not separated out very well by conversational topic, so it's a little bit like trying to listen to five different telephone conversations at once—or twelve." As a third said, "We've been sharing information without using any specific tools to manage the documentation."

Another, reflecting on their use of technology, said, "technology makes communication in some cases possible, but at the same time it makes it a lot harder and heavier... I can think easily about a few people who, just knowing now what I know about the technology [that we are using] would say 'forget it'." A member who identified himself as a technical person told me that C1 members had reached the limit of what they felt they were able to do with the collaborative website they were currently using, and that they were planning to switch to another that better met their needs, such as one that handles email notification more flexibly. Several members mentioned how much they liked email notification of new content on the site, so they could easily keep up with what was happening, but when I delved further into how this actually worked, community members did have issues with the way in which their software environment

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handled message threading, as it could become difficult to keep conversations straight. Others found that their email inboxes could fill up rapidly with email notifications of new postings on the site, as there was no way to receive these notifications other than individually, each time something new was posted; an alternative would be a receiving a group of messages in a user-specified frequency, such as a daily digest.

4.2.4.3 Key Findings
Discussion about this need made it clear that it is an important one for communities to consider, especially as community members did talk a lot about the ongoing challenges of documenting the community's work. The key finding that emerged from this discussion is the many issues that need to be considered when documenting activities and building a knowledge repository: organization, ease of access, and ease of use, to name a few. There is a fine balance between too much information and not enough. Considering this need early in the formation of a community may make it easier to address. Discussion of this need contributed to the development of a sixth need, described below.

4.2.5. Need 5: Document the community's value

4.2.5.1 What the Literature Shows
More recently in the knowledge transfer literature, people have started to talk about the value of evaluation of the methods they are using (see for example, Graham et al., 2006). This discussion suggests that we have moved from the idea that "we need to do something", in which people have been trying out many different knowledge transfer methods, to a more thoughtful process in which we pay more attention to what methods are working, what are not, and why. This fifth need seeks to inform this process.

The Canadian Health Services Research Foundation's (n.d.) Network Notes newsletter issue on communities of practice says that anecdotes and stories may provide the best way to communicate the value of a community of practice. "Good stories not only translate benefits into tangible value, they also serve as motivators and help communities build, share and apply knowledge" (p. 3) In an article on achieving buy-in in networks, Kramer and Wells (2005) suggest that you can evaluate a network's effectiveness through such process outcomes such as number of contacts, shared projects and exchanges, as well as tracking knowledge use. While this article does not specifically mention communities of practice, the authors use networks in a sense that is very similar to that of communities of practice, thus making it worth noting.

Storytelling has been identified in the knowledge management literature as an important way in which tacit knowledge is made explicit. Brown and Duguid's 2000 book, *The Social Life of Information*, talks about how stories convey specific information as well as general principles. The authors discuss Julian Orr's well-known ethnographic study of Xerox photocopier repair technicians who, though presumed by management to work alone, actually had formed a community of practice within which they collaborated extensively in order to do their work, in the face of inadequate training and documentation. The technicians were:

> remarkably social, getting together on their own time for breakfast, lunch, coffee, and the end of the day—and sometimes for all of the above. …At these meetings, while eating, playing cribbage, and engaging in what might seem like idle gossip, the reps talked work, and talked it continuously. They posed questions, raised problems, offered solutions, and discussed changes in their work, the machines, or customer relations. In this way, both directly and indirectly, they kept each other up to date with what they knew, what they learned, and what they did (p. 102).

We have found in collaborative work in our own research unit that stories about how research has been put into practice resonate with other researchers, end users and funders alike. Tracking them has been a matter of talking with research partners about how the project has made a difference for them; we have done this informally, as well as more formally by bringing together a number of partners at a forum to share stories (Macqueen Smith et al., 2008).

4.2.5.2 What the Case Studies Show

For this need, I had five codes: value of reflective practice; research projects incubated in the community of practice; commitment to the community of practice; the community of practice's ability to influence policy and practice change; and opportunities for learning, for a total of 12 pages in the code printout binder. This need garnered a range of responses, from individual satisfaction, to noticing what changes the communities had stimulated. Most members interviewed commented on the enjoyment they got from working in their community. A member of C2 described it as a place for members from different systems with different mandates "to hang out together and share." A member of C1said, "There's this sense of leadership in the community that really appeals to me." He described their role as "advance scouts" who could set direction for the larger discipline in which they work, rather than just reflecting the community back to itself. Another said "it's been a really rich experience." Communities of practice, by definition, create a space and place for shared reflective practice. Several members commented

on the importance of this; said one: "the more we understand about how to work with each other, the more I think we can enjoy working with each other in positive ways."

One core member described their community as a place to make the hidden work of relationship building, so common with interdisciplinary and intersectoral work, explicit. Relationship building starts with trust, which lots of time and shared experiences to cultivate. Often it does not look like "work" in a traditional sense, but it has been well established that "what might look like 'gossip' or 'idle talk' is actually knowledge creation and dissemination in action" (No Doubt Research, 2001).

Some members interviewed were not familiar with the idea of a community of practice, and would not have identified their community in this way. However, in several interviews, this discussion led to one on the value of shared language. There was a sense from community members that there is value in naming things and developing common language, which one person described as "really key in relationship building." Common language is a powerful way of uniting a community whose members have diverse backgrounds and interests (No Doubt Research, 2001).

C2 had actually spent time surveying members to try to identify the value of their community. One active member involved in this surveying reported that members valued the dedicated time for reflective practice that the community provided: it was the only protected time some of them had to sit down together and reflect on their work, without having to take notes as they do in their regular work meetings. Others talked about the value of the community in confirming what they already suspected or knew, as findings come to light in the research data they are gathering and sharing. A member from a service agency said she felt her "views were being honoured" by including her at the table. Another talked about the community's ability to "put things on the radar" in a larger sense, saying that she was hearing the common language and discussions that she knew came out of their community being used more widely.

4.2.5.3 Key Findings
This need turned out to lead to some of the most interesting discussions, where people shared their passion for working "in community." This need seems essential to include, if only to nudge community members to take the time to reflect on the value of participating in their community of practice, what is working well, and what can be improved.

The key finding that emerged from this discussion is that communities of practice can reveal and legitimize the relationship building that happens in them as real work, and a normal, needed part of the research and knowledge discovery process, by keeping people engaged in what they are doing, with time for reflective practice. Other themes were the value of reflective practice, and the value of working in an interdisciplinary environment—learning to work with people from different organizations or disciplines, who have differing roles and serve different mandates. A community of practice can provide "a chance to work with people you wouldn't normally work with," one member said, saying that this variety of perspectives creates a richer community. People noted that working in these communities helps keep them engaged in their work, by providing a sense of its importance, and the feeling that they are part of something bigger than themselves.

4.2.6 Adding Need 6: Enlist a technology champion

Of the 44 codes I created when coding my interviews, 20 of them were "extras," not grouped into the five categories, corresponding to the five needs in the model I was testing with the interviews. Fourteen of these codes had to do with technology, which makes sense, since all of my needs addressed how communities were using technology. The other six were related to the background and structure of the communities, which provided contextual information for the analysis. In thinking about the large number of codes in the "extras on technology" category, it became apparent that the checklist should include a specific need that addresses technology. In this need only, I first discuss what the case studies have shown, and then what the literature shows, as it is the case studies that led me back to the literature for this need.

4.2.6.1 What the Case Studies Show
Online communities are in their infancy compared to place-based communities, which have existed since the dawn of humankind (Daniel, 2009). With the many difficulties posed by using online communications technologies, one member in C1 suggested a solution in creating "technology champions" for communities. "The further away you move from technical disciplines, the more likely you are to find people not using the tool that's optimal to them, but the only one that they could cluster around that everybody could figure out how to work," he commented. This had been the case in their own community, which had gathered around a very simple collaborative environment that they could set up easily, but ultimately did not meet their needs very well. This thought was echoed by a member in C2, who lamented her community's lack of technical expertise "at the table… there are no resources … to train yourself or build that

[expertise] into your system" so instead people use more traditional, face-to-face methods, as "we tend to fall back on what we know." The idea of a community steward or champion is already well established in the literature; (Wenger et al., 2002) so it should not be much of a stretch to see the value in also identifying a technology champion to guide this aspect of a community's development.

4.2.6.2 What the Literature Shows

Two months after I had first presented the idea of a "technology champion" in an oral presentation at the Canadian Public Health Association's annual conference, held in Winnipeg in early June 2009[6], Etienne Wenger and two of his colleagues published *Digital Habitats: Stewarding Technology for Communities* (2009), which started as an update to Wenger's 2001 survey of technology products for communities of practice. This book, released in August 2009, paid considerable attention to the emerging role of what the authors call a "technology steward" in scanning, choosing and using online communications technology to meet a community's needs. The acknowledgement of this need from those who have spent their careers working to further our understanding of how to build and sustain communities of practice provides additional validation for its inclusion in my checklist.

4.2.6.3 Key Findings

This need arose from discussion around many of the other needs, particularly those on providing opportunities for regular interaction, and documenting goals, activities and outcomes to create a knowledge repository. For both of these needs, community members commented on how easy it is to become overwhelmed by many opportunities for interaction and the large amounts of information stored on a community of practice website, much of it unorganized. As previously mentioned, community members using online collaboration tools appear to be looking for ways to better manage information flow. A technology champion could help guide this process; with the wealth of possibilities for online interaction, it is increasingly difficult to determine which path or paths to take.

A technology champion may also be more adept at determining what kinds of communications technologies would best suit various communities. One member of C1 suggested that software

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[6] This presentation is available online as part of the Canadian Public Health Association's conference archives (in the Technology-1 session):
http://resources.cpha.ca/CPHA/Conf/Code/SessionPresentations_2009_e.php?Session=TE&Order=2

developers need to be aware of how people are using these kinds of tools in communities, and understand what makes face-to-face communication "better," so they can strive to make their tools more usable. "We're really limited by the sorts of input devices and tools we're using," he said. "[for example], nobody to my mind has found a really solid video conferencing technology." Another commented that he often felt that the display of information needs work; that "so many times, engineers in the computer field think like engineers. They don't think about design." As Wenger (2009) has commented, technology has changed what it means to "be together", and we need some guidance in these new ways of working.

4.2.7 What do the tag clouds of the interviews reveal?

As previously mentioned, after I had done all my analysis and was writing up the results, I decided to create tag clouds of each interview. Tag clouds show the frequency of words in a text by making words which appear more often, larger. The tag clouds are another way of looking at the data: they provide a snapshot of what was talked about in each interview, and as such could be considered a kind of content analysis.

Content analysis is a qualitative research method used in social sciences; it is "a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding" (Berelson, 1952, GAO, 1996, Krippendorff, 1980, as cited in Stemler, 2001, para. 1). Content analysis begins with doing a word frequency count, with the assumption that words that appear more frequently in a text are the most important. These words then are examined in context, in order to "strengthen the validity of inferences made" (Stemler, 2001, "Analyzing the Data, para. 3). Generating tag clouds to get a picture of word frequency provides some insight into what the important issues in the text are.

Linguistics researchers are also interested in word frequency and keywords in the study of written texts. In her introduction to the 2009 volume on this topic, *What's in a Word-list? Investigating Word Frequency and keyword extraction*, discourse analysis researcher Dawn Archer (2009) noted "I would contend that the frequency with which particular words are used in a text can tell us something meaningful about that text and also about its author(s)—especially when we compare word choice/usage against the word choice/usage of other texts (and their authors)...we learn something about texts by focusing on the frequency with which authors use words precisely because their choice of words is seldom random" (p. 1).

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Using online generators such as www.tagcrowd.com, it is easy to generate tag clouds of word frequency in any text, setting parameters such as how many words to include in a cloud, how often they must appear to be included, and creating and using lists of common "stop-words" to exclude. Tag clouds seem to have originated online in about 2005, on the photo sharing website flickr.com, where they are used to show the frequency of data tagged with particular keywords, in Flickr's case, photographs (Bausch & Bumgardner, 2006; Tag Clouds, n.d). Clicking on individual words retrieves the data tagged by that keyword. Tag clouds used in this manner now appear on many websites (Halvey & Keane, 2007; Tag clouds, n.d). In their experimental assessment of tagging presentation methods, Halvey and Keane noted that it appeared that readers scan lists and clouds rather than read them, reinforcing the idea that they give a concise snapshot of the content of a text (2007).

However, their use to analyze word frequency in a text is more recent still. New media consultant Joe Lamantia wrote on his blog in March 2007 about the emergence of tag clouds for textual analysis, differing from their "well-known role as navigation mechanisms and indicators of activity within social media experiences, [and] emerging as a standard visualization technique for texts and textual data in general" (para. 1). Lamantia cited examples that appeared in 2006, including The New York Times cloud of most searched items (which The Times is still generating), a topics cloud on The Economist, and a Vancouver Sun front page article that had a cloud showing growth of BC property values by city in 2006. Tag clouds also appeared online with some regularity in coverage of the 2008 American election (Tag clouds, n.d.). The Telegraph, a UK national paper, published an analysis of a tag cloud of Barack Obama's inaugural speech in January 2009, comparing it to words frequently associated with him during the election campaign, and to George W. Bush's second inaugural speech (Day, 2009). Clearly, there is something compelling about these pictures that can be generated so easily.

In looking at the tag clouds I generated from my interviews (see Figures 8 and 9), it is easy to see words that figured prominently in each of the communities of practice studied. The words "community," "people," "project," and "think" were mentioned frequently in both communities. In C1, a number of technology words figured prominently: "email," "software," and "website," which is to be expected as a lot of the conversation was about members' use of online communications technologies as part of their work together to launch a journal—and "journal" itself was also a commonly mentioned word. "Project" and "practice" were prominent in C2,

with similar words "committee," "group," and "staff" in some of the tags, as community members talked a lot about working together with partners from various sectors.

Overall, I believe these tag clouds emphasize the importance people placed on working together with other members in their community of practice. I also feel that they convey a sense of joint purpose. While this is a rudimentary analysis, it is another interesting way of looking at the interview data, especially as document review did not prove fruitful.
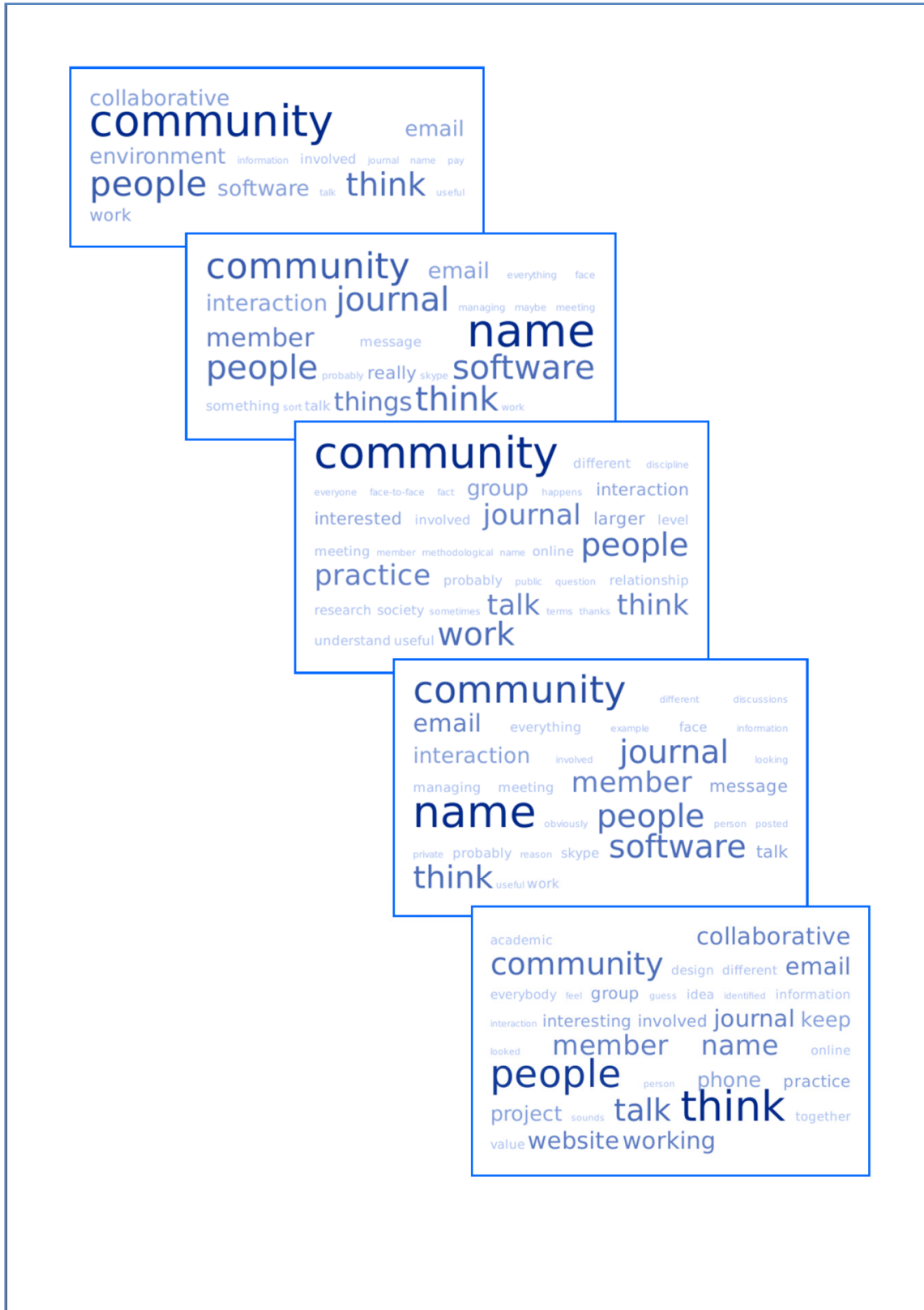
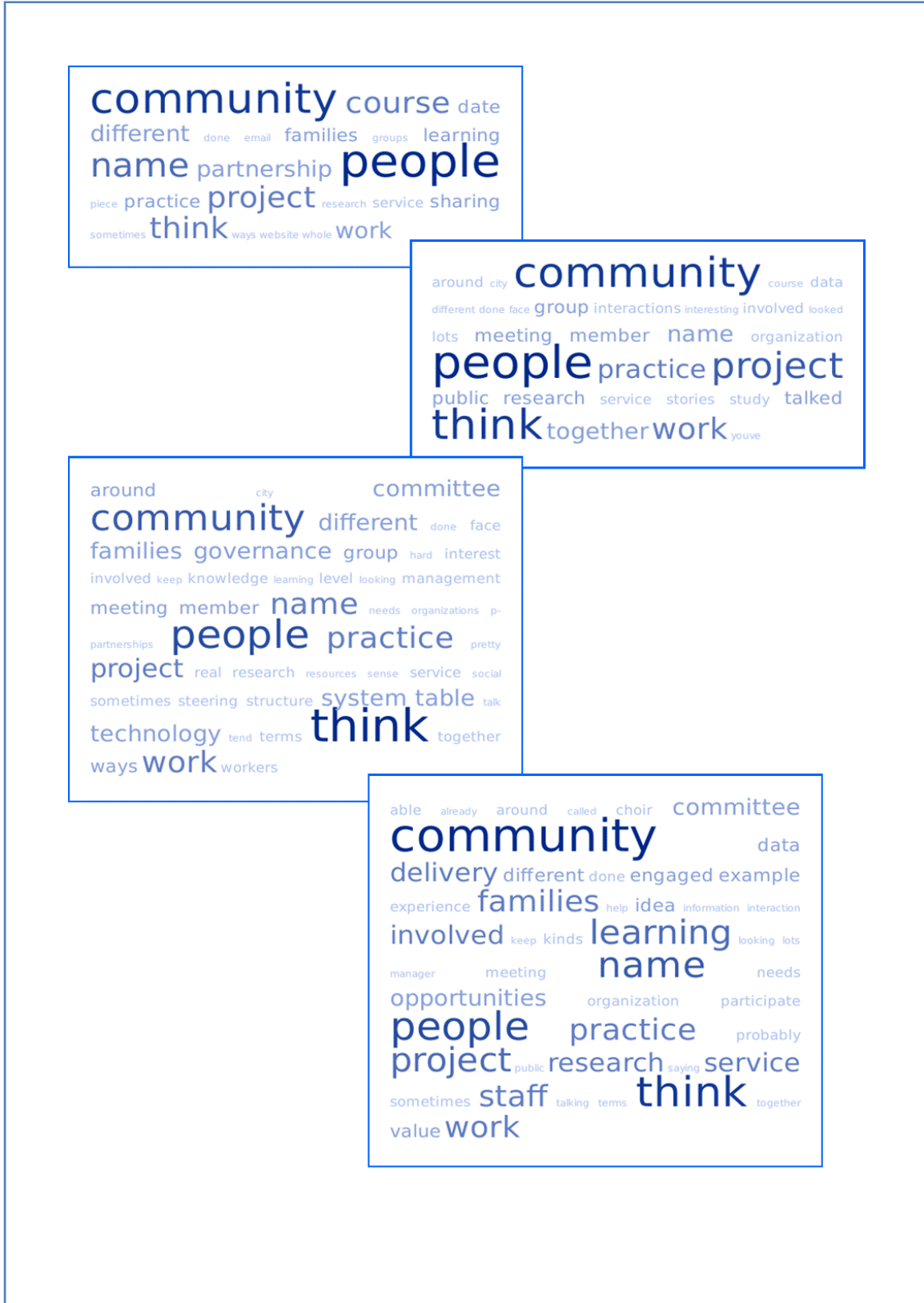**Figure 8: Tag clouds made from the C1 interviews**

Figure 9: Tag clouds made from the C2 interviews

4.3 The revised, validated Conceptual Model of important needs of a community of practice: a checklist

After conducting the analysis, I revisited the conceptual model that I had created prior to conducting the interviews. I reviewed each item, rewriting it in what I believed to be a clear, succinct way. As these items cannot necessarily stand alone, it is my intention that this checklist will be accompanied by some explanatory text for readers who are not that familiar with community of practice concepts. In presentations I have made on developing and using this checklist, I have described the basis for each item, and how we are using it in our provincial community of practice, kidSKAN (see Appendix C for a copy of the poster presentation). I am including this information here as well, as it helps to "close the loop" on this data analysis chapter, demonstrating why I wanted to create the checklist in the first place. The final chapter, Chapter Five: Discussion and Conclusions, provides some final thoughts on this checklist and its uses.

A community of practice should:

1. provide opportunities for regular interaction between community members;

2. allow members to participate at varying levels that can change over time;

3. provide both public and private spaces for interaction;

4. document its goals, activities and outcomes, in order to develop a knowledge repository;

5. identify and document the value of the community itself; and

6. enlist the guidance of a technology champion in order to use online communications technologies effectively.

1. Provide opportunities for regular interaction

To establish an identity, communities need public events that happen often enough to build momentum. Researchers have found that online communities are more successful when members have had some face-to-face contact, which helps build trust more quickly and easily. kidSKAN is meeting this need by organizing regular meetings and networking events, supplemented by a web community that is always available (www.kidskan.ca).

2. Allow participation to vary over time

Communities need to respect members' varying involvement, and whatever time they are able to give, as peripheral members may later take on larger roles while other, more active members step aside due to other commitments. Online environments can be good places for peripheral members to start, as they can follow a community's activities easily and contribute when they feel ready to do so. kidSKAN is meeting this need by offering members the ability to choose and modify their own participation levels in community activities, both in person and online.

3. Provide public and private spaces to interact

Communities need to create both public spaces at which many members can interact, and private spaces for smaller groups of people. Members need ways to target information to different audiences, and a community needs to be transparent in its activities and decision-making. Online environments can facilitate both targeting, through web personalization, and transparency, as activities and decisions can be documented in a clear and accessible way. kidSKAN is meeting this need by creating public spaces at events and online, and encouraging private interaction by providing networking opportunities at events, and online opportunities with a database of early childhood development contacts, and through public and private discussion forums on its website. The website targets content to various audiences, and provides a public space to document activities and decisions.

4. Document activities, goals and outputs

There is great potential for online technology to support communities of practice, but there are many issues that need to be considered carefully when documenting activities and building a knowledge repository: organization, ease of access, and ease of use, to name a few. kidSKAN is meeting this need with its web community, a public repository of knowledge targeted to various audiences, to which anyone can contribute (submissions are reviewed). It houses regular announcements and updates on community activities and goals, which members can follow through a rich email notification system.

5. Identify the value of the community itself

Communities of practice can reveal and legitimize relationship building as a normal, necessary part of the research and knowledge discovery process. They can also keep people engaged in

their work by creating time and space for reflective practice. Although surveys and other quantitative measures can be used to try to capture a community's impact, stories told by its members may demonstrate the greatest impact. kidSKAN is meeting this need by gathering stories of its impact on an ongoing basis, with an eye to evaluating it when it is more mature.

6. Enlist a technology champion

Online communities are in their infancy, compared to place-based communities. According to community of practice guru Etienne Wenger, technology has changed what it means to "be together." Communities that want to harness online communications technologies effectively need technology champions to support and guide them–to help them determine what tools to use, and when. kidSKAN is meeting this need with the expertise of Jeff Smith, a computer science researcher with many years of industry experience, and expertise in interdisciplinary collaboration and fostering creativity. Smith is a co-applicant on the Canadian Institutes of Health Research Knowledge to Action grant that is funding kidSKAN initially.

4.4 Another take on communities of practice

I opened this thesis with the comment that it is difficult to pick up a book on research methods, browse a journal article, or look through a request for proposals without coming across "knowledge transfer" or one of its synonyms. Lately I have been finding that, as I am conducting research into using communities of practice for knowledge transfer, I keep coming across communities of practice. As I was finishing writing up my results, a colleague sent me a link to a TED talk that he had watched that made him think of my work: David Logan on Tribal Leadership (2009). TED (Technology, Entertainment, Design) is a private US foundation that is known for its conferences of "ideas worth spreading"; since mid 2006 it has made many of its talks available free on its website, www.ted.com, YouTube, and through other online distribution mechanisms. In this particular talk, Logan, a PhD, a management consultant and business professor, discusses his research on natural groups which led to the publication of the book *Tribal Leadership: Leveraging Natural Groups to Build a Thriving Organization* with co-authors John King and Halee Fischer-Wright (2008).

In the talk, and in this book, Logan describes tribes as groups of 20 to 150 people that you either know of or actually know. He argues that it is within these tribes that all our work gets done. Logan does not go into a lot of specifics about these tribes, but they sound very similar to the

concept of communities of practice. His work is based on eight years of studying such groups in U.S.-based businesses.

The focus of Logan's work is on leading tribes, and he groups them into five stages, based on their culture: 1) Life sucks; 2) My life sucks; 3) I'm great (and you are not); 4) We're great; and 5) Life is great. The role of the tribal leader is to discern the culture of the tribe he or she is leading to determine what stage it is at, and nudge it to the next stage, and the next:

> At Stage One, people form criminal clusters, such as gangs and prisons, where the theme is "life sucks," and people act out in despairingly hostile ways. Only about two percent of employed tribes are at stage one. Stage Two, the dominant culture in 25 percent of workplace tribes where people say, in effect, "my life sucks," exhibit behavior of apathetic victims. At Stage Three, which is the dominant culture in almost half of U.S. workplace tribes, the theme is "I'm great." This personally competitive cultural stage produces only limited innovation and almost no collaboration. Stage Four represents 22 percent of tribal cultures, and there the theme is "we're great." Stage Four is the zone of Tribal Leadership where the leader upgrades the tribe as the tribe embraces the leader. Stage Four is the beginning of high performance. The theme of Stage five, the culture of two percent of the workforce tribes, is that "life is great" and people focus on realizing potential by making history. Teams at Stage Five have produced remarkable innovations, leading their industries and the economy. So.. tribal leadership is: (1) figuring out what cultures run your tribes, and (2) moving the tribes to the next stage, and then the next (Hall, 2009, p. 2).

Coming across this discussion of natural groups offers up the idea that there are many more possibilities for exploring how to encourage members of these groups to work effectively together. If we think of communities of practice as natural human groups, then there is a much wider field of academic literature to explore in order to understand them better. Looking at management literature, such as business books like *Tribal Leadership*, also offers another promising direction. It is with good reason that Etienne Wenger moved his work on communities of practice away from the academic realm, embracing the possibilities offered by working in the business world, where managing knowledge and people is of enduring interest.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

5.1 A summary of the study's purpose, methods, and major contribution

Successful knowledge transfer is all about relationships (Canadian Institutes of Health Research, 2006). As anyone who has conducted research with non-academic partners knows, it takes a considerable amount of time and effort for these relationships to be fruitful. The great benefit of placing this work within the context of a community of practice is that it gives researchers and decision makers a structure in which to interact.

Communities of practice are informal groups of people who share a common interest, and come together to reflect on and improve their practice together. They offer many of the same benefits of partnerships for researchers and decision makers, with a few additional benefits. First, researchers and decision makers do not need to be working on a specific research project in order to join the community, although they may get involved in a project as a result of their interactions in the community. Second, communities of practice can have a lifespan beyond any project, providing a way for members to stay connected with people who share their interests on an ongoing basis.

This study explored ways in which a community of practice framework can be used to develop and nurture relationships between researchers and decision makers. Further, it investigated how these communities of practice can be supported by online communications technologies. Its major contribution is the development, testing and refinement of a checklist of six ways that researchers can connect with decision makers in communities of practice, both in person and online. This checklist provides concrete, practical suggestions on how to develop an effective community of practice. Items in the checklist are based on both the academic literature on knowledge transfer and communities of practice, and the author's experience as part of an

academic research unit focused on conducting collaborative research with community and government partners. Each item in the checklist was validated through interviews with members of two communities of practice. While the initial checklist had five items, a sixth was added following analysis of the interviews.

The community of practice concept is a powerful one for researchers and decision makers who want to work together to improve their practice. In developing a checklist, I gained insights into how communities of practice function, how they are using technology, and how they can improve their use of technology. This checklist is generalizable, in that it can help guide any kind of community of practice, not just those in which members work on early childhood development issues, nor those in which researchers and decision makers interact. It is a valuable contribution to knowledge transfer methods at a time when both interest levels and efforts to improve knowledge implementation are widespread (Canadian Institutes of Health Research, 2009). The final checklist appears below.

A checklist to build effective communities of practice in person and online

A community of practice should:

1. provide opportunities for regular interaction between community members;

2. allow members to participate at varying levels that can change over time;

3. provide both public and private spaces for interaction;

4. document its goals, activities and outcomes, in order to develop a knowledge repository;

5. identify and document the value of the community itself; and

6. enlist the guidance of a technology champion in order to use online communications technologies effectively.

Figure 10: A checklist to build effective communities of practice in person and online

5.2 How this checklist is being used and shared

As I wrap up this study, our research group is in the early stages of establishing a provincial community of practice, based on what had been a primarily local network for a collaborative research project. This community, known as kidSKAN, the S̲askatchewan K̲nowledge to A̲ction N̲etwork for Early Childhood Development (www.kidskan.ca), is funded by the Canadian Institutes of Health Research. Online communications are a major part of this community, and we are pleased to have a technology expert as a co-applicant, an academic with many years of industry experience who is serving as our technology champion. We are putting this revised checklist to use as we develop kidSKAN, and sharing it with others throughout Saskatchewan and beyond. Further, with its publication and use, we will continue to gather anecdotal evidence on the checklist's value, and we expect to continue to refine it.

Knowledge transfer work on disseminating this checklist has already been started, with presentations at the Canadian Public Health Association 2009 conference (oral presentation, Winnipeg, June 2009), Council for Early Childhood Development "Early Development Imperative" conference (oral and poster presentation, Winnipeg, November 2009), Manitoba Centre for Health Policy 20th Anniversary Conference (poster presentation, Winnipeg, March 2010), the Life and Health Sciences Research Day, College of Medicine, University of Saskatchewan (poster presentation, March 12, 2010), and the Department of Community Health and Epidemiology, University of Saskatchewan's 50th Anniversary Celebrations (poster presentation, March 26, 2010). Further, I have had a first-author case, "Six easy ways for researchers to connect with decision makers: a community of practice checklist" accepted in the Saskatchewan Population Health and Evaluation Research Unit's Knowledge Transfer casebook, currently in press.

5.3 Further modifications, uses, and thoughts on future research

As I was finalizing this study, I spent some time considering other items which could be included in the checklist. After reading more about addressing power relationships in communities of practice, I considered adding an item that dealt with power and relationship building. I later considered adding an item on the role of the facilitators and community champions, following a discussion with someone at one of my poster presentations. It is interesting that Li et al.'s

(2009b) systematic review of communities of practice in business and health care mentioned both responsibilities of facilitators, and power relationships within communities of practice, as issues of interest, concluding that the role of the facilitator was not clearly established (sometimes this role was both a facilitator and a community leader, and other times it was two different roles), and that there was ambiguity in power relationships in communities, which could hamper their effectiveness.

However, in reviewing my interview data, I realized that I did not have enough information on either of these topics to add items to the checklist in the same kind of measured way that I created the original five items, and added the sixth. Making note of these possible items for inclusion here will help keep them "top of mind" as we use the checklist, and we may consider adding additional items and conducting interviews with other community of practice members, perhaps even from our own community.

And what of online communications technologies? Our difficulty in kidSKAN has not been in finding out what is technically possible—it has been in figuring out what people are interested in using. There appear to be considerable differences between different members' comfort levels with the use of these kinds of technology. These differences may be based on perceived generation gaps, or on different people's exposure to and comfort with online communications technologies. It certainly has not been a case of "build it and they will come"—so far, our experience mirrors that of others who have found that adoption of online environments can be a slow process. However, my interviews hinted at the idea that there could be a learning phase in a community of practice, in which people discover that communications technology can do more than they thought might be possible. Dealing with such changing perceptions, and with constantly changing technology, may be another interesting area to explore. McCalla (2000) has posited that each of us live in our own electronic villages, and are members of many virtual communities, and that knowledge flows slowly between these fragmented communities. Another interesting area to explore would be how to use online technologies to better connect communities of practice to each other, in order to speed up the knowledge sharing process.

Finally, I am continually reminded in conducting collaborative research projects with non-academic partners that community building is all about developing good relationships. People that we are working with, in our research projects and in our community of practice, have varying levels of motivation, responsibility and authority to act, and the reasons that they are

participating (or not) may be neither explicit, nor compatible with other community members or the community as a whole. We have learned that it is vital to keep these truths in mind as we work to build a common agenda for our work together.

REFERENCE LIST

Europe mulls file sharing plans. (10-23-2009). BBC News website . Retrieved March 15, 2010

    from http://news.bbc.co.uk/2/hi/8322308.stm

Internet access is "a fundamental right". (3-8-2010).   BBC News website. Retrieved March 19,

    2010 from http://news.bbc.co.uk/2/hi/8548190.stm.

Anderson, M., Cosby, J., Swan, B., Moore, H., & Broekhoven, M. (1999). The use of research in

    local health service agencies. *Social Science & Medicine, 49,* 1007-1019. doi:

    10.1016/S0277-9536(99)00179-3

Andrew, N., Tolson, D., & Ferguson, D. (2008). Building on Wenger: Communities of practice in

    nursing. *Nurse Education Today, 28,* 246-262. doi: 10.1016/j.nedt.2007.05.002

Archer, D. (2009). Does word frequency really matter? In D. Archer (Ed), *What's in a Word-list?*

    Investigating Word Frequency and Keyword Extraction. Surrey, UK: Ashgate. Retrieved

    from http:// www.ashgatepublishing.com/pdf/ SamplePages/

    What_s_in_a_Word_list_Ch1.pdf

Ardichvili, A., Page, V., & Wentling, T. (2003). Motivation and barriers to participation in virtual

    knowledge-sharing communities of practice. *Journal of knowledge management, 7,* 64-

    77. doi: 10.1108/13673270310463626

Bate, S., & Robert, G. (2002). Knowledge management and communities of practice in the

    private sector: lessons for modernizing the National Health Service in England and

    Wales. *Public administration, 80,* 643. doi: 10.1111/1467-9299.00322

Bausch, P., & Bumgardner, J. (2006). Make a Flickr-Style Tag Cloud. *Flickr Hacks*. Sebastopol,
CA: O`Reilly Press. Retrieved from http://www.oreilly.com/
catalog/flickrhks/chapter/hack14.pdf.

Bawden, D., & Robinson, L. (2009). The dark side of information: overload, anxiety and other

    paradoxes and pathologies. *Journal of Information Science, 35,* 180-191. doi:

    10.1177/0165551508095781

Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the

    evidence. *British Journal of Educational Technology, 39,* 775-786. doi: 10.1111/j.1467-

    8535.2007.00793.x

Brown, J., & Adler, R. (2008). Minds on fire: Open education, the long tail, and learning 2.0.

    EDUCAUSE, 43, 16-32. Retrieved March 19, 2010 from

    http://foruminnova.files.wordpress.com/2007/12/minds_on_fire.pdf

Brown, J., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a

    unified view of working, learning, and innovation. *Organization science, 2,* 40-57.

Brown, J., & Duguid, P. (2000). *The social life of information*. Boston: Harvard Business School

    Press.

Buysse, V., Sparkman K. & Wesley P. (2003). Communities of practice: Connecting what we

    know with what we do. *Exceptional children, 69,* 263-277.

Canadian Health Services Research Foundation (2003). *The Theory and practice of knowledge brokering in Canada's health system.*

Canadian Health Services Research Foundation (2007). Governing sideways: guidelines to network governance. *Network Notes*. Retrieved March 19, 2010 from http://www.chsrf.ca/knowledge_transfer/networks_notes_e.php

Canadian Institutes of Health Research (2006). Lessons Learned. In *Evidence in action, acting on evidence: A casebook of health services and policy research knowledge translation stories*. Ottawa: Canadian Institutes of Health Research. Retrieved March 12, 2010 from http://www.cihr-irsc.gc.ca/e/30660.html

Canadian Institutes of Health Research (2010a). More about Knowledge Translation. Retrieved March 19, 2010 from http://www.cihr-irsc.gc.ca/e/39033.html

Canadian Institutes of Health Research (2010b). Knowledge Translation Strategy 2004-2009. Retrieved April 29, 2010 from http://www.cihr-irsc.gc.ca/e/26574.html

Carlson, N.M. (2003). Community of practice: A path to strategic learning. University

of Idaho, Moscow ID. Retrieved March 12, 2010 from http://www.inl.gov/technicalpublications/Documents/2761731.pdf

Contu, A. & Willmott, H. (2003). Re-embedding situatedness: the importance of power relations in learning theory. *Organization Science*, *14,* 3, 283-296. Stable URL: http://www.jstor.org/stable/4135137

Cresswell, J. (1998). *Qualitative inquiry and research design : choosing among five traditions.*

Thousand Oaks, CA: Sage Publications.

Daniel, B. (2009). *Social capital modeling in virtual communities: Baysien belief network approaches*. Hershey, PA: Information Science Reference (an imprint of IGI Global).

Davenport, T., Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Boston: Harvard Business School Press.

Day, K. (20-01-2009). Barack Obama's inauguration speech as a tag cloud. Telegraph.co.uk News website. Retrieved April 30, 2010 from http://www.telegraph.co.uk/ news/worldnews/northamerica/usa/barackobama/4299886/Barack-Obamas-inauguration-speech-as-a-tag-cloud.html

Denis, J. L. & Lomas, J. (2003). Convergent evolution: the academic and policy roots of collaborative research. *Journal of Health Services Research and Policy, 8 Suppl 2,* 1-6.

Dennen, V. (2008). Pedagogical lurking: Student engagement in non-posting discussion behavior. *Computers in Human Behavior, 24,* 1624-1633. doi: 10.1016/j.chb.2007.06.003

Dickinson, H. (2004). A sociological perspective on the transfer and utilization of social scientific knowledge for policy-making. In L.Lemieux-Charles & Champagne F (Eds.), *Using knowledge and evidence in health care:multidisciplinary perspectives* (pp. 41-69). Toronto: University of Toronto Press.

Dobbins, M., Ciliska, D., Cockerill, R., Barnsley, J., & DiCenso, A. (2002). A framework for the dissemination and utilization of research for health-care policy and practice. *The Online Journal of Knowledge Synthesis for Nursing. 9,* 7. 1-12. March 12, 2010 from

http://fcrss.ca/kte_docs/A_framework_for_dissemination_%282002%29.pdf

Dobbins, M., DeCorby, K., & Twiddy, T. (2004). A knowledge transfer strategy for public health deicison makers. *World Views on Evidence-Based Nursing, 1,* 120-128.

Eirinaki, M. & Vazirgiannis, M. (2003). Web mining for web personalization. *ACM Transactions on Internet Technology, 3,* 1-27. http://doi.acm.org/10.1145/643477.643478

Estabrooks, C. A. (2003). Translating research into practice: implications for organizations and administrators. *The Canadian journal of nursing research, 35,* 53-68.

Frank, J., Di Ruggiero, E., Mowat, D., & Medlar, B. (2007). Developing knowledge translation capacity in public health: the role of the National Collaborating Centres. *Canadian Journal of Public Health, 98,* I1-I6. Retrieved March 12, 2010 from http://journal.cpha.ca/index.php/cjph/article/download/876/876

Gabbay, J., le May, A., Jefferson, H., Webb, D., Lovelock, R., Powell, J. et al. (2003). A Case Study of Knowledge Management in Multiagency Consumer-Informed `Communities of Practice': Implications for Evidence-Based Policy Development in Health and Social Services. *Health: 7,* 283-310.

Gabbay, J., LeMay, A. (2004). Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. *British Medical Journal, 329,* 1013. doi: 10.1136/bmj.329.7473.1013

Gagnon, M. (2009). Knowledge dissemination and exchange of knowledge. In Straus S., Tetroe J., & Graham I. (Eds.), *Knowledge translation in health care: Moving from evidence to*

practice (pp. 235-245). Oxford, UK: BMJ Books/Wiley-Blackwell.

Goh, D., Luyt, B., & Lee, C. (2008). Knowledge access, creation and transfer in e-government

    portals. *Onlline Information Review, 32,* 348-369. Retrieved March 12, 2010 from

    http://www.emeraldinsight.com/Insight/ViewContentServlet?contentType=Article&Filen

    ame=Published/EmeraldFullTextArticle/Articles/2640320304.html

Gold, I. (2002). Knowledge Brokers: what exactly are we?   Presentation at the Centre for

    Knowledge Transfer Spring Institute 2002.

Gongla, P., Rizzuto, C. (2001). Evolving communities of practice: IBM Global Services

    experience. *IBM systems journal, 40,* 842-864. Retrieved March 12, 2010 from

    http://old.disco.unimib.it/simone/gestcon/exp_comunities.pdf

Graham, I., Logan, J., Harrison, M., Straus, S., Tetroe, J., Caswell, W. et al. (2006). Lost in

    knowledge translation: Time for a map? *The Journal of continuing education in the*

    health professions, 26, 13-24. Retrived March 12, 2010 from

    https://www.mcgill.ca/files/healthchallenge/20_Graham_Logan_et_al_Lost_in_Knowled

    ge_Translation.pdf

Gutwin, C., Greenburg, S., Blum, R., Dyck, J., Tee, K., & McEwan, G. (2008). Supporting

    informal collaboration in shared-workspace groupware. *Journal of Universal Computer*

    Science, 14, 1411-1434. Retrieved March 2, 2010 from

    http://www.jucs.org/jucs_14_9/supporting_informal_collaboration_in/jucs_14_09_1411_

    1434_gutwin.pdf

Hall, J. (2009). Tribal leadership: An Interview with David C. Logan and John King. *Reflections:*

the *Society for Organizational Learning Journal on Knowledge, Learning and Change, 9,* 15-19. Retrieved March 19, 2010 from http://www.scribd.com/doc/23932789/Tribal-Leadership-Sol-9-3-4-Hall

Halvey, M., Keane, M. (2007, May). An Assessment of tag presentation techniques. *Presentation at the World Wide Web 2007 conference, Banff, Alberta.* Retrieved March 12, 2010 from http://www2007.org/htmlposters/poster988/

Hansen, M., Nohria, N., & Tierney, T. (1999). What's your strategy for managing knowledge? *Harvard Business Review, 77,* 106-16, 187.

Hildreth, P., Kimble, K., & Wright, P. (2000). Communities of practice in the distributed international environment. *Journal of knowledge management, 4,* 27-38. doi: 10.1108/13673270010315920

Innvaer, S., Vist, G., Trommald, M., & Oxman, A. (2002). Health policy-makers' perceptions of their use of evidence: a systematic literature review. *Journal of health services research & policy, 7,* 239-244. doi: 10.1258/135581902320432778

Jacobson, N., Butterill, D., & Goering, P. (2004). Organizational factors that influence university-based researchers' engagement in knowledge transfer activities. *Science Communication, 25,* 246-259. doi: 10.1177/1075547003262038

Jeffery, B., Muhajarine, N., et al. (2006). *The Saskatchewan Population Health and Evaluation Research Unit's application to the Saskatchewan Health Research Foundation's Health Research Team Grant funding opportunity.*

Jian, G. & Jeffres, L. (2006). Understanding employees' willingness to contribute to shared electronic databases. *Communication Research, 33,* 242-261. doi: 10.1177/0093650206289149

Kiefer, L., Frank, J., Di Ruggiero, E., Dobbins, M., Manuel, D., Gully, P. R. et al. (2005). Fostering evidence-based decision-making in Canada: examining the need for a Canadian population and public health evidence centre and research network. *Canadian Journal of Public Health, 96,* I1-40. Retrieved March 2, 2010 from http://198.103.98.77/php-psp/pdf/cdn_journal_ph_fostering_evidence_based.e.pdf

Kimble, C., Hildreth, P., Bourdon, I., & eds. (2008). *Communities of practice: creating learning environments for educators*. (vols. 1 &2) Charlotte, N.C.: Information Age.

Kramer, D. & Wells, R. (2005). Achieving buy-in: Building networks to facilitate knowledge transfer. Science Communication, 26, 428-444. doi: 10.1177/1075547005275427

Lamantia, J. (2007, March 15). Text clouds: A new form of tag cloud? [Web log message]. Retrieved April 28, 2010 from http://www.joelamantia.com/tag-clouds/text-clouds-a-new-form-of-tag-cloud

Landry, R., Lamari, M., & Amara, N. (2001). Utilization of social science research knowledge in Canada. *Research Policy, 30,* 333-349. doi: 10.1016/S0048-7333(00)00081-0

LaToza, T., Venolia, G., & Deline, R. (2006). Maintaining mental models: a study of developer work habits. In (pp. 492-501). New York, NY: ICSE '06. http://doi.acm.org/10.1145/1134285.1134355

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, New York: Cambridge University Press.

Lavis, J., Robertson, D., Woodside, J., McLeod, C., & Abelson, J. (2003). How can research organizations more effectively transfer research knowledge to decision makers? *Milbank Quarterly, 81,* 221-248. Stable URL: http://www.jstor.org/stable/3655841

Lavis, J., Ross, S., Hurley, J., Hohenadel, J., Stoddart, G., Woodward, C. et al. (2002). Examining the role of health services research in public policymaking. *Milbank Quarterly, 80,* 125-154. Stable URL: http://www.jstor.org/stable/3350497

Li, L., Grimshaw, J., Nielsen, C., Judd, M., Coyte, P., & Graham, I. (2009a). Evolution of Wenger's concept of community of practice. *Implementation Science, 4*, 11. Online at: http://www.implementationscience.com/content/4/1/11/. doi:10.1186/1748-5908-4-11

Li, L., Grimshaw, J., Nielsen, C., Judd, M., Coyte, P., & Graham, I. (2009b). Use of communities of practice in business and health care sectors: A systematic review. *Implementation Science, 4,* 27. Online at: http://www.implementationscience.com/content/4/1/27. doi:10.1186/1748-5908-4-27

Liamputtong, P. & Ezzy, D. (2005). *Qualitative research methods*. (2nd ed.) Melbourne, Australia: Oxford University Press.

Logan, D. (2009). *David Logan on Tribal Leadership* [video file]. Retrieved March 22, 2010 from http://www.ted.com/talks/lang/eng/david_logan_on_tribal_leadership.html

Logan, D., King, J., & Fischer-Wright, J. (2008). *Tribal leadership: Leveraging natural groups*

to build a thriving organization. New York: Harper Collins.

Lomas, J., Fulop, N., Gagnon, D., & Allen, P. (2003). On being a good listener: setting priorities for applied health services research. *Milbank Quarterly, 81,* 363-388. Stable URL: http://www.jstor.org/stable/3655849

Lomas, J. (1997). Improving research dissemination and uptake in the health sector: Beyond the sound of one hand clapping. *McMaster University Centre for Health Economics and Policy Analysis Policy Commentary C97-1*. Retrieved March 12, 2010 from: http://28784.vws.magma.ca/knowledge_transfer/pdf/handclapping_e.pdf

Lomas, J. (2000). Using 'linkage and exchange' to move research into policy at a Canadian foundation. *Health Affairs (Millwood), 19,* 236-240. Retrieved April 29, 2010 from: http://healthaff.highwire.org/cgi/reprint/19/3/236.pdf

Lomas, J. (2009). Improving research dissemination and uptake in the health sector: Beyond the sound of one hand clapping (Introduction). In Straus S, Tetroe J, & Graham I (Eds.), *Knowledge translation in health care: Moving from evidence to practice* (pp. 235). Oxford, UK: BMJ Books/Wiley-Blackwell.

Lozano, J., Folguera, C., & Arenas, D. (2003). Setting the context: the role of information technology in a business ethics course based on face-to-face dialogue. *Journal of Business Ethics, 48,* 99-111. doi: 10.1023/B:BUSI.0000004381.51505.67

Macqueen Smith, F., Muhajarine, N., Vu, L., Smith, J., Delanoy, S., & Ellis, J. (2008). Building partnerships to improve children's health. In *Knowledge to Action: A Knowledge Translation Casebook* (pp. 1-4). Ottawa: Canadian Institutes of Health Research.

Retrieved March 12, 2010 from: http://www.cihr-irsc.gc.ca/e/38764.html#1

McCalla, G. (2000). The fragmentation of culture, learning, teaching and technology: Implications for the artificial intelligence in education research agenda in 2010. *International Journal of Artificial Intelligence in Education, 11,* 177-196. Retrieved March 2, 2010 from: 10.1.1.100.7762.pdf

McMahon, C., Lowe, A., & Culley, S. (2004). Knowledge management in engineering design: personalization and codification. *Journal of Engineering Design, 15,* 307-325. doi: 10.1080/09544820410001697154

Mitton, C., Adair, C., Mackenzie, E., Patten, S., & Perry, B. (2007). Knowledge transfer and exchange: review and synthesis of the literature. *Milbank Quarterly, 85,* 729-768. Stable URL: http://www.jstor.org/stable/25098180

Muhajarine, N., Delanoy, S., Macqueen Smith, F., & Ellis, J. (2006a). Influencing policy and practice through research. In Montreal: Measuring Early Childhood Development Conference. Retrieved April 29, 2010 from: http://kidskan.ca/node/178

Muhajarine, N., McIntosh, T., Labonte, R., Klatt, B., Vu, L., & Macqueen Smith, F. (2006b). Joint Policy Making in Early Childhood Development. In *Moving Population and Public Health Knowledge into Action: a casebook of knowledge translation stories* (pp. 29-32). Ottawa: CIHR Institute of Population and Public Health, Canadian Population Health Initiative. Retrieved April 29, 2010 from: http://www.cihr-irsc.gc.ca/e/30742.html#b

Muhajarine, N., Vu, L., & Labonte, R. (2006c). Social contexts and children's health outcomes: Researching across the boundaries. *Critical Public Health, 16,* 205-218. doi:

10.1080/09581590600986432

No Doubt Research (2001). *The watercooler as metaphor: Getting tacit knowledge flowing* (Rep. No. Paper presented to IIR's 3rd Annual Knowledge Management Conference, December 5, 2001). Aukland, NZ. Retrieved March 2, 2010 from: http://www.nodoubt.co.nz/pdfs/knowledge_management/watercooler_km.pdf

Pang, T. (2004). From immune system to health systems: Challenges for health research. *Immunoogy and Cell Biology, 82,* 149-153.

Parboosingh, J. (2002). Physician communities of practice: where learning and practice are inseparable. *The Journal of continuing education in the health professions, 22,* 230-236. doi: 10.1002/chp.1340220407

Patton, M. (2001). *Qualitative research and evaluation methods.* (3 ed.) Thousand Oaks, CA: Sage Publications.

Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. *On the Horizon, 9,* 1-6. Retrieved March 2, 2010 from: http://www.hfmboces.org/HFMDistrictServices/TechYES/PrenskyDigitalNatives.pdf

Punch, K. F. (2005). *Introduction to Social Research: Quantitative and Qualitative Approaches.* (2 ed.) Thousand Oaks, CA: Sage Publications Ltd.

Roberts, J. (2006). Limits to communities of practice. *Journal of Management Studies, 43,* 623-639. doi:10.1111/j.1467-6486.2006.00618.x

Ross, S., Lavis, J., Rodriguez, C., Woodside, J., & Denis, J. L. (2003). Partnership experiences:

Involving decision-makers in the research process. *Journal of Health Services Research and Policy, 8 Supplement 2,* 26-34. doi:10.1258/135581903322405144

Savolainen, R. (2007). Filtering and withdrawing: strategies for coping with information overload in everyday contexts. *Journal of Information Science, 33,* 611-621. doi:10.1177/0165551506077418

Schlager, M. & Fusco, J. (2003). Teacher professional development, technology, and communities of practice: are we putting the cart before the horse? *The information society, 19,* 203. doi: 10.1080/01972240309464

Seidl, J. (1998). Qualitative data analysis (originally published as Qualitative Data Analysis, in The Ethnograph v5.0: A Users Guide, Appendix E, 1998). www.qualisresearch.com [Online]. Retrieved September 15, 2009 from: http://qualisresearch.com/qda_paper.htm

Shein, E (2010, January 22). Telepresence catching on, but hold onto your wallet: be prepared to fork over at least $100,000 for that in-the-same-room feeling. *Computerworld.* Retrieved February 27, 2010 from: http://www.computerworld.com/s/article/9144041/Telepresence_catching_on_but_hold_onto_your_wallet_

Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.

Stamps, D. (1997). Communities of practice: Learning is social. Training is irrelevant. *Training, 34,* 34. Retrieved April 29, 2010 from: http://www.co-i-l.com/coil/knowledge-garden/cop/learnsoc.shtml

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research &*
Evaluation, 7(17). Retrieved April 30, 2010 from http:// PAREonline.net/
getvn.asp?v=7&n=17.

Storberg-Walker, J. (2008). Wenger's communities of practice revisited: A (failed?) exercise in
applied communities of practice theory-building research. *Advances in Developing*
Human Resources, 10, 555-577. Doi: 10.1177/1523422308319541

Straus S, Tetroe J & Graham I (2009a). Knowledge to Action: What it is and what it isn't. In
Straus S, Tetroe J, & Graham I (Eds.), *Knowledge Translation in Health Care: Moving*
from Evidence to Practice. Oxford, UK: BMJ Books/Wiley-Blackwell.

Straus, S, Tetroe, J, Graham, I, Eds. *Knowledge translation in health care: Moving from evidence*
to practice (2009b). Oxford, UK: BMJ Books/Wiley-Blackwell.

Tag Clouds. (n.d.) In *Wikipedia*. Retrieved April 30, 2010 from
http://en.wikipedia.org/wiki/Tag_cloud

Terstappen, V., Muhajarine, N., Nickel, D., & Green, K. (2008). *Getting inside the black box:*
using theory to inform the evaluation of KidsFirst in Saskatchewan, Canada Saskatoon:
Saskatchewan Population Health and Evaluation Research Unit. Retrieved April 29, 2010
from: http://kidskan.ca/node/172

Triggs, P. & John, P. (2004). From transaction to transformation: information and communication
technology, professional development and the formation of communities of practice.
Journal of Computer Assisted Learning, 20, 426-439. doi: 10.1111/j.1365-
2729.2004.00101.x

Walter, Davies, H., & Nutley, S. (2003). Increasing research impact through partnerships: evidence from outside health care. *Journal of Health Services Research and Policy, 8 Supplement 2,* 58-61. doi:10.1258/135581903322405180

Warden, K. (2004). Class presentation on the University of Saskatchewan's Research Communications Office, INT 498/898, Professional Communication in the Sciences, July 6, 2004.

Wasko, M.M., Faraj, S. (2000). It is what one does: why people participate and help others in electronic communities of practice. *The journal of strategic information systems, 9,* 155. doi: 10.1016/S0963-8687(00)00045-7

Weiss, C. ed. (1977). *Using Social Research in Public Policy Making*. Lexington, Mass.: Lexington Books.

Wellman, B. & Hogan, B. (2004). The Immanent Internet. In Jonnston MacKay (Ed.), *Netting Citizens: Exploring Citizenship in a Digital Age* . Edinburgh, Scotland: University of St. Andrews Press. Retrieved March 2, 2010 from: 10.1.1.71.6893.pdf

Wenger, E. (1999). *Communities of practice: learning, meaning, and identity*. Cambridge: Cambridge University Press.

Wenger, E. (2000). Communities of practice and social learning systems. *Organization, 7,* 225-246. doi: 10.1177/135050840072002

Wenger, E. *Communities of practice: A brief introduction.* (2010). Retrieved March 19, 2010 from http://ewenger.com/theory/index.htm

Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating communities of practice: a guide to managing knowledge*. Boston: Harvard Business School Press.

Wenger, E. (2004). Knowledge management as a doughnut: Shaping your knowledge strategy through communities of practice. *Ivey business journal, 68,* 1-9. Retrieved February 27, 2010 from:

http://www.itu.dk/people/petero/speciale/Wenger%20knowledge%20management.pdf

Wenger, E. *Services* (2010). Retrieved March 19, 2010 from

http://ewenger.com/services/index.htm

Wenger, E. (2009). *Digital habitats: Stewarding technology for communities*. Portland, Ore.: CPSquared.

Wesley, P. (2001). Communities of practice: expanding professional roles to promote reflection and shared inquiry. *Topics in early childhood special education, 21,* 114-123. doi: 10.1177/027112140102100205

Yin R.K. (2002). *Case study research: Design and methods*. (Third Edition). Applied Social Research Methods. Thousand Oaks, CA: SAGE.

UNIVERSITY OF SASKATCHEWAN

Behavioural Research Ethics Board (Beh-REB)

Certificate of Approval

PRINCIPAL INVESTIGATOR Gordon McCalla	DEPARTMENT Computer Science	BEH# 09-72

INSTITUTION(S) WHERE RESEARCH WILL BE CONDUCTED
University of Saskatchewan
Saskatoon SK

SUB-INVESTIGATOR(S)
Harley D. Dickinson

STUDENT RESEARCHERS
Fleur Macqueen Smith

SPONSOR
UNFUNDED

TITLE
Using Online Communications Technologies and Communities of Practice to Strengtehn Researcher-Decisionmaker Partnerships

ORIGINAL REVIEW DATE	APPROVAL ON	APPROVAL OF:	EXPIRY DATE
10-Apr-2009	27-Apr-2009	Ethics Application Consent Protocol	26-Apr-2010

Full Board Meeting ☐   Date of Full Board Meeting:

Delegated Review ☒

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: *http://www.usask.ca/research/ethics_review*

Original signed by Chair,
University of Saskatchewan
Behavioural Research Ethics Board

Please send all correspondence to:

Research Ethics Office
University of Saskatchewan
Box 5000 RPO University, 1602-110 Gymnasium Place
Saskatoon SK S7N 4J8

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Appendix A: Ethics Application and Approval

<div align="center">

Ethics Application
Submitted to: Behavioural Research Ethics Board
March 17, 2009

</div>

1. Researcher (Supervisor)

Gordon McCalla, professor, Department of Computer Science (co-supervisor)
Harley Dickinson, Vice Dean (Social Sciences) and Professor of Sociology (co-supervisor)

a) Student

Fleur Macqueen Smith, Master of Arts (Interdisciplinary Studies)

b) Anticipated start date: April 2009
c) Expected completion date: March 2010

2. Title of Study

Using online communications technologies and communities of practice to strengthen researcher-decisionmaker partnerships

3. Abstract

Objective: As knowledge translation has become an integrated part of much research, communities of practice have been identified as a method to link researchers and decision-makers in a supportive environment for conducting and disseminating policy and practice-relevant research. This study seeks to develop and test a model of how such communities of practice can be supported by online communications technologies.

Methods: Through both a literature review and investigation of the practices in the research unit in which the student works, the Saskatchewan Population Health and Evaluation Research unit, the essential elements of a community of practice were described, and how these elements could be supported by specific online communications technologies was identified. We propose to test this model through case studies with two researcher-decisionmaker communities of practice, identifying both how they have used online communications technologies to meet the needs of their communities of practice, and opportunities for better use of these technologies. This work will be undertaken by interviewing key informants from the communities of practice, using a semi-structured interview guide, and doing a document review of any materials (online or otherwise) that key informants are able to provide.

Appendix A: Ethics Application and Approval

4. Funding

Fleur Macqueen Smith has received $6130 of funding from Dr. McCalla through his NSERC grant. She also will be able to access some additional funds for expenses related to this research, such as transcribing tapes and travel to present results, from the Saskatchewan Early Years Knowledge to Action Network grant held by Dr. Nazeem Muhajarine in the Saskatchewan Population Health and Evaluation Research Unit. Fleur is a co-applicant on this grant, which is funded by the Canadian Institutes of Health Research under their Knowledge to Action, Local Researcher-User Interaction funding (2009-2011).

5. **Expertise:** section not required as application is of minimal risk.

6. Conflict of Interest

No conflicts of interest.

7. Participants

Participants for semi-structured interviews will be identified by contacting professional adults (academics and practitioners) involved in researcher-decisionmaker communities of practice in Canada that Macqueen Smith has been able to identify over the course of her research work to date, through literature and internet searches. She will present information about the study to key people involved in these communities of practice, and ask them whether they would be interested in being interviewed. Potential interviewees will have an opportunity to review the consent form and semi-structured interview guide prior to giving consent. Participants will all be professional adults, capable of giving informed consent.

8. Consent

Prior to beginning the interview, Fleur Macqueen Smith will go over the consent form with interview participants to ensure they understand the content of the consent form. The consent form (Refer to Appendix A) informs interview participants of their rights and consent to participate. Once the interview participant has declared they understand the content of the consent form, they will sign a copy. Fleur Macqueen Smith will retain a copy of the signed consent form, and another copy of the form will be provided to the interview participant for their records.

The consent form that will be used clearly outlines that interview participants have the right to withdraw consent at any time during the interview process. Following an interview of approximately one hour, interview participants can then contact the researchers to withdraw their consent at any time. This is clearly outlined in the consent form.

Appendix A: Ethics Application and Approval

9. Methods/Procedures

This study is an instrumental case study, as defined by Stake (1994) which is "aimed a providing inside into an issue or problem or to refine a theory"[1] Understanding the complexities of each case studied is secondary to understanding something else–the individual communities of practice studied will lead to understanding of how such communities of practice function, how they are using online communications technologies, and other opportunities for their use.

This research will involve both interviews with key informants in researcher-decisionmaker communities of practice, and document review, to the extent that the researchers are provided with documents about the community of practice, or able to examine the website of a community of practice that has an online component. Key informants interviewed will be asked if they have documents or other artifacts (for example, podcasts or videos) that the researchers are able to review.

The interview guide (Refer to Appendix B) designed for the interview component will allow for the collection of some systematic information from each participant. However, this interview guide is a suggestion as to how the interview should be formatted, allowing the respondents some flexibility when expressing their perspectives. This form of interviewing is commonly termed a semi-structured interview or the general interview guide approach. These interviews will most likely be conducted over the phone, rather than face-to-face, as respondents are not likely to be from Saskatoon. Depending upon the interview participant's permission, interviews will be tape recorded and then transcribed.

10. Storage of Data

As per University regulations, all interview consent forms, data, tapes and transcriptions will be securely stored in a locked cabinet in research co-supervisor Harley Dickinson's office at the University of Saskatchewan for a minimum of five years upon the completion of this study, after which it will be destroyed beyond recovery.

11. Dissemination of Results

The data collected in the interview process will be used to write a dissertation in partial fulfillment of Fleur Macqueen Smith's Master's degree in Interdisciplinary Studies. Portions of the results may also be published in both peer-reviewed journals, and also presented at conferences. In addition, to aid in knowledge translation, results will be presented to participants in the Saskatchewan early years knowledge to action network. This network is being developed as a community of practice by Dr. Nazeem Muhajarine, Fleur Macqueen Smith, and others, through their work in the Saskatchewan Population Health and Evaluation Research Unit (SPHERU), where Fleur is employed as a research and knowledge translation officer in the Healthy Children research theme led by Dr.

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[1] Stake, RE. (1995). The Art of Case Study Research. Thousand Oaks, CA: Sage Publications.

Muhajarine. This network is funded by the Canadian Institutes of Health Research for a period of two years (2009-2011) under their Knowledge to Action local researcher-user interaction funding.

12. Risks, Benefits and Deception

The main benefit of this research is that results from the interviews and the larger research project, as they are published, will help inform the development of researcher-decisionmaker communities of practice. This work will inform the work of SPHERU in developing a researcher-decisionmaker community of practice, and be shared more widely so that it can inform other researchers and decisionmakers doing similar work.

There are no known risks associated with these interviews. Questions in the interview guide (see Appendix B) are not of a personal or sensitive nature, and are not expected to cause stress or discomfort. Participants are all professional adults who will be capable of providing informed consent. Through the consent form, it has been made very clear that participants do not have to answer any questions they feel uncomfortable answering. This point will also be emphasized verbally before beginning the interview. Participants will not be receiving compensation for their time, so there is no possibility of coersion. Fleur Macqueen Smith will not be in a position of power relative to interview subjects.

13. Confidentiality

All of the datasets that emerge from the interviews will have a numerical identifier attached to them that does not automatically link data directly back to the participant that provided information. Data that emerges from the interviews will be held in strict confidence and discussed only with the research team. In addition, the anonymity of the respondents will be maintained when writing and reporting findings since any potential identifiers will be omitted from reports and/or presentations.

14. Data/Transcript Release

As a part of the member checking process, participants will review the final transcript and sign a transcript release form wherein they acknowledge by that the transcript accurately reflects what they said or intended to say (see Appendix C: Transcript Release).

15. Debriefing and Feedback

As well as reviewing transcripts, participants may also be offered the opportunity to review data, analytic categories, interpretations and conclusions as part of the member checking process, as the researchers see fit, to help establish validity.

Interview participants will be offered the opportunity to be informed of any publications or presentations of the research results and findings. They will also be encouraged to

contact the researchers using the contact information provided on the consent form for further interactions if so desired.

16. Required Signatures

Student:

_____

Fleur Macqueen Smith

Co-supervisors:

_____   _____

Harley Dickinson   Gordon McCalla

Department Head:

_____

George Khachatourians,
Chair, Interdisciplinary Studies

17. Required Contact Information

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Appendix A: Ethics Application and Approval

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Appendix B: Consent Form, Interview Guide, Transcript Release

UNIVERSITY OF
SASKATCHEWAN

Consent Form

Dear potential participant:

You are invited to participate in a study being conducted as part of my Master of Arts thesis in Interdisciplinary Studies at the University of Saskatchewan, entitled **"Using online communications technologies and communities of practice to strengthen researcher-decisionmaker partnerships."** Please read this form carefully, and feel free to ask any questions you may have.

Researchers:

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Appendix B: Consent Form, Interview Guide, Transcript Release

Purpose and Procedure: As knowledge translation has become an integrated part of many research projects, communities of practice have been identified as a method to link researchers and decision-makers in a supportive environment for conducting and disseminating policy and practice-relevant research. This study seeks to develop and test a model of how such communities of practice can be supported by online communications technologies.

One of the methods selected to test this model is conducting interviews with key informants in communities of practice. Data collected with be analyzed to test a model that has been developed that describes the essential needs of a community of practice, and how these needs could be supported by specific online communications technologies. Interview questions will revolve around how you have met these needs in your community, in both face-to-face and online interactions, and other opportunities for use of these technologies.

Participation will consist of a semistructured interview that will take place either in person or over the phone, with an expected length of one to one and a half hours. If you agree to participate, a mutually convenient time will be arranged for the interview. Participants who are not in Saskatoon will be interviewed by phone. With your permission, interviews will be recorded and transcribed, and after your interview, and prior to the data being included in the final report, you will be given the opportunity to review the transcript of your interview, and to add, alter, or delete information from the transcripts as you see fit.

The data from this research project will be published and presented at conferences; however, your identity will be kept confidential. Although we will report direct quotations from the interview, you will be given a pseudonym, and all identifying information, such as the name of the institution, your position etc. will be removed.

Potential Benefits: The main benefit of this research is that results from the interviews and the larger research project, as they are published, will help inform the development of researcher-decisionmaker communities of practice. This work will inform both the work of the Saskatchewan Population Health and Evaluation Research Unit, where Fleur Macqueen Smith works, in developing a researcher-decisionmaker community of practice, and be shared more widely so that it can inform other researchers and decisionmakers.

Potential Risks: There are no known risks associated with participating in these interviews. Questions in the interview guide are not of a personal or sensitive nature, and are not expected to cause stress or discomfort. You do not have to answer any questions you feel uncomfortable answering.

Storage of Data: All information collected in this study will be stored on the U of S campus, in the office of Dr. Harley Dickinson, for a period of five years, after which the data will be destroyed beyond recovery.

Confidentiality: All of the datasets that emerge from the interviews will have a numerical identifier attached to them that does not automatically link data directly back to the interview participant that provided information. The information you provide will be held in strict confidence and discussed only with the research team.

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In addition, the anonymity of the respondents will be maintained when writing and reporting findings since any potential identifier such as your occupation, place of work and/or health care provider will be omitted from reports and presentations.

Right to Withdraw: Your participation is voluntary, and you may answer only those questions that you are comfortable with. There is no guarantee that you will personally benefit from your involvement. You may withdraw from the research project for any reason, at any time, without penalty of any sort such as a loss of relevant entitlements, medical care, access to services, etc. If you withdraw from the research project at any time, any data that you have contributed will be destroyed at your request.

Transcript Release: Direct quotations from the interviews will be reported, however, all identifying information such as your occupation, place of employment, health care provider, etc. will be removed. If at some later point, you have any second thoughts about your responses, you should contact the researchers and your responses will be removed from the database.

Follow-Up or Debriefing: You may find out about the results of the research project by contacting Fleur Macqueen Smith, Harley Dickinson or Gordon McCalla at the contact information provided above. As well as reviewing transcripts, you may be offered the opportunity to review data, analytic categories, interpretations and conclusions as part of the member checking process, as the researchers see fit, to help establish validity.

If you wish to be informed of any publications or presentations of the research results, please leave your contact information with the interviewer. You are also welcome to contact the researchers using the contact information provided on the consent form for further interactions if so interested.

Questions: If you have any questions concerning this research project, please feel free to ask at any point; you are also free to contact the researchers at the numbers provided if you have other questions. This study has been reviewed and approved by the University of Saskatchewan's Behavioural Research Ethics Board on (insert date). Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office (306-966-2084, University of Saskatchewan, Box 5000 RPO University, Saskatoon, SK Canada S7N 4J8, 306-966-2975, http://www.usask.ca/research/ethics_review/). Out of town participants may call collect.

Consent to Participate: I have read and understood the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project, understanding that I may withdraw my consent at any time. A copy of this Consent Form has been given to me for my records.

_____   _____

(Name of Participant)   Date

_____   _____

(Signature of Participant)   (Signature of Researcher)

Appendix B: Consent Form, Interview Guide, Transcript Release

Semi-structured Interview Guide for the study *Using online communications technologies and communities of practice to strengthen researcher-decisionmaker partnerships*, conducted by Fleur Macqueen Smith

Background Information:

Identified needs of a Community of Practice, and how they can be aided/advanced by specific technologies:
1. opportunities for regular interaction between community members
2. ability for members to participate at varying levels that can change over time: core group, active group, peripheral group
3. community should have both public and private spaces for interaction
4. community should have ways of identifying and documenting value of community itself
5. community should have some way of managing documentation about its goals, activities (meeting minutes, articles of interest etc) so as to develop a knowledge repository

Objective	Interview Question
• Introduction to interview; background information on the Community of Practice under discussion	First, can you give me some background information on the community of practice in question: • its history • how you came to be involved in it
• To explore opportunities for regular interaction between community members (Community Need #1)	• Would you say that the COP has opportunities for regular interaction between community members? What kinds of interaction have you had? Could you describe some of your interactions? • Have your interactions been in person or online? • Can you think of any ways that the opportunities for regular interaction could be improved? For CoPs that have a face-to-face and online component: • Have you found that one kind of interaction (face-to-face or online) has created the opportunity for another kind (for example, a face-to-face relationship has been strengthened by an online exchange)

<table>
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<td></td>
<td>To explore ways this need can be met online, for discussion:

Are you familiar with online discussion forums? Have you participated in any online forums (for any purpose – work or otherwise)?
Do you see online forums as a useful way of interacting? Do you think incorporating this kind of interaction into your CoP would be useful? Why or why not?

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To explore the ability for members to participate at varying levels that can change over time: core group, active group, peripheral group (Community Need # 2)

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Has your participation in the community changed over time? Increased or decreased? Has other people's participation changed (that you are aware of?)
Do you feel there is an opportunity to increase or decrease your participation, according to your needs, and those of the community itself? How have you signalled your increased or decreased participation to other community members?
Are there ways that participation is tracked?

To explore ways this need can be met online, for discussion:

Let's discuss some ways that you could change participation in an online community, and see if you are using any of these methods:

having varying levels of membership in the community
posting and responding to discussion topics
becoming a discussion leader or moderator
connecting community members to each other
getting notification of new discussions, updates to specific topic areas ("watching" a page or site)

Do you think instituting any of these methods would be useful for your community? Why or why not?
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Appendix B: Consent Form, Interview Guide, Transcript Release

• To explore if the community has both public and private spaces for interaction (Community Need # 3)	• Would you say that there are both public and private spaces to interact in your community? Can you tell me about these spaces? *Prompt:* in person, public spaces could be meetings, conferences, etc.; private spaces could be opportunities to meet outside these public times (in person, over email etc.) To explore ways this need can be met online, for discussion: • What about in your online community: are there public and private (log-in) discussion areas? • Can you sign up for different kinds of memberships? • Can you get increased privileges over time (as you contribute?) • Do you think these would be useful for your community? Why or why not?
• To explore if the community has ways of identifying and documenting value of community itself (Community Need # 4)	• Tell me about the value of the community to you. Has this been captured anywhere that you are aware of? Documented in any way? • If so, has this been shared beyond the community in any way (journal articles, website postings, presentations etc.) Have you discussed the community's value with other community members? To explore ways this need may be met online, for discussion: • you could create evaluations, reports on community activity, progress reports • have you used any of these methods? Do you think they would be useful? Why or why not?
• To explore if the community has a way of managing documentation about its goals, activities (meeting minutes, articles of interest etc) so as to develop a knowledge repository (Community Need # 5)	• What kind of knowledge is stored in the community? • How is this knowledge managed? Who has access to it? • Do you see the community serving as a knowledge repository? • Do you find that the documentation on the community itself gives a good understanding of its operation? Is it easy searchable (well-organized)? • Have you added information to this repository? If so, what? Was it easy to add?

	• Do you know if it's been used? If so, how much? (that is, is this use tracked) To explore ways this need may be met online, for discussion: • having a searchable database or library • tracking document downloads • emailing community members about popular downloads • Have you used any of these methods? If so, please describe them. • Do you think they would be useful for your community? Why or why not?
• To discuss the value of the specific Community of Practice in developing researcher-decisionmaker partnerships	• Can you tell me about any research projects that have been developed as a result of interactions in your CoP? Have you found it a useful "place" to strengthen relationships?
• To discuss how to integrate more online communications technologies into the specific community of practice	• Thinking back over what we've talked about in terms of needs of communities of practice, and how you have met them, can you think of any changes you'd like to make in your community of practice? Any technologies you'd like to integrate? What are the barriers you see to integrating these technologies? • Can you think of any other needs of a CoP that we did not discuss?
• To identify documents or other artefacts (podcasts, videotapes etc.) that can be examined for a document review	• Do you have any documents about your Community of practice that I would be able to review? Any videos, podcasts etc.? Can you direct me to important parts of your website to review, or any online interactions that I could review?
• Completion of interview	• Is there anything else that you would like to mention that we have not covered yet? • Would you like to be contacted as findings of this study are published and/or presented? Are you interested in any ongoing contact with the researchers?

UNIVERSITY OF SASKATCHEWAN

Behavioural Research Ethics Board

TRANSCRIPT RELEASE

I, _____, was interviewed as part of the study "Using online communications technologies and communities of practice to strengthen researcher-decisionmaker partnerships" I understand that direct quotations may be reported from this interview that may compromise the anonymity of participants, although such quotations will be reported anonymously, and identifying details concealed.

I,_____, have reviewed the complete transcript of my personal interview in this study, and have been provided with the opportunity to add, alter, and delete information from the transcript as appropriate. I acknowledge that the transcript accurately reflects what I said in my personal interview with Fleur Macqueen Smith. I hereby authorize the release of this transcript to Fleur Macqueen Smith to be used in the manner described in the Consent Form. I have received a copy of this Transcript Release Form for my own records.

_____   _____
Name of Participant   Date

_____   _____
Signature of Participant   Signature of researcher

Launching kidSKAN

the Saskatchewan knowledge to action network for early childhood development

Fleur Macqueen Smith, Nazeem Muhajarine, Saskatchewan Population Health and Evaluation Research Unit, University of Saskatchewan, Jeff Smith, Department of Computer Science, University of Saskatchewan, Sue Delanoy, Executive Director, Communities for Children

BACKGROUND AND MANDATE

In late 2007, Saskatoon's Understanding the Early Years project, co-led by Sue Delanoy of Communities for Children, and Nazeem Muhajarine of the Saskatchewan Population Health and Evaluation Research Unit, wrapped up. There was more work to do on early childhood development issues, so we launched a provincial network, now known as kidSKAN, the Saskatchewan Knowledge to Action Network for early childhood development. We recently received a Knowledge to Action grant for this network from the Canadian Institutes of Health Research (2009-2011).

kidSKAN is a provincial community of practice of researchers, practitioners and policy makers in academia, government and the community who have an interest in early childhood development in Saskatchewan. It builds on the momentum from the seven Understanding the Early Years projects in Saskatchewan in the past decade, other collaborative research projects, and the provincial government's recent decision to implement the Early Development Instrument provincially.

kidSKAN's mandate is:

- to facilitate stakeholder networking and knowledge sharing in early childhood development
- to facilitate appropriate policy and practice change
- to identify and facilitate new opportunities for collaborative research

METHODS:

Communities of practice have been identified in the knowledge transfer and exchange literature as good places to encourage the kinds of relationships between researchers and decision-makers that lead to research uptake. We are using a six-point checklist to build effective communities of practice in-person and online. It was developed by Fleur Macqueen Smith through qualitative case studies with two such communities.

A community of practice should:

Provide opportunities for regular interaction

To establish an identity, communities need public events that happen often enough to build momentum. Researchers have found that online communities are more successful when members have had some face-to-face contact, which helps build trust more quickly and easily.

☑ kidSKAN is meeting this need by organizing regular meetings and networking events, supplemented by a web community that is always available.

Allow participation to vary over time

Communities need to respect members' varying involvement, and whatever time they are able to give, as peripheral members may later take on larger roles while other, more active members step aside due to other commitments. Online environments can be good places for peripheral members to start, as they can follow a community's activities easily and contribute when they feel ready to do so.

☑ kidSKAN is meeting this need by offering members the ability to choose and modify their own participation levels in community activities, both in person and online.

Provide public and private spaces to interact

Communities need to create both public spaces at which many members can interact, and private spaces for smaller groups of people. Members need ways to target information to different audiences, and a community needs to be transparent in its activities and decision-making. Online environments can facilitate both targeting, through web personalization, and transparency, as activities and decisions can be documented in a clear and accessible way.

☑ kidSKAN is meeting this need by creating public spaces at events and online, and encourages private interaction by providing networking opportunities at events, and online opportunities with its database of ECD contacts, and through public and private discussion forums on its website. The website targets content to various audiences, and provides a public space to document activities and decisions.

Document activities, goals and outputs

There is great potential for online technology to support communities of practice, but there are many issues that need to be considered carefully when documenting activities and building a knowledge repository: organization, ease of access, and ease of use, to name a few.

☑ kidSKAN is meeting this need with its web community, a public repository of knowledge targeted to various audiences, to which anyone can contribute (submissions are reviewed). It houses regular announcements and updates on community activities and goals, which members can follow through a rich email notification system.

Identify the value of the community itself

Communities of practice can reveal and legitimize relationship building as a normal, necessary part of the research and knowledge discovery process. They can also keep people engaged in their work by creating time and space for reflective practice. Although surveys and other quantitative measures can be used to try to capture a community's impact, stories told by its members may demonstrate the greatest impact.

☑ kidSKAN is meeting this need by gathering stories of its impact on an ongoing basis, with an evaluation planned near the end of its CIHR funding period.

Enlist a technology champion

Online communities are in their infancy, compared to place-based communities. According to community of practice guru Etienne Wenger, technology has changed what it means to "be together." Communities that want to harness technology effectively need technology champions to support and guide them–to help them determine what tools to use, and when.

☑ kidSKAN is meeting this need with the expertise of Jeff Smith, a computer science researcher with many years of industry experience, and expertise in interdisciplinary collaboration and fostering creativity. Smith is a co-applicant on the CIHR funding.

THE kidSKAN.CA COMMUNITY

The research and KT literature clearly shows that community of practice websites should support real communities, not supplant them. To support our community, our website:

- displays personalized content based on member preferences, organized by audience, project, and key concept
- houses a growing body of work that can be read online, printed from the browser, downloaded, linked to, and searched
- encourages submissions of announcements, events, and documents which are reviewed and categorized for inclusion in the knowledge repository
- provides academic review and validation of posted content
- provides free site membership for anyone to participate (content is moderated)
- emails members when new content is posted in areas to which they have subscribed
- allows members to modify their preferences for notification easily (frequency, subscribing and unsubscribing from topics)
- offers discussion areas where members can interact
- provides an ECD contact database with links to external sites, and a regular e-newsletter
- is guided by a technology expert with a deep understanding of both the community's issues and technological possibilities
- integrates a contact person into this system, a "knowledge broker" who can offer personalized help whenever needed, and post any new material created while offering this help

For more information, visit www.kidSKAN.ca, or contact Fleur Macqueen Smith at fleur.macqueensmith@usask.ca