Interactive Processes and Evidence-Informed Knowledge Use in Public Health: The Example of Youth Physical Activity in the SHAPES-Ontario KE Extension

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

Objective: Significant investments to address childhood obesity require that we understand the factors that facilitate the use of research among public health practitioners in order to support evidence-informed strategies. Therefore the objective of this study is to understand the role of the interactive support of the SHAPES-Ontario Knowledge Exchange Extension (KE Extension) on evidence-informed knowledge use concerning youth physical activity in public health. The interactive support is defined according to three components: 1) Collaborative Partnership, 2) Community of Practice, and 3) Knowledge Broker.

Methods: Two different groups of Public Health Organisations were selected. The Intervention group consisted of two Ontario Public Health Units from the SHAPES-Ontario KE Extension. The Comparison group consisted of one Ontario Public Health Unit and one Manitoba Regional Health Authority. The Comparison organisations did not have the intervention of the KE Extension. Semi-structured interviews were conducted with approximately four to five staff from each organisation. Qualitative analysis identified instances of evidence-informed knowledge use, interactive processes and other factors that influenced knowledge use related to youth physical activity in public health program planning and decision-making. This resulted in comprehensive case studies for each organisation. Cross case analysis identified the dominant similarities and difference in the factors that influence evidence-informed knowledge use across the organisations and how they inter-relate.

Results: The cross case analysis indicated that having access to local youth physical activity surveillance data (e.g., SHAPES data) was the most important facilitator of evidence-informed practice. Interactive processes, specifically working groups, partnerships, and knowledge brokers, were found to be an important factor across the fours organisations. These interactive processes were found to have a reciprocal relationship with the information source and the context for sue, further facilitating evidence-informed knowledge use. The specific interactive mechanisms of the KE Extension did not emerge from the data, as the intervention was not intensive enough compared to the other activities within the Intervention organisations.

Conclusions: Providing public health practitioners with access to local and relevant research evidence, coupled with intensive, sustained, and consistent interactive support for planning and decision-making may be effective at encouraging evidence-informed practice related to youth physical activity.

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1 Introduction and Overview

1.0 Chapter Overview

The following chapter illustrates the overall context for the proposed thesis. The chapter addresses the dramatic rise in childhood obesity, future implications of childhood obesity, and the strong correlation to physical inactivity. The chapter also provides an overview of the current context of childhood obesity strategies in Canada. Based on this, the chapter addresses the need for evidence-informed public health practice in order to affectively address this growing epidemic.

1.1 Prevalence of Childhood Obesity

Obesity rates are climbing at an exponential rate and have reached epidemic proportions worldwide (WHO, 2003). Throughout the 1980-90's, the prevalence of overweight and obese children increased two to five times in developed countries, and almost fours times in developing countries (Flynn et al., 2006). Considering all of the developed nations, Canada has one of the highest rates of childhood obesity (Merrifield, 2007). Approximately 26% of Canadian children, aged 2 to 17, are classified as overweight or obese (Merrifield, 2007). The prevalence of childhood obesity has been climbing over the years. According to the Health Behaviour in School-age Children (HBSC) Survey, the number of obese children and youth increased by 35.7 per cent from the 2003 to the 2006 survey (Canada's Report on Physical Activity for Youth and Children, 2007).

1.2 Future Impact of Childhood Obesity

The burden on health and social systems due to the future health outcomes of childhood obesity is concerning. It was estimated that the economic burden of obesity in the Canadian population was approximately $4.3 billion dollars in the year 2001 (Katzmarkzyk & Janssen, 2004). Given the dramatic increases in obesity, it is likely that this is an underestimate of the current costs of obesity. In 2000, the World Health Organization recognized that childhood obesity would significantly contribute to the prevalence of chronic diseases in the global population (WHO, 2000). Childhood obesity is associated with an increased risk for developing numerous chronic diseases in early adulthood, such as various forms of cancer, cardiovascular disease, type 2 diabetes, hypertension, and even mental health problems (Lobstein, Baur, & Uauy, 2004).

1.3 Relationship between Childhood Obesity and Physical Inactivity

Childhood obesity is a complex, multifaceted health concern. One of the most prominent factors contributing to childhood obesity is physical inactivity (DuBose et al., 2007). Results from the Canadian Physical Activity Levels Among Youth (CAN PLAY) Survey indicate that 91 per cent of Canadian children and youth do not meet the 90 minutes per day of moderate to vigorous physical activity, outlined by Canada's Physical Activity Guides for Children and Youth (Active Healthy Kids Canada, 2007). Considering the strong association between childhood obesity and sedentary behaviours, collaborative and immediate action must be taken by all stakeholders to find effective and efficient approaches to increase physical activity, in an attempt to reduce the prevalence of childhood obesity.

1.4 Current Context for Physical Activity Population Interventions across Canada

Recognizing both the economic and public health burden related to physical inactivity and childhood obesity, child and youth physical activity has become a major priority at all levels of the Canadian government (Coalition for Active Living Strategy, 2004). In an attempt to reduce this burden, the federal, provincial, and territorial governments have adopted a goal to increase physical activity levels by 10 percent in each jurisdiction across the Nation by 2010 (Canadian Lifestyle Research Institute, 2003). As a result, each province and territory has developed formal physical activity and healthy living strategies in order to achieve this goal (Intersectoral Healthy Living Network, 2005). Examples of current provincial strategies include the following.

- Ontario Active2010 provides opportunities to participate in daily physical activity and high-quality sport activities.
- ActNow BC targets multiple risk factors for chronic diseases, with a particular emphasis on physical activity.
- Alberta has introduced Daily Physical Activity Initiatives in their schools, which requires a minimum of 30 minutes of physical activity.
- Healthy NB (New Brunswick) En Santé which encourages schools and communities to participate in the development of wellness activities, with a particular focus on physical activity of middle and high school children.

Many of these strategies involve the commitment of significant government dollars and resources to increase physical activity levels (Canadian Lifestyle Research Institute, 2003). For instance, in the span of four years, the BC government has increased funding from $22 million to $44 million for their Physical Fitness and Amateur Sport Fund. Nova Scotia has

allocated $500 000 in grants for physical activity. Saskatchewan has dedicated $5 million to the development of Saskatchewan in Motion, which focuses on physical activity in the general population. A final example is Ontario's contribution of $10 million annually to the childhood obesity strategy to encourage children to eat healthy and be physically active (Ontario Budget, 2008).

Given these significant investments, provincial and territorial governments must be accountable for their investments in public health initiatives to ensure that the funding is invested into effective, evidence-informed strategies for physical activity. Therefore, it is necessary that governments and decision-makers acquire and utilise the best available research evidence that demonstrates the effectiveness of programs to positively influence physical activity behaviours among children (Intersectoral Healthy Living Network, 2005; Lomas, 2000).

1.5 Need for Evidence-Informed Knowledge Use

Research use is a complex and multifaceted process. Scholars working in the field lack an established definition of research use (Nutley, Walter, & Davies, 2007). This thesis will conceive evidence-informed knowledge use as a continuum, ranging from conceptual knowledge use to instrumental knowledge use. Conceptual knowledge use involves the more indirect and less observable influences of evidence, such as an enhanced awareness, building understanding and influencing attitudes. On the other end of the spectrum, instrumental knowledge use involves the direct application of evidence to decisions and practice (Cousins & Leithwood, 1993; Walter, Davies, & Nutley, 2003). This continuum increases the potential outcomes of knowledge utilisation efforts to include more conceptual uses of research evidence that are more likely to occur than instrumental uses (Landry, Amara, &

Lamari, 2001). It is important not to disregard the more conceptual uses of knowledge, as these uses of research allow for capacity building and sustainability (Weiss & Buclavas, 1980).

Recently, a great emphasis has been placed on developing evidence-informed strategies, where the promotion of childhood physical activity is a priority on all stakeholders' agendas (Naylor, Macdonald, Reed, & McKay, 2006). The literature has repeatedly stated that the process of translating research evidence into practice does not follow a systematic and timely process, despite the resources devoted to health research (Graham et al., 2006). Indeed, there appears to be a need for greater support with respect to the implementation of evidence-informed policies and practices among public health professionals, policy-makers and other governing bodies (Medlar, Mowat, Di Ruggiero, & Frank, 2006; Mendelson, 2007). Kiefer and colleagues (2005, p. 2) state that "now more than ever there is unprecedented opportunity to institutionalize processes and structures that can enhance the capacity for evidence-based decision-making in Canada." In order to do so within the health sector, it is important to better understand the knowledge translation processes and mechanisms required to support the uptake and utilisation of research (Morrison, Manske, Lambraki, & Doucet, 2007).

Existing efforts for managing health research evidence, in an attempt to implement evidence-informed action, has mainly focused on the creation, storage and distribution of explicit knowledge (Sanders & Heller, 2006). However, research has repeatedly found that simple synthesis and dissemination of research evidence is not enough to ensure subsequent uptake and utilization by decision-makers in order to enhance practice (Manske, 2001; McDonald & Viehbeck, 2007; Rogers, 1995). There are many factors that influence the

uptake and utilisation of knowledge and research evidence (Graham et al., 2006). In an attempt to address the gap that exists between research and practice, numerous scholars have found that interactive engagement with the end user is an effective mechanism for supporting evidence-informed knowledge use (Lavis, Robertson, et al., 2003). The general conclusion from this body of literature is that research evidence is more effectively transferred to the user through social interactions, thereby encouraging the utilisation of the evidence (Landry et al., 2001). This idea has been supported across various disciplines such as education (Cousins & Leithwood, 1993), organizational decision making (Beyer & Trice, 1982), intervention literature (Israel, Baker, Goldenhar, Heaney, & Schurman, 1996) and knowledge use literature (Cousins & Leithwood, 1986).

There is a demand for future research efforts in order to enhance our understanding of the role of interactive processes on evidence-informed knowledge use within different user contexts (Kramer, Cole, & Leithwood et al., 2004). The little research that has been conducted on interactive processes within the field of population health has focused on tobacco control initiatives (Manske, 2001; Bonin, 2007). There is also a need to identify structures and mechanisms that encourage these interactive processes and two-way communication between researchers and decision makers, to increasingly ensure knowledge use (Manske, 2001). As a result of the need to better understand interactive process to further facilitate the use of research evidence, the proposed thesis project will examine the influence of specific interactive processes on the use of youth physical activity evidence in public health decision making.

2 Literature Review

2.0 Chapter Overview

This chapter begins with a detailed description of the overarching framework for this thesis project and the literature review. Following this, the chapter examines the research related to the interactive processes of collaborative partnerships, communities of practice and knowledge brokers and their influence on knowledge utilisation. Finally, the chapter closes with the study rationale and review of the proposed research question.

2.1 Knowledge Utilisation Conceptual Framework

Several different frameworks have been developed to capture the interactive engagement involved in knowledge utilisation efforts (Kramer et al., 2004). The underlying premise of these models is that knowledge is more effectively transferred through interactive processes and that the more sustained and engaged the interaction, the more likely it will result in knowledge use (Landry et al., 2001). While these models provide great insight and support for engaging in interactive processes to encourage evidence-informed knowledge use, a framework adapted by Manske (2001) will guide and inform this thesis project. Manske's Knowledge Utilisation Conceptual Framework is of particular interest, as it considers other influences of the knowledge utilisation process, including the information source and the context or environment in which the information is disseminated. These are very important considerations when examining knowledge utilisation efforts, as they address the fact that other elements from the user environment can influence interactive processes and ultimately knowledge use.

Due to the absence of a knowledge utilisation framework with a health promotion perspective, Manske (2001) adapted a Knowledge Utilisation Conceptual Framework from education (Cousins & Leithwood, 1993) (Appendix A). The framework explains, informs, and attempts to improve knowledge utilisation in population health (Manske, 2001). This framework extends our understanding of the theoretical constructs related to knowledge utilisation in the context of health promotion. The framework identifies three domains that either directly or indirectly influence instrumental and conceptual uses of knowledge: 1) Characteristics of the Source and Information, 2) Characteristics of Context for Use, and 3) Interactive Processes (Manske, 2001).

The first domain, Characteristics of the Source & Information, is concerned with how individuals perceive the quality of the information and source (Manske, 2001). The variables in this domain can be conceptualized as the stimulus for knowledge use (Manske). This domain contains key characteristics specific to the source of the information and the information itself. The source of the information has three defining attributes, including credibility, sophistication and communication quality (Manske). The first, and perhaps most important, is the *credibility* of the source, which considers whether the source and those who disseminate it are perceived as trustworthy (Cousins & Leithwood, 1993). If the users perceive the source to be credible and sophisticated, then knowledge use is more likely to occur. Similarly, clear communication often encourages knowledge use (Manske). The information variable includes the relevance, timeliness and content of the information itself (Manske, 2001). The *relevance* of the information refers to the perception that the knowledge is practical and pertinent to the needs of the users (Cousins & Leithwood, 1993). *Timeliness* considers the degree to which users believe the information has been disseminated

at a suitable time and in an ongoing manner (Cousins & Leithwood). Manske found that if the information is *timely* and *relevant* to the perceived needs of the user, it is more likely to be used.

The second domain, Characteristics of Context for Use, identifies contextual variables for knowledge use at both the individual and organisational level (Manske, 2001). This domain addresses the contextual factors of the setting in which the information is disseminated (Manske). At the organisational level, several variables have been identified, including organisational priorities, availability of resources and leadership. Recent work (Bonin, 2007) refined our understanding of these organisational and broader community contextual influences. This work identified external contextual factors that influence knowledge use, which was previously not identified in the framework. Furthermore, this work identified how contextual factors inter-relate and the influence of context on other domains of the framework (Bonin, 2007). At the individual level, the framework identifies several variables that influence knowledge use. These variables consider the personal characteristics of the user, commitment or receptiveness, history of prior knowledge use, previous experience and information needs (Manske, 2001).

These two domains, Characteristics of the Source and Information and Characteristics of Context for Use, have implications for the development and packaging of knowledge into a useable format for organisations and individuals. The variables identified in these domains consider the stimulus (e.g., the source and information) for knowledge use and the context in which the information is received; moreover, the framework captures the social processing of the information among users, which is reflected in the remaining domain (Manske, 2001).

The final domain of the framework outlines the Interactive Processes necessary for translating the information. This domain highlights the importance of placing the knowledge in the context in which it will be used (Manske, 2001). Interactive processes are essential for knowledge use to occur, since conversation and social interaction allow users to create a new understanding and make sense of the information. These processes allow the users to determine whether information is relevant to their context and how it can be used (Manske). The domain of Interactive Processes includes variables specific to social processing, involvement with change, ongoing contact and engagement (Manske). Wenger's (1998) *Communities of Practice (CoP)* appears to capture the essence of the concepts important to this domain. Wenger describes three essential elements in a CoP: mutual engagement, joint enterprise, and shared repertoire, which interact for the CoP to function and evolve. Within a CoP, membership is defined by a common goal or purpose that is mutually determined through negotiation. Sustained interaction allows the members to develop common practices and resources (i.e. shared repertoire). The concept of communities of practice emphasizes the idea that knowledge is gained through interactive processes of learning, by adapting information to the context in which it will be used (Wenger, 1998). The presence of a CoP facilitates knowledge use, as this type of interaction allows for the development of shared practices and resources that utilise the information. CoP's will be investigated in further detail throughout the literature review.

Involvement with change concerns the extent to which the users initiate and contribute to organisational change while utilising the information (Manske, 2001). Related to the involvement with change variable, is *ongoing contact*, which considers the level of contact and interaction the users engage in with the initiators of change (Cousins & Leithwood,

1993). Finally, *engagement* is the extent to which individuals are involved in activities following change, such as dissemination and implementation (Cousins & Leithwood). Knowledge use is more likely to occur if individuals within the organisation are involved in change and are interacting and engaging with one another.

In summary, effective knowledge use requires input from each of the aforementioned domains, Characteristics of the Source and Information, Characteristics of Context for Use and Interactive Processes. Each domain contains factors that directly, indirectly, and through interaction with each other, influence conceptual and instrumental knowledge use (Manske, 2001). The framework implies that effective knowledge use requires access to information that is useful (Characteristic of Source and Information), processing of the context (Characteristics of Context for Use), and social processes that make sense and use of the information (Interactive Processes). Another important facet of Manske's (2001) framework, making it particularly suitable for the proposed thesis, is the recognition of both instrumental and conceptual knowledge use (see Section 1.5). Accepting these different typologies is critical when examining knowledge use within a setting such as Public Health, since research evidence can be used in many ways.

While all of the domains identified in the framework have been recognized as contributing to knowledge use; this thesis project particularly relates to the Interactive Processes Domain. Specifically, this thesis contributes to our understanding of the influence of the interactive support provided through the SHAPES-Ontario Knowledge Exchange Extension (Appendix B) on evidence-informed knowledge use in the context of public health. The support mechanisms of the SHAPES-Ontario Knowledge Exchange Extension (KE Extension) are defined for the purposes of this project as: 1) involvement in a

collaborative partnership, 2) membership in community of practice; and 3) engagement with a knowledge broker. Therefore, the following literature review will examine how the interactive processes of a collaborative partnership, a community of practice, and a knowledge broker relate to evidence-informed knowledge use, particularly within the context of public health.

2.2 Collaborative Partnerships

2.2.1 Overview of Collaborative Partnerships

There has been an increasing interest in the development of collaborative partnerships between researchers and research users to increase the appropriate application of research in policy and practice (Armstrong, Doyle, Lamb, & Waters, 2006; Gillis & Fuchs 2007; Ross, Lavis, Rodriguez, Woodside, & Denis, 2006; Walter et al., 2003). Collaborative research has been defined by Denis and Lomas (2003) as "a deliberate set of interactions and processes designed specifically to bring together those who study societal problems and issues (researchers) with those who act on or within those societal problems and issues (decision-makers, practitioners, citizens)" (p. 1). A systematic review emphasized the value of interactive processes between those who conduct research and those who utilize research, as this was found to be the only factor that consistently increased the uptake and use of research by decision-makers (Innvaer, Vist, Trommald, & Oxman, 2002). Indeed, many prominent scholars have identified early and ongoing collaboration between researchers, intended users of the evidence and other relevant stakeholders as a key mechanism for facilitating evidence-informed knowledge use (Denis & Lomas, 2003; Eagar et al., 2003; Huberman, 1994; Lavis et al., 2002; Ross et al., 2003). Denis and Lomas (2003) found that the extent of collaboration throughout the research process was a strong predictor for the use of research

evidence in policy and practice. In fact, those involved in practice and policy believe that collaboration with researchers is the most effective way for evidence to inform service delivery and policy (Denis & Lomas, 2003). In recent years, Canadian research organisations have increasingly reported the involvement of relevant stakeholders in their research process (Ross et al., 2003).

Once collaborative partnerships have been established, there are still many other considerations that can influence the effectiveness of the partnerships. There are often conflicting objectives among the different stakeholders involved (Barer, 2005). In order for collaborative research to be successful, partners from various backgrounds must be prepared and willing to engage in reciprocal communication (Denis, Lehoux, Hivon, & Champagne, 2003). The review of the literature on collaborative partnerships addresses many of the characteristics of collaborative partnerships that make them particularly valuable to evidence-informed knowledge use, as well as the common barriers and potential recommendations.

2.2.2 Collaborative Partnerships in the KE Extension

Collaborative partnerships are one of the key components of the KE Extension intended to facilitate evidence-informed knowledge use. The collaborative partnership of the KE Extension involves scientists from the University of Waterloo and individual Ontario Public Health Units. This partnership was initially established through the SHAPES-Ontario Project in 2004. The goal behind the collaborative research for the SHAPES-Ontario study was to understand the perspectives and approaches of the different partners involved, ultimately encouraging the local application of the evidence from the SHAPES-Ontario study. More specifically, this collaborative partnership provided the stakeholders with the opportunity to work together to identify relevant research priorities, develop effective and

efficient methods to collect local data, develop a system to disseminate the findings, and encourage the utilisation of the findings for actionable change.

The collaborative partnership between the University of Waterloo and the Ontario Public Health Units has grown to become the cornerstone of the KE Extension. Through this partnership university researchers have been able to gain insight into the political mandates of public health in Ontario. Similarly, the public health practitioners have had access to research and statistical expertise from a prominent university research organisation. Overall, this established partnership is necessary to overcome many of the potential barriers due to the lack common governance structures and the differing priorities (Gillis & Fuchs, 2007). The collaborative partnership established through the KE Extension is very valuable, as there is a high demand among public health practitioners for access to relevant research that can inform their programs and services.

2.2.3 Evidence Related to Collaborative Partnership and Knowledge Use

Much of the literature on collaborative research and partnerships has been motivated by the increasing demand for evidence-based practice and policy. These studies largely draw on the social nature of collaborative partnerships, as the key mechanism for overcoming the common barriers in research use (Golden-Biddle et al., 2003). This emphasizes the need for researchers to engage decision-makers throughout the entire research process and involve them in the interpretation of the research findings (Golden-Biddle et al., 2003). The following review of the literature summarizes various studies that assess the value of collaborative partnerships for encouraging the uptake and utilisation of research evidence.

Several studies from the health sector encourage the development of collaborative partnerships between practitioners and academics to strengthen the capacity for evidence-

informed decision-making (Armstrong et al., 2006). In a study by Golden-Biddle et al. (2003), the authors highlighted the social nature of collaborative research and the interactive processes between researchers and health-care decision-makers necessary to utilise the research. They found great value in sharing the research with the decision-makers and engaging in joint dialogue to stimulate ideas of how the research could benefit both communities (Golden-Biddle et al., 2003). Another study found similar benefits of collaborative partnerships, as the partnership between researchers and long-term care practitioners allowed for interpersonal communication opportunities between the two communities, which resulted in enhanced practitioner knowledge and skills (McConnell, Lekan, Hebert, & Leatherwood, 2007). Further benefits of this collaborative partnership included the broader application of the research to other areas in long-term care and greater efficiency in developing evidence-informed practices (McConnell et al., 2007). Similarly, Denis and colleagues found that successful collaborative research between researchers and health practitioners allowed them to effectively communicate, resulting in shared perspectives and expertise, and a willingness to engage in problem-solving negotiations (Denis, Lehoux, Hivon, & Champagne, 2003). Both researchers and practitioners found that their involvement in the collaborative relationship contributed to the development of news skills and transformed practices and interventions that were based on the relevant research evidence (Denis et al., 2003). Overall, these studies found the social nature of collaborative partnerships particularly valuable for encouraging interaction and communication among researchers and practitioners, ultimately encouraging the use of research in practice.

A study by Goering et al. (2003) examined collaborative partnerships at an organisational-level, involving a research unit and an Ontario government organisation.

They found that collaboration at this level provided greater opportunities to share knowledge and gain understanding of the cultural differences between research and policy (Goering et al., 2003). It also facilitated relevant application of the research to the policy process by the decision-makers. An important benefit of establishing collaborative partnerships at the organisational-level was the increased likelihood for a sustainable partnership and open communication. While the study by Ross and colleagues (2003) was not conducted at the organisational level, the study also found that collaboration among research and decision-maker allowed the two communities to learn about each other's context, perspective, and expertise (Ross et al., 2003). It also resulted in the identification of broader research needs and priorities. Overall, they found that the collaboration partnership enriched the research process, as the decision-makers provided insight to the contextual considerations, which in turn, made the research more relevant to the decision-makers (Ross et al., 2003). Finally, another study found that as a result of a long-standing collaborative partnership between a medical center and a university, researchers were able to gain insight from the service providers into the realities of nursing practice (Horns et al., 2007). This resulted in the production of research that was more relevant and meaningful to the nurses and could better inform nursing practice (Horns et al., 2007). Theses studies all demonstrated the role of collaborative partnerships for gaining understanding and perspective into the unique contexts of research and practice, thereby better addressing each partners needs and facilitating the relevant application of research to policy and practice.

Armstrong et al. (2006) conducted a review on collaborative, multi-sectoral partnership for developing population health initiatives. These collaborative partnerships were found to provide decision-makers with access to all of the necessary evidence and

expertise required to inform, implement and evaluate complex public health initiatives (Armstrong et al., 2006). This was supported by another study that reported on the development of collaborative networks across all levels of Canada's public health system. This development was based on the findings that such collaboration makes research evidence increasing accessible, relevant and understandable to those working in public health policy and practice in Canada (Medlar et al., 2006). These partnerships will facilitate and support evidence-informed decision-making to address public health priorities and goals (Medlar et al.). Ofili and colleagues (2005) also found that collaborative partnership between a medical school and healthcare practitioners, encouraged evidence-based medicine, as the physicians had access to the most relevant research evidence. As such they were more likely to apply this evidence, positively influences health practice and outcomes (Ofili et al., 2005). Overall, these studies identified the value of collaborative partnerships for making relevant research more accessible to those in policy and practice, thereby facilitating evidence-informed knowledge use.

Studies from contexts outside the health sector also identified similar benefits of collaborative partnership for evidence-informed knowledge use. For example, Walter and colleagues (2003) conducted a review of studies from education, social care and criminal justice that focused on the value of collaboration partnership in overcoming many of the traditional barriers in research use, such as differing priorities and perspectives. They found that negotiation and communication of the research evidence among partners encouraged policy and practice environments that were increasingly receptive to research (Walter et al., 2003). This also led to a greater understanding of the research among users, facilitating the uptake and use of the research (Walter et al., 2003).

There are also studies that offer a different perspective of collaborative partnership than those that have been presented thus far. One study found that while there are benefits to the dynamic interaction inherent to collaborative partnership, there were also many drawbacks due to competing priorities between those involved in research and those in practice (LeGris et al., 2000). For example, the differing objectives and mandates between practitioners and researchers involved in the partnership can really hinder the relationship (LeGris et al., 2000). As a result, the authors offer suggestions for overcoming such barriers of collaborative partnerships. Of particular relevance to this project was the recommendation to engage the researchers and practitioners through a community of practice model. Other research offers recommendations for collaborative partnerships, such as the importance of discussing any cultural and procedural differences from the outset, and establishing a mutual understanding of the terms of engagement (Goering et al.; Golden-Biddle et al., 2003). Furthermore, establishing a mutual and structured governance for the collaborative partnership has been recommended for successful outcomes (Gillis & Fuchs, 2007; Horns et al., 2007). Similarly, Walter and colleagues (2003) identified organisational support from each stakeholder as an important element to strengthen ongoing collaboration and partnership.

While there is an established body of literature, collaborative processes can be quite complex and unique to each context (Golden-Biddle et al., 2003; Huberman, 1999). The influence of collaborative partnerships on evidence-informed practice varies depending on the activities of the partnership, the extent of each partner's involvement, and the nature of the interaction (Ross et al., 2003). Greater understanding of the ideal collaborative involvement for researchers and those involved in practice is still needed (Ross et al., 2003).

Furthermore, Ross and colleagues (2003) made a call for research that assesses collaboration with decision-makers that extends beyond the research process to have a broader understanding of the impact of collaborative partnerships on the uptake and use of evidence. The following thesis project provides greater insight into the role of collaborative partnerships throughout the research process and beyond, for encouraging the uptake and use of youth physical activity evidence in public health.

2.3 Communities of Practice

2.3.1 Overview of Communities of Practice

Wegner and Lave's (1991) concept of Community of Practice (CoP) utilises an education-based model, which rests on the foundation that learning is social in nature. Within a Community of Practice, knowledge is considered a social enterprise that facilitates communication among community members (McDonald & Viehbeck, 2007). Communities of practice are comprised of individuals who share common concerns, interests and expertise (Wenger, McDermott, & Snyder, 2002). The members of a CoP engage through regular interaction and mutually determined goals to develop shared understanding and practice (Lesser & Storck, 2001). The ongoing interaction characteristic of a CoP extends the knowledge and expertise of members, and facilitates knowledge use (Wenger et al., 2002). Members must be actively involved and committed to the goals of the CoP in order for the community to evolve and grow (Ensor, Cottam, & Band, 2001).

As described by Wenger (1998), Communities of Practice are comprised of three essential elements, including *mutual engagement*, *joint enterprise* and *shared repertoire*. The first element, *mutual engagement* refers to the negotiation among community members toward common goals and objectives. Mutual engagement is the "foundational dimension"

of a CoP (Wenger, 1998). The act of mutual engagement results in trust, shared understanding and interpersonal relationships among community members (Wenger, 1998). Wenger also emphasizes the importance of upholding personal identities and perspectives within the community in order to support continued interaction and development.

Mutual engagement must occur within the CoP to achieve the second element, *Joint Enterprise*. The joint enterprise is defined by the collective negotiation among members regarding meanings and processes. Negotiating the enterprise is a dynamic process that is influenced by the context in which the community exists, taking into consideration the cultural, political, and historical environment (Wenger, 1998). Negotiation of the joint enterprise is necessary for the community to reach their shared goals.

Finally, *shared repertoire* is defined by the joint practices and resources of the CoP. This repertoire is developed through sharing of members' experiences, practices, and routines. It reflects the history, tradition, and negotiated meanings of the CoP. Shared repertoire captures the common manner in which the members work and interpret events. As the shared repertoire builds over time, the joint practices and resources serve as a means of continuous engagement and a sense of belonging. Shared repertoire facilitates community members in attaining their common goals (Wenger, 1998).

These three elements contribute to the existence and sustainability of a CoP. Engagement is the common underlying element of the three CoP domains. Engagement of community members is essential for the CoP to prosper and grow, as it allows the individuals to build a sense of belonging and membership within that community. Without social engagement the development of joint enterprise and shared repertoire would not be possible.

The necessity of engagement within a community of practice affirms its foundation of learning as a social process (Wenger & Lave, 1991).

2.3.2 Community of Practice in the KE Extension

The members of the Community of Practice for the KE Extension include public health practitioners from the six Ontario Public Health Units involved in the KE Extension and researchers from the University of Waterloo. It is important to distinguish between participation in the collaborative partnership and participation in the CoP for the KE Extension. The collaborative partnership has been established between each individual health unit and the University of Waterloo, whereas the CoP brings together individuals from all of the participating health units and the researchers from UW. By bringing together staff from all of the participating health units, the hope is that the CoP can be sustainable beyond the KE Extension Project, without the guidance and support of the University of Waterloo. The KE Extension CoP was deliberately formed to facilitate communication among public health staff and researchers involved in the SHAPES-Ontario study. The shared objective of community members is to encourage decision-making and program planning that is informed by evidence from the SHAPES-ON study. The CoP primarily communicates through monthly teleconferences. An important part of their engagement has been annual face-to-face meetings. The teleconferences are an ideal channel for members to share announcements (e.g., potential funding opportunities) and their experiences with utilising the SHAPES data (e.g., SHAPES-specific resource, working with their boards of education, etc.).

There are some conditions unique to the KE Extension CoP that may facilitate or impede its development as a Community of Practice. For instance, on average, adjacent

participating health units are approximately 125 miles apart. As a result, the face-to-face meetings occur only once a year and not all members can attend. The literature has identified geographical distance as an important consideration for a CoP (Klein, Connell, & Meyer, 2005). The KE Extension CoP attempted to overcome the geographical distance by largely using electronic communication and teleconferences. A review of online Communities of Practice found that virtual communities are equally successful as groups that have face-to-face meetings, provided there is an element of trust among community members (Hildreth, Kimble, & Wright, 2000). Another condition to consider is that members are from various organisational sectors including public health and academia. Even within these sectors, different groups and perspectives are represented (e.g., epidemiologists vs. physical activity specialists; directors vs. managers). As a consequence, these differing perspectives have the potential to impede communication, ultimately affecting knowledge use. As an illustrative example, public health epidemiologists may focus on the scientific rigour of a study assessing a physical activity program, while the front line public health practitioners are more concerned with the applicability of the program to the targeted youth. At times these diverse perspectives may be a barrier to reaching mutual agreement and negotiation; however, it is necessary to have representation from all relevant stakeholders in order for the CoP to evolve. In the case of the KE Extension CoP, members from both research and public health practice are necessary to achieve the goals of the community. Finally, the KE Extension CoP was a deliberately formed community, whereas much of the literature focuses on naturally forming Communities of Practice (Robinson, 2006). This can be a barrier to the success of a CoP, considering that Communities of Practice are naturally evolving entities, where individuals choose to be involved with the collective goals and practices of the community.

2.3.3 Evidence Related to Communities of Practice and Knowledge Use

A review of the current literature related to Communities of Practice and their influence on knowledge use was conducted. Communities of Practice have been largely studied within the fields of education, business and management. The success of CoP in non-health care organizations offered insight and recommendations for the implementation of such structures to facilitate evidence-informed knowledge use in health organisations (Sanders & Heller, 2006). As such, Communities of Practice have been increasingly studied within the public health context. Communities of Practice have been recognized for their role in connecting research to practice. Wenger (1998) postulated that knowledge use results from the social interaction and negotiation of common goals, inherent to a CoP. Wenger (1998) also suggests that this ongoing interaction is critical to developing new and effective practices. Other researchers have also demonstrated the effectiveness of Communities of Practice for facilitating knowledge use. One particularly beneficial mechanism of a CoP is their ability to encourage the efficient diffusion of knowledge within an organisation, generating an environment that is supportive of knowledge use (Robinson, 2006). This was confirmed by another study that identified Communities of Practice as effective for facilitating research use, as the members actively disseminated knowledge to inform joint practice and programs (McDonald & Viehbeck, 2007).

Several case studies from non-health organisations, including The World Bank and IBM, have identified many positive benefits of Communities of Practice (Wenger et al., 2002). For example, Brown and Duguid (1991) found that the shared perspective achieved among community members is an essential feature of a CoP in terms of facilitating knowledge use. Several studies identified the value of Communities of Practice for fostering

user environments that are increasingly receptive to research evidence, thereby facilitating evidence-informed knowledge use. For example, a study that examined the formation of CoP's in the business sector found that they led to an increase in social capital, which eventually resulted in improved responsiveness and innovation across the organisation (Lessor & Storck, 2001). Similarly, Rosenheck (2001) found that Communities of Practice facilitated organisational recognition and acceptance of relevant research necessary to influence practice. Some researchers have even recommended the development of Communities of Practice to encourage the application of research because of their ability to leverage practitioner knowledge and create an environment that is receptive to evidence-informed practices (Barwick, Boydell, Stasiulius, Ferguson, Blase & Fixsen, 2008)

Many studies identified Communities of Practice as an important organisational structure for encouraging knowledge use, as they provide an important link between researchers and practitioners. By connecting these two communities, CoP's have many positive outcomes that facilitate the uptake and use of research. For example, a study that examined the development of a CoP to overcome the lack of research uptake by practising teachers, found that the CoP encouraged joint-dialogue between teachers and researchers around practical- and research-based knowledge (Triggs & John, 2004). An important benefit of bringing researcher and practitioners together was the opportunity to work collaboratively to integrate research into usable knowledge for classroom situations (Triggs & John, 2004). Similarly, a study in health promotion captured the role of Communities of Practice in evidence-informed knowledge use through their observation that "research based-practices and policies emerge when research producers and users mutually engage with one another about specific health promotion problems through negotiation and by creating and

sharing technical standards and other resources" (p. 140) (McDonald & Viehbeck, 2007). This also points to another important benefit of CoP's in terms of evidence-informed knowledge use, as they provide important opportunities to share knowledge and research evidence. This was support by a recent study that identified the inherent sharing of tacit and explicit knowledge among CoP members, which is essential for facilitating the use of that knowledge (Booth, Hotchkiss & Schofield, 2007).

Another benefit of bringing together researchers and practitioners through Communities of Practice for evidence-informed knowledge use is their role in facilitating the proper application of research to policy and practice. A study of a CoP that was intended to link research to post-secondary teaching practices found that the CoP allowed for comprehensive educational knowledge building, which had positive impacts on educational practices across all levels of the education sector (Lucas, 2007). The formation of CoP's had benefits for both researchers in their professional development and the students' learning experience (Lucas, 2007). Researchers in the health field have also found that Communities of Practice are an ideal mechanism to integrate research evidence with individual and collective tacit knowledge, thereby contextualizing the evidence to the setting in which it will be utilised (Bate & Robert, 2002; Sanders & Heller, 2006). Furthermore, a study by Lambraki and Morrison (2005) found that sustained and ongoing interaction inherent to a CoP allowed for development of context-specific enterprise and resources. Finally, a study by Tolson and colleagues (2005) revealed the potential of a CoP among nurses and research to enhance evidence-informed practice. Specifically, the study found the CoP enhanced understanding of care philosophy and the research agenda, and provided a system for integrating practice-based research with user experience (Tolson et al., 2005).

Examining communities of practice within a public health setting is especially valuable considering the complexity of decision making processes (Manske, 2001). Researchers have examined Communities of Practice in regards to the dissemination, uptake and utilisation of best practices to improve health services (Bate & Robert, 2002; Sanders & Heller, 2006). Many of which have found CoP's to have a positive influence on increasing the capacity for the uptake of evidence and best-practices (Addicott, McGivern & Ferlie, 2006; Wild, Richmond, de Merode, & Smith, 2004)). Specifically, the research in public health has largely focused on the role of Communities of Practice in evidence-informed knowledge use within a tobacco-control context (e.g., Manske et al., 2005; McDonald & Viehbeck, 2007). Overall, the various studies have demonstrated an observable benefit of CoP in terms of knowledge use. A study that examined CoP's within a comprehensive tobacco control strategy found that those jurisdictions with the highest levels of goal-oriented knowledge exchange also had the highest levels of mutual engagement, joint enterprise, and shared repertoire (Lambraki et al., June 2005). This suggests that the fundamental elements of a CoP (mutual engagement, joint enterprise, and shared repertoire) directly influence knowledge exchange, thus encouraging evidence-informed practice and policy. Another study identified clearly defined roles and CoP mandates an important characteristic of a CoP for influencing the level of knowledge use (Lambraki & Morrison, 2005). Overeall, McDonald and Viehbeck (2007) highlight the multiple ways in which CoP appear to facilitate research use in health promotion practice, many of which provide support for previous studies that have been discussed. These included: bringing people together who might not otherwise work together; providing direction for purposeful actions with tangible

results; and providing a forum and process for collecting evidence to inform solutions to joint problems (McDonald & Viehbeck, 2007).

As many of these studies suggest, Communities of Practice can be very valuable for encouraging evidence-informed knowledge use. Communities of Practice often overcome the common disconnect between researchers, practitioners, decision-makers and other key stakeholders involved in population health initiatives (Manske, 2001). Despite the many positive findings of Communities of Practice in public health, they have not been examine outside of the tobacco context in public health, therefore, our understanding of their contribution to evidenced-informed action related to physical activity is very limited. Further research in this area is necessary to understand the value of integrating Communities of Practice in public health to facilitate evidence-informed practice related to physical activity.

2.4 Knowledge Brokering

2.4.1 Overview of Knowledge Brokering

The Canadian Health Services Researcher Foundation (CHSRF) and Jonathan Lomas have led the way in identifying knowledge brokering as a mechanism to facilitate evidence-informed decision-making (van Kammen, deSavigny, & Sewankambo, 2006). CHSRF has defined the role of knowledge brokering as "all the activity that links decision makers with researchers, facilitating their interaction so that they are able to better understand each other's goals and professional cultures, influence each other's work, forge new partnerships, and promote the use of research-based evidence in decision-making" (CHSRF, 2003). The value of the human elements inherent to knowledge brokering, such as the interaction, communication, knowledge sharing and mentoring have been recognized as important characteristics for effective evidence-informed practices (Kelly, Speller & Meyrick, 2004).

It is well known that there are distinct boundaries between researchers and policy makers that prevent them from working together as equal partners (CHSRF, 2004; Choi et al., 2005). Consequently, knowledge brokers have great to potential to serve as catalysts facilitating communication and partnership between these two communities and overcoming these boundaries (CHSRF, 2004; Choi et al., 2005). With that said, in order for knowledge brokers to influence the use of evidence in decision making and overcome these barriers they must recognize the fact that simply enlightening the stakeholder is not enough, a much more active role is necessary (CHSRF, 2004; Davenport & Prusak, 1998). van Kammen and colleagues (2006) also noted that the role of a knowledge broker is not simply to translate research findings, but to include the dynamic facilitation of the interactive processes between researchers and policy-makers, which is necessary for effective translation of research into practice (van Kammen, et al., 2006). Effective knowledge brokers are also in a position to overcome the gaps in culture, attitudes, awareness, knowledge, and understanding among different communities (Kramer et al., 2004). Similar roles to that of the knowledge broker are described throughout the literature including opinion leaders, champions, change agents, linkage agents, and facilitators (Thompson, Estabrooks, & Degner, 2006). Thompson and colleagues distinguish knowledge brokers as more of a formal and structural intervention to facilitate knowledge utilisation.

2.4.2 Knowledge Brokering in the KE Extension

As previously mentioned one of the key support mechanisms of the SHAPES-Ontario KE Extension is providing a knowledge broker for the six participating health units. Knowledge brokering is complementary to the SHAPES CoP and the interactive processes of Manske's framework, as it utilises research to inform decisions with research through social

practices and human interactions (Lomas, 2007). The knowledge broker for the KE Extension was an MSc student working with the project and had numerous years of experience working in public health. Since the beginning of the KE Extension Project, the individual fulfilling the role of the knowledge broker has changed twice. The other two individuals were both project managers at the University of Waterloo, who had experience working with Ontario Public Health Units. The role of the knowledge broker is to ultimately provide support to the participating health units to increase their capacity to analyse, interpret and use the SHAPES-Ontario data in public health program planning, implementation and evaluation. More specifically, the primary role of the knowledge broker is to act as a link that facilitates communication between public health staff and researchers and statisticians from the University of Waterloo who are familiar with the SHAPES data system. By acting as a link between these two bodies, the knowledge broker is able to identify the needs of individual health units, clarify confusion around data interpretation and push the use of the SHAPES-Ontario data in public health decision-making processes, thereby increasing their capacity to use the data (Bonin, 2007).

The knowledge broker primarily communicates with health unit practitioners through electronic communication and through annual face-to-face meetings. The knowledge broker has easy access to the research community, as they are positioned within the same research unit at the University of Waterloo. For a more in-depth description of the KE Extension, please refer to Appendix B.

2.4.3 Evidence Related to Knowledge Brokering and Knowledge Use

The literature has consistently found that research evidence is unlikely to serve as a change agent unless it is linked to some form of knowledge management system, involving

stakeholder engagement, such as knowledge brokering (Armstrong, Waters, Crocket, & Keleher, 2007). A theory developed by Speller, Wimbush, and Morgan (2005) captures a similar idea that evidence-informed approaches involve more than simple synthesis and dissemination of research evidence; it requires the development of professional roles and collaborative mechanisms that span across research and practice boundaries. Many studies support the need for communication between researchers and decision-makers in an effort to link research to policy and practice in order to better utilise evidence (Innvaer et al. 2007). Researchers recommend the use of knowledge brokers to provide a constant link between researchers and decision makers to overcome the barriers between these two communities (Mercier, Bordeleau, Caron, Garcia, & Latimer, 2004). These findings along with other studies suggest the need for human intermediaries between researchers and decision-makers, such as knowledge brokers (Lomas, 2007).

Initial knowledge brokering strategies have proven to advance the culture of evidence-informed decision making in Canada (Lomas, 2007). Knowledge brokering is an increasingly emerging role in health research, as the interpersonal connections that are necessary to effectively bridge the gap between research and practice are sill not in place (WHO, 2004; Lomas, 2007). As such, many researchers have recommended a structured and deliberate dissemination strategy involving knowledge brokers as a key mechanism to support the translation and use of research evidence in practice. Effective knowledge brokers help to align relevant research evidence with new policy initiatives and facilitate timely engagement between researchers and decision-makers to improve the impact on practice (Armstrong et al., 2007). While many studies demonstrate the effectiveness of facilitators in changing organisational practices and moving evidence into practice, specific styles of

facilitation, such as knowledge brokering, require further research to assess their effectiveness (Harvey et al., 2002).

The Canadian Health Services Research Foundation (CHSRF) hosted a Knowledge Broker Workshop in 2004 that offered valuable insight to the theory and practice of knowledge brokering. Overall, the practice of knowledge brokering has varying influences on evidence-informed knowledge use, ranging from general awareness to tangible policy change. Many of the knowledge brokering initiatives focused on building relationships that encourage communication between researchers and decision makers. Knowledge brokers are valuable because of their position to gain insight into the underlying motivations of decision-makers, allowing them to present research evidence in a relevant and applicable format. They are also able to assist stakeholders in identifying the best available evidence to inform decision-making. Knowledge Brokers have also been recognize for their role in generating multidisciplinary teams, creating networks through the identification of shared values, and training researchers to effectively communicate with stakeholders (e.g., government and public). Another major theme that came from the workshop was the need to build trust between the stakeholders and brokers for effective knowledge brokering (CHSRF, 2004).

Hargadon (1998) used a management science lens to examine the role of organisations as knowledge brokers. The knowledge brokers in this study were in a position to access and understand knowledge from across multiple and diverse industries. Intensive interaction and communication was necessary for individuals working on a problem to identify and connect with other individuals or resources that held knowledge relevant to their problem. The study concluded that the knowledge brokering culture is critical for supporting the innovative behaviours of individuals within these organisations (Hargadon, 1998).

Similarly, the linkages established through effective knowledge brokering, ensure that decision-makers have easy access to the necessary evidence-informed knowledge (Armstrong et al., 2007). Another study that examined the involvement of a knowledge broker to provide a link between research and government was very effective at linking the two communities, through their ability to bridge the different languages and perspectives of the research and policy domains (Sewell et al., 2004). In a similar study, van Kammen and colleagues (2006) found that knowledge brokers were critical for encouraging effective communication among researchers and policy-makers, which led to an agreement for recommendations for action based on research (van Kammen, 2006).

A study examined the influence of a knowledge broker on the uptake of research evidence among decision makers in health care. The study found that the knowledge broker played an important role in enhancing partnerships, facilitating communication and making sense of the research, therebye increasing the uptake of the best practices in stroke care among the decision makers (Lyons, Warner, Langille, & Phillips, 2006). Similarly, a knowledge broker who was employed to increase evidence-informed knowledge use in local schools was found to initiate linkages and facilitated interactive engagement, which resulted in shared goals and the development of evidence-informed initiatives that were appropriate for the user context (Manske et al., 2005).

A study from management science examined a knowledge brokering model to facilitate the utilization of market knowledge by an organisation to produce successful innovation. This brokerage was found to be fundamental for the sharing and use of market knowledge to increase innovation and leverage competitive advantage for the organisation (Cillo, 2005). Another study from the field of management provides valuable insight to the

practice of knowledge brokering. This study examined the role of a knowledge broker in an emerging knowledge portal and community of practice (Van Baalen, Bloemhof-Ruwaard, & Van Heck, 2005). The study specifically observed knowledge sharing among individuals from the different organisations involved in the portal and community of practice. The study found that the presence of a knowledge broker greatly facilitated linkages and sharing among members of the emerging network, especially since the individuals in the network were geographically dispersed and had not previously communicated with one another (Van Baalen et al., 2005).

Another important function of a knowledge broker that was highlighted by CHSRF is their ability to translate research evidence in a way that is understandable and relevant to the user. Kramer and Wells (2005) examined the role of knowledge brokering in transferring complex research evidence to numerous practitioner-based organisations across different sectors. The role of the knowledge brokers was to adapt the research to make it more relevant and context-specific to the practitioners, resulting in greater dissemination and utilisation (Kramer & Wells, 2005). Furthermore, the study by Manske and colleagues (2005) found that knowledge brokers play an important role in explaining the relevance and importance of research evidence. This knowledge broker also provided the participating schools with access to evidence that could inform their current needs, making them increasingly receptive to the evidence and its application.

In the field of management, Cranefield and Yoong (2007) assessed the role of gatekeepers whose purpose was to facilitate translation of knowledge between cross-sector working groups. They found that a critical component of their role was to engage in continuous and active adaptation of the knowledge, which could be transformed to a form

that was more relevant and easy to understand by the participating organisations (Cranefield & Yoong, 2007). The presence of gatekeepers resulted in an increased absorptive capacity for the participating organisations (Cranefield & Yoong, 2007). Another study by Pawlowski and Robey (2004) examined a brokering role employed by information technology (IT) professionals within organisations. They found that the knowledge brokers were able to successfully clarify, restructure and contextualise IT knowledge for the various working groups within the organisation, which resulted in increased organisational absorptive capacity (Pawlowski & Robey).

CHSRF also found that knowledge brokers play an important role in providing researchers with insight to the underlying agenda of decision-makers and assisting them in producing timely and relevant research for policy makers. Choi and colleagues (2005) studied the barriers among researchers and policy-makers and found that a knowledge broker was critical in ensuring that policy-makers used the most relevant and sound evidence. The knowledge brokers were also critical in focusing the attention of researchers to timely issues on the policy agenda and assisted them in attracting the attention of policy-makers (Choi et al., 2005).

Finally, a study by Kramer and colleagues (2004) examined the practices and processes of a knowledge broker, which identified many of the same themes from the CHSRF workshop. The role of the knowledge broker was to interact with employees of an organisation to inform them of the research evidence related to work health. Through their interactions, the knowledge broker built trust and credibility among the employees (Kramer et al., 2004). The knowledge broker engaged the employees in discussion that allowed them to manipulate the evidence to have relevant meaning and implications for their work context,

which resulted in conceptual, structural, and political knowledge use (Kramer et al., 2004). The knowledge broker facilitated sustained and intense interaction among the employees and decision makers, which was necessary for effectively connecting the research evidence to the workplace (Kramer et al., 2004). Overall, many benefits resulted from the utilisation of the research evidence presented by the knowledge broker, such as increased cohesion, better business results, more competitive edge, and increased productivity (Kramer et al., 2004).

Relatively little information on knowledge brokering has been documented to date. While the studies discussed provide valuable insight into the advantages and the different roles that knowledge brokers can employ to improve evidence-informed knowledge use, there is a need to further support and evaluate the brokering role in an attempt to strengthen evidence-informed practice and policy (van Kammen et al., 2006). Lomas (2007) even makes a call for more research evaluation on knowledge brokers in order to facilitate a formal recognition of their role in bringing together researchers and decision makers for evidence-informed knowledge use and practices. The proposed thesis will contribute to this body of evidence by examining the role of knowledge brokers in supporting evidence-informed knowledge use for youth physical activity in a public health setting.

3 Study Rationale

The literature has identified the need to enhance our understanding of the influences of interactive processes and related support mechanism on evidence-informed knowledge use. The literature review provided an overview of the role of collaborative partnerships, communities of practice and knowledge brokers on knowledge use in various disciplines and contexts. It also identified specific gaps in the literature in each domain (e.g., collaborative partnerships, CoP, and knowledge brokers) and addressed how this thesis could contribute to these bodies of literature. To date, the literature has not yet examined the collective influence of these interactive mechanisms within the context of public health, specifically with respect to youth physical activity initiatives. Furthermore, there appears to be great urgency for efficient and coordinated evidence-informed decision making in public health, particularly with respect to the overwhelming prevalence of childhood obesity. Therefore, in response to calls for improved knowledge use in public health initiatives, this thesis sought to increase our understanding of the role of interactive processes in evidence-informed knowledge use in a public health setting. The purpose of this thesis was to investigate the influence of the interactive support provided through the SHAPES-Ontario KE Extension on evidence-informed knowledge use. As such, the study investigated the following research question:

> *How does the interactive support provided through the SHAPES-Ontario Knowledge Exchange Extension relate to evidence-informed knowledge use concerning youth physical activity in public health?*

This study provided an opportunity to increase our understanding of the factors that influence evidence-informed knowledge use (e.g., interactive processes), while specifically

examining the influence of collaborative partnerships, communities of practice and knowledge brokers on evidence-informed knowledge use in a public health setting. Findings from this thesis confirmed many of the conditions of Manske's (2001) Knowledge Utilisation Conceptual Framework and refined the Interactive Processes Domain. Moreover, the findings have implications for the theory and practice that encourages evidence-informed knowledge use, using interactive processes (e.g., collaborative partnership, CoP, and interaction with a knowledge broker) as a vehicle. Overall, this study may inform future interventions that aim to improve the efficiency and effectiveness of evidence-informed decision making and policies in public health.

4 Methods

4.0 Chapter Overview

This chapter begins with an overview of the epistemological and theoretical perspectives guiding this research. The chapter will then provide a brief detailed background of the SHAPES-Ontario Knowledge Exchange Extension Study. From here, a description of the samples, data sets, analysis and coding procedures will be presented. Finally, the chapter will conclude with a discussion of the advantages and limitations of the proposed methodology and potential implications of the findings.

4.1 Epistemological and Theoretical Perspectives

The research question was examined through a constructivist lens. A core concept of the constructivist epistemology is that understanding and knowledge is a result of an individual's interaction with their environment (vonGlaserfeld, 1989). Learning is not just within the individual, it is a part of the entire context (Anderson, Reder, & Simon, 1996; vonGlaserfeld, 1989). Constructivism proposes that understanding is socially constructed and that each individual creates different meaning that results from their personal interactions, allowing for multiple realities to exist (Patton, 2002; vonGlaserfeld, 1989). Under a constructivist perspective, an individuals' understanding is a function of the content, the context, the activity of the learner, and the goals of the learner (vonGlaserfeld). The theoretical perspective of interpretivism is complementary to the constructivist epistemology. Similar to constructivism, interpretvism believes that there is the potential for multiple realities to exist and that these realities are co-constructed (Patton, 2002). Using an interpretivist perspective, the corresponding methodology allowed for the exploration of the influences of interactive

processes (e.g., CoP's, KB, and collaborative partnerships) with regards to evidence-informed knowledge use. Furthermore, this perspective allowed for the interpretation and integration of multiples realities with regards to evidence-informed knowledge use and the influence of interactive processes, as each participant provided differing realities (a unique perspective) based on their experience within their organisation. Being able to compare differing perspectives across the participants provided a comprehensive depiction and understanding of the interactive processes that play into evidence-informed knowledge use in public health.

4.2 Sample Selection

To address the proposed research question, two different samples of Public Health Organisations were selected. The intervention sample consisted of two Ontario Public Health Units from the SHAPES-Ontario Knowledge Exchange Extension (KE Extension). The KE Extension provides support to participating health units with the intent of increasing their capacity to utilise SHAPES-Ontario data in program planning, decisions-making and evaluation. For the purposes of this thesis, the interactive support of the KE Extension is defined according to three component: 1) participation in collaborative partnership with researchers at the University of Waterloo (UW); 2) membership in a Community of Practice (CoP) involving practitioners across all of the participating health units and researchers from UW; and 3) access to a knowledge broker. These three support mechanisms of the KE Extension are intended to provide a strong connection between UW and the participating health units. For more information regarding the SHAPES-Ontario Project and the KE Extension please see Appendix B. The two Ontario Public Health Units that were chosen from the KE Extension were those that received the highest level of knowledge use, based on

the KUU scale responses from the KE Extension interviews as reported in Bonin (2007). The KUU scale was developed by Skinner (2007) to measure the reach, uptake and deliberate non-use of the SHAPES-Ontario data from a previous scale that measured the reach and uptake of disseminated best/promising practices in diabetes prevention. The KUU scale and how it was used as part of the data collection process will be described in greater detail in Section 4.3. By selecting the two health units from the KE Extension with the highest level of knowledge use, it was assumed that they would provide the greatest contrast to the comparison sample in terms of evidence-informed knowledge use for physical activity, thereby providing the greatest insight into the interactive processes.

The comparison sample consisted of two public health organisations that collected local youth physical activity data that is comparable to the SHAPES-Ontario data, but were not involved in the SHAPES-Ontario project or the KE Extension. The first public health organisation is an Ontario Public Health Unit that collected SHAPES data through another project with the University of Waterloo. The second public health organisation is a Manitoba Regional Health Authority that developed a data collection system that was informed by the SHAPES system and was employed to collect "SHAPES-like" data (e.g., local youth physical activity surveillance data). These two public health organisation were ideal comparisons, since they had access to SHAPES or "SHAPES-like" data, but did not have the intervention of the interactive support provided through the KE Extension.

Considering the selection procedure, the Public Health Organisations that form the intervention and comparison samples vary across many organisational characteristics, such as the size of the organisation, the geographic area and population they serve, and the structure of the organisation. Table 1 summarizes the organisational characteristics of the four Public

Health Organisations. In order to ensure confidentiality, the two intervention Public Health Organisations have been assigned Site A and Site B, and the two comparison organisations have been assigned Site C (Ontario Public Health Unit) and Site D (Manitoba Regional Health Authority).

Table 1: Organisational Characteristics

Characteristics	Site A	Site B	Site C	Site D
Organisational Size	~ 450 employees	~ 200 employees	~180 employees	~1,750 employees
Service Area/ No. Residents	~3,000 km^2/ ~ 1 million residents	~ 6,500 km^2/ ~200,000 residents	~8,500 km^2/ ~158,000 residents	~26,000 km^2/ ~76,000 residents
No. of Divisions	4	5	3	24 Programs/ Services

When comparing across the organisational characteristic presented in the Table it is clear that there are also some limitations in terms of the similarity of the organisational characteristics of the four Public Health Organisations.

4.3 The Knowledge Utilization Uptake (KUU) Scale Attributes and Scoring

As previously mentioned, the Knowledge Utilization Uptake (KUU) scale was adapted by Skinner (2007) from a previous scale to measure the reach, uptake and deliberate non-sue of the SHAPES-Ontario data. The KUU scale consists of a series of stages that were derived from Knott & Wildavsky's (1980) *Seven Standards of* Utilisation, and categories from Hall and colleagues *Levels of Use (LoU) Scale* (Skinner, 2007). The LoU dimensions are intended to describe the behaviours of innovation users and do not focus on attitudinal, motivational, or other affective characteristics of the user (Hall et al., 1975). This supports the scales' use of binary responses, as a Likert scale would be more appropriate for measuring opinions, attitudes, or beliefs (Skinner, 2007).

The first section of the KUU scale involves questions that probe at the reach and uptake of the SHAPES-Ontario data. The reach component probes the extent to which the research evidence has been disseminated and the uptake component reflects any behavioural efforts to use that evidence. More specifically, the scale measures constructs such as awareness, reception, adoption and implementation of the SHAPES-Ontario data. The second section of the scale includes questions that probe at the deliberate non-use of the research evidence. After the KUU scale has been completed, the level of use for each individual user can be determined. The levels of use achieved are determined based on individuals' responses to the KUU scale, which is scored according to criteria outlined in Appendix C. The KUU scale outcomes and levels of use presented in Appendix C were based on the LoU Scale by Hall et al. (1975) (Skinner, 2007). The KUU scale is scored to measure eight levels of use that an individual may demonstrate towards the SHAPES data, with the highest level of use being Renewal and the lowest level being Non-Use.

When interpreting the level of uptake and use achieved by an individual on the Scale, it is not necessarily meant to be a continuous measure with definitive endpoints (Skinner, 2007). Therefore, this tool attempts to capture the process of knowledge use rather than an endpoint or an overall score (Hall et al., 1975). Increased levels of uptake and use results in the user moving toward higher levels of use, but the user does no need to complete a lower level of use before moving to higher level on the scale. Users do not need to achieve consecutive levels of use; rather they can skip over levels to reach a higher level of use (Skinner, 2007).

The scores received by each participant contribute to an "overall" score for their respective organisation. Our understanding of what goes on at an organisational-level in

terms of evidence-informed knowledge use is very limited. It is unclear how to assess evidence-informed knowledge at an organisation-level from individual-level responses. Therefore, some form of criterion must be outlined to determine an organisations level of knowledge use based on the individual scores on the KUU scale within that organisation. Bonin (2007) used a 60% cut-off criterion to determine the organisation's level of knowledge use based on the participants individual scores on the KUU scale from that organisation. This criterion specifies that in order for a health unit to score on a certain level of knowledge use, 60% of the participants from that health unit had to score on that particular level of knowledge use from their individual response on the KUU scale. This criterion of 60% seems to be appropriate, considering that individuals from each organisation that are selected for interviews are often the exemplars and leaders of that organisation. Therefore, these individuals are not necessarily representative of the organisation and should only factor into 60% of the overall organisational score.

Furthermore, Bonin (2007) outlined a criterion that categorizes organisations into "low", "moderate", and "high" levels of use. Considering that there are eight levels of use, the "moderate" level of use was defined as scoring on four levels of use (Bonin, 2007). A "high" level of use was achieved when an organisation scored on more than four level so knowledge use and a "low" level of use was achieved when an organisation scored on less than four levels (Bonin, 2007).

4.4 Psychometrics of the Knowledge Utilisation Uptake Scale

The KUU scale has a very strong theoretical basis. Firstly, a systematic search of literature was conducted to inform the development of the scale of a tool to measure knowledge exchange and uptake (Skinner, 2007). Preliminary testing of the concurrent validity was

conducted by Bonin (2007) to ensure that the KUU scale was actually measuring the constructs of knowledge uptake and use. This study tested the degree of association between the KUU scale items and the qualitative assessment of knowledge use. The qualitative data included interview transcripts collected from the KE Extension. Trustworthiness of the coding was established through inter-coder reliability. The two coders reached agreement on coded instances of knowledge use approximately 80% of the time. Using SAS and the PROC FREQ command, the percentage of agreement between instances of knowledge use in the qualitative interviews and the eight levels of knowledge use on the KUU scale was determined. Based on the results, Bonin (2007) concluded that the KUU scale did indeed validly measure several levels of knowledge use. More specifically, the results demonstrated that there was a high level of agreement on seven of the eight levels of knowledge use, except for "Renewal". This may have been attributed to the fact that the interview guide for the KE Extension was not designed to solely probe at knowledge use to the same extent as the KUU scale. The interview guide likely did not ask specific questions or even the "right questions" related to the Renewal construct on the KUU scale. Despite this, Bonin (2007) concluded that the KUU scale is effective at measuring the construct of knowledge use and is suitable for selecting sample health units demonstrating high, moderate and low levels of knowledge use.

Further validity testing would be ideal, such as construct, concurrent criterion related validity, Inter-correlations or Principals Components Analysis, for further establishment of the effectiveness and value of the scale. Due the small sample size used for this thesis and the corresponding low power, it was not possible to do any further validity or reliability testing.

4.5 Data Set

The data set used for this thesis consisted of data collected through KE Extension from the intervention sample (e.g., Sites A and B) and data collected for the purpose of this thesis form the comparison sample (e.g., Sites C and D). Both the intervention and comparison data sets consist of qualitative interview transcripts and participant responses to the KUU scale. It is important to gather corresponding qualitative data from those participants who complete the KUU scale, as the qualitative data provides valuable insight into the context in which the evidence is disseminated and utilised (Skinner, 2007).

The data set for the intervention sample consisted of five interview transcripts and corresponding KUU scale results from Site A and four interview transcripts and corresponding scale responses from Site B. The data sets of Site A and Site B were collected from staff members at each organisation that were participants in the KE Extension. Due to a lack of response or scheduling conflicts for interview times, not all of the KE Extension contacts from Sites A and B were able to be included in the data set. Public health staff that were interviewed from the intervention Sites included Managers, Supervisors, Epidemiologists, Public Health Nurses, Physical Activity Specialists and Health Promotion Coordinators. The interviews from the KE Extension were conducted by the thesis investigator to fulfill the project requirements of the KE Extension for the second round of interviews (T2) with participating public health staff. The interviews that were included in this data set ranged in date from April 2008 to July 2008. The interviews were semi-structured, with open-ended questions regarding the use and application of the SHAPES-Ontario data and factors affecting the use of this evidence in public health planning and decision-making (Appendix D). There were also questions that directly probed at the

influence of the KE Extension on evidence-informed knowledge use at their organisation. Following the interview, staff were sent an electronic version of the KUU scale to be completed and returned by email to the thesis investigator (Appendix D). All interviews were conducted over the phone and lasted anywhere from 30 to 60 minutes. The interviews were digitally recorded and sent to an external transcription company to be transcribed. To help ensure a credible data set, the interview transcripts were sent to the respective interviewees over email. This provided the participants with the opportunity to review the transcripts to ensure that their responses were accurately captured.

The data set for the comparison sample consisted of three interview transcripts and corresponding KUU scale responses from Site C and five interview transcripts and corresponding scale results from Site D. There were four participants from Site C that were interviewed for this project, but due to technical problems with the digital recorder, the interview with Participant 2 at Site C did not record. Extensive note taking was made throughout all of the interviews, which allowed for a fairly detailed summary of the interview to be produced. This summary was then sent back to Participant 2 to ensure that the discussion had been accurately captured. This summary was coded and analysed as part of the data set from Site C.

The interviews that made up these data sets from Sites C and D were conducted by the thesis investigator for the purpose of the research question. Primary contacts at Sites C and Site D identified approximately three to four staff from their organisation that would be appropriate for participation in this thesis project. These individuals were then contacted by the thesis investigator for participation in the study. With the exception of one staff member from Site D who did not respond, all individuals that were contacted agreed to participate in

the study. The interviews were conducted from May 2008 to July 2008. An adapted version of the interview guide from the KE Extension was developed along with an adapted version of the KUU scale for both Site C (Appendix E) and Site D (Appendix E). The adapted interview guides and KUU scales received full ethics clearance from the Office of Research Ethics at the University of Waterloo (ORE#14603), which can be found in Appendix F. Data collection for Sites C and D followed the same process outlined above for the two intervention health units. Further details of these four Sites and the participants that were interviewed from each Site are provided in Chapter five.

In order to maintain confidentiality and anonymity, all hard copies of transcripts have been stored in a locked filing cabinet in a secured office within the Centre for Behavioural Research and Program Evaluation at the University of Waterloo. Electronic data, including the digital interview recordings and electronic transcripts have been stored on a secure server within a restricted folder. Each of the four Sites and respective participant names were coded for and removed from the transcripts, analysis, and write up of the study.

4.6 Qualitative Analysis

Secondary qualitative analysis was conducted on the data set from the KE Extension (e.g., Sites A and B). Primary qualitative analysis was conducted on the data set collected from the two comparison public health organisations that are not involved in the KE Extension (e.g., Sites C and D). The qualitative analysis resulted in a comprehensive case study for each of the four participating Sites. Once the case studies were developed for each public health organisation, cross case comparisons were conducted. The cross case comparison allowed for further understanding of the themes that emerge from the analysis and how they are interrelated within one context and across varying contexts. The cross case analysis

examined the dominant similarities and divergences of the themes across the four Sites. Overall, this provided a greater understanding of factors important to evidence-informed knowledge use related to youth physical activity in public health.

Guiding the interpretation and analysis of the organisations' case studies, was the Social Ecological approach. The Social Ecological approach provides a basis for understanding the complex relationships between individual, organizational, and external factors, and the influences they have on each other (Best et al., 2003). The Social Ecological approach emphasizes the relationship between the physical environment and social environment and the interaction between the two (Best et al.; Stokols, 1992). Furthermore, the Social Ecological approach explains how changes on one level of a system can affect changes on another level of a system (Green & Kreuter, 1999; Stokols, 1992). This provides an explanation for how the values, beliefs and social interactions at the organisational level can influence individual behaviours within the organisation. Some Social Ecological theorists specifically examined the influence of interpersonal interactions in a given setting, such as work groups (Bronfrenbrenner, 1979 in Glanz et al., 2002). The Social Ecological approach also considers the supportiveness of the social setting and the influence this has on individual behaviour (Moos, 1980 in Glanz et al., 2002). These were important considerations when investigating the influence of interactive processes on evidence-informed knowledge use among public health practitioners.

The Social Ecological approach supported the exploration of the research question. This approach is also very complementary to the theoretical perspective of interpretivism. Interpretivism embraces the concept that meaning evolves from an individual's interaction with the realities of their environment (Patton, 2002). Furthermore, the research question

attempts to understand the complex interplay of interactive process with the individual and their environment and the influence this has on evidence-informed knowledge use. The Social Ecological approach is very appropriate for the examination of the interaction between individuals of an organisation, and external to that organisation, which often occurs through Communities of Practice, Knowledge Broker, and Collaborative Partnerships. This approach provides a foundation for understanding the influence of organisation-wide, one-on-one interaction and even interaction beyond the organisation may influence individuals' levels of evidence-informed knowledge use.

4.7 Analysis and Coding

This qualitative study established coding procedures to ensure validity and reliability. The procedures outlined below breakdown the coding into specific activities, providing greater understanding to the logic behind the analysis (Strauss & Corbin, 1998). The interview transcripts were coded for instances of evidence-informed knowledge use and factors that may have facilitated these instances, with a particular focus on interactive processes. Interactive processes were also specifically coded for the defining characteristics of collaborative partnerships, communities of practice and knowledge brokering. Identifying such instances provided insight into the influence of these interactive processes on evidence-informed knowledge use in the four public health organisations. The analysis also provided further insight into the level of knowledge use within each organisation, which complements their respective scores from the KUU scale. NVivo 2.0, a QSR qualitative analysis software product, was used to help manage and enhance the analysis and coding process. NVivo organized the coding process to allow for efficient identification, sorting and retrieval of data during the analysis (Auld et al., 2007).

The analysis began with an ***initial review*** of each of the interview transcripts. The initial review provided an overall picture of evidence-informed knowledge use, the role of the KE Extension in Sites A and B, and general factors that seemed to facilitated evidence-informed practice in the four Sites. Throughout the entire analysis process, memoing was used, which allowed the thesis investigator to document and reflect on initial perceptions, assumptions, questions, and interpretations of the data as the themes emerged (Strauss & Corbin, 1998). Memoing also facilitate the identification of key themes as they emerged from the analysis and their relations to other themes (Strauss & Corbin, 1998).

Following the initial review of all of the transcripts, open coding was conducted. Open coding broke down the data into discrete parts, which were examined and compared for similarities and differences (Strauss & Corbin, 1998). Emergent concepts that seemed to be similar in nature and meaning were grouped together to form simple, broad categories or codes (Strauss & Corbin, 1998). Constant comparative methods were employed as each transcript underwent open coding, which highlighted common characteristics or properties that emerged across the transcripts, while ensuring consistency and accuracy (Straus & Corbin, 1998).

Following open coding, axial coding was conducted, which systematically developed and related categories (e.g., codes) (Strauss & Corbin, 1998). Axial coding was used to bring the data back together from the open coding, to identify more specific themes regarding evidence-informed knowledge use, interactive processes, and other factors that influenced knowledge. Axial coding assisted in identifying emergent themes and potential relationships between these themes. The emergent themes were identified according to their presence in the data. If a theme continually emerged from that data, or if it had a particularly rich

description provided by the interviewee, it was identified as an emergent theme. The identification of emergent themes and how they were interconnected captured what was going on in the data and it provided a conceptual understanding of interactive processes and knowledge use (Strauss & Corbin, 1998).

Finally, selective coding was employed to integrate and refine the emergent main themes (Strauss & Corbin, 1998). In this stage of the coding process core themes were identified. Core themes were identified as those that related to all of the other emergent themes and captured the relationship among the emergent theme to form an explanatory whole (Strauss & Corbin, 1998). Through a Social Ecological lens, the core themes were compared and further examined to provide insight into evidence-informed knowledge use and the factor facilitating this process in of the four Sites.

Throughout the entire coding process, constant comparative methods were used to validate the interpretation by consistently comparing one piece of data to another (Strauss & Corbin, 1998). In doing so, this recognized that while the analysis was grounded, there was always a certain degree of distortion and bias, as each individual brings their own assumptions and previous knowledge into the interpretation of the phenomenon (Strauss & Corbin, 1998). Making comparisons was necessary for the themes to emerged and understand how these themes varied across different conditions (e.g., whether or not the organisation had the support of the KE Extension) (Strauss & Corbin, 1998). Memo-writing was also an integral part of the analysis process. Memoing is another technique to ensure that the investigator reflects on coding throughout the entire process (Charmaz, 2006).

In order to establish the trustworthiness of the coding, inter-coder reliability was conducted (Lincoln & Guba, 2000). A colleague who is familiar with the research area and

is involved in the KE Extension was approached to do the coding. Randomly selected segments of each transcript were compiled across each of the four Sites for the inter-coder rating. To ensure consistency between coders, the index of codes, which has been created throughout the analysis process was shared with the inter-coder. This index summarized all of the codes and their corresponding definitions (Appendix G). After independently coding the segments of the transcripts, the thesis investigator assessed the degree of agreement. Using the coding index, the two coders reached agreement of instances of knowledge use approximately 75% of the time. Employing these inter-coding techniques assessed the degree of agreement between the two coders and the trustworthiness of the coding process (Hruschka et al., 2004).

The following Chapter will discuss the core and emergent themes that were identified in each of the four Sites and the relationship between these themes and across the different contexts.

5 Results

5.0 Chapter Overview

This chapter begins with a summary of the levels of knowledge use (KU) achieved by each organisation on the Knowledge Utilisation Uptake (KUU) Scale. Following this, a Case Study of each of these organisations will be discussed. Each Case Study will begin with an overview of organisational characteristics of the Site, including the size of the organisation, the population it services, unique characteristics of the organisation and other factors that may provide further insight and explanation to evidence-informed knowledge use within the organisation. The organisations' score on the KUU scale will then be discussed in further detail. Following this, the analysis results from the interview transcripts will be explored to establish the 'thick description' (Geertz, 1973) of evidence-informed knowledge use concerning youth physical activity and the potential influence of the KE Extension. Other factors that may have influenced evidence-informed knowledge use, such as personal, organisational, and external factors, were also considered in the analysis and reported. The analysis results summarize the prominent themes that emerged across the transcripts of the organisation. Cross-Case Comparisons will conclude the chapter, further examining the analysis and the potential relationships across the organisations and contributing to our understanding of evidence-informed knowledge use concerning youth physical activity and the influence of the KE Extension.

5.1 Knowledge Utilisation Uptake Scale Results

As mentioned in Chapter four, each participant completed the Knowledge Utilisation Uptake (KUU) Scale as part of the interview process. The following table summarizes each

organisations' score on the KUU scale, providing details on the levels of knowledge use (KU) each organisation achieved. For a description of how the scale was scored please refer to Appendix C.

Table 2: Organisation KUU Scale Results

Level of KU	Site A	Site B	Site C	Site D
Non-use				
Orientation	√	√	√	√
Preparation				
Mechanical	√	√	√	√
Routine	√			√
Refinement	√			√
Integration	√	√	√	√
Renewal	√	√		√
Total KU Levels	**6**	**4**	**3**	**6**
Overall Score	**High**	**Moderate**	**Low**	**High**

It is helpful to note that the intervention organisations have been assigned Site A and B and the comparison organisations assigned Site B and C. These levels of KU achieved by each organisation and their overall score will be discussed in further detail in the Case Studies.

5.2 Site A Case Study: Overview of Organisation

To better understand evidence-informed knowledge use within an organisation, it is important to have an overview of the context and characteristics of the organisation. Site A in an Ontario Public Health Unit involved in the SHAPES-Ontario Knowledge Exchange Extension (KE Extension). More specifically, Site A is situated within a City Department with the City Council serving as the Board of Health. Site A, is organised into four Divisions that deliver public health services such as health protection, family health services, disease

and injury prevention and control of communicable diseases. Each Division of the organisation is further organised into specific Units, which are made up of Unit Mangers, Program Officers, and various frontline staff (i.e., Public Health Nurses). Of particular relevance to this thesis, is the existence of a 'Nutrition, Physical Activity, School Health Unit' and a 'Youth, Tobacco & Injury Prevention Unit', within one of the Divisions. Based on the staff listing provided by one of the participants, Site A has approximately 450 employees. The service area of Site A is approximately 3,000 square kilometres with one million residents living in both urban and rural communities.

It is important to note that Site A is also a PHRED Health Unit[1]. As a result, Site A collaborates with all post secondary institutions in the area to conduct research, providing the organisation with additional resources and support for research evidence. The organisation as a whole likely has a greater history of prior evidence-informed knowledge use, compared to other public health organisation that do not have partnerships and activities that resemble the PHRED program (Manske, 2001). Another potential influence of the PHRED unit on evidence-informed knowledge use is that staff may have a greater commitment and receptiveness to research evidence (Manske, 2001). Specific to local youth physical activity data, is Site A's extensive previous experience working with SHAPES data. Site A originally collected SHAPES data in 2004 and collected a second round of data when they participated in the SHAPES-Ontario project and the SHAPES-Ontario Knowledge Exchange Extension in 2006. Many of these unique characteristics of Site A may influence evidence-informed practice within the organisation.

[1] The Public Health Research, Education & Development (PHRED) program involves boards of health (Health Unit), health science programs of Ontario universities and colleges and the Ministry of Health and Long-Term Care. The program contributes to health promotion, protection and prevention in Ontario by conducting research related to public health practice. There are five PHRED Health Units across Ontario.

Staff members from Site A who were included in the data set for this thesis were participants involved in the KE Extension. Of the five participants, two are frontline staff, one of which works specifically in youth physical activity. Two of the participants are in management positions, one is a Physical Activity Supervisor and another is a Unit Manager related to youth health. The remaining participant is an Epidemiologist assigned to work with SHAPES data.

5.3 Site A Case Study: Organisational Knowledge Use

Site A received a high level of knowledge use on the Knowledge Utilisation Uptake Scale, scoring on six levels of use, including Orientation, Mechanical, Routine, Refinement, Integration and Renewal. This high score of knowledge use was also demonstrated through an analysis of the transcripts from the five staff members from Site A. In general, Site A reported using the data in their organisational planning, evaluation and to a further extent, even policy development, quoting the SHAPES results in organisational reports and program evaluations. Through sharing the results with the schools it has raised awareness in the schools and increases their understanding of youth health within their school. More notably, Site A had many creative uses of the SHAPES data that engaged school communities, often strengthening the relationship between the schools and public health staff. Some examples include a standard presentation that summarized the result to be shared with the school boards and schools, a physical activity pamphlet and display were developed, and a newsletter to parents and youth. These examples indeed reflect the levels of use that were achieved on the KUU scale. The following analysis will further explore knowledge use of SHAPES data at Site A to better understand their high score on the KUU scale.

5.4 Site A Case Study: Analysis Results

The following section summarizes the key themes that emerged from the analysis of interviews from Site A. The analysis will also explore the relationships between these themes and evidence-informed knowledge use within Site A.

5.4.1 Core Theme: *Access to SHAPES Data*

Throughout the analysis of the interviews from Site A, the core theme of 'access to SHAPES data' consistently emerged from the transcripts. Having access to SHAPES[2] data was the key factor influencing evidence-informed knowledge use regarding youth physical activity at Site A. One of the unique characteristics of the SHAPES data is the fact that it is local to the region that Site A serves. A participant from Site A captured the demand for local data within her organisation.

> *"The local data I would have to say is the strongest thing because we're hungry for it. A lot of agencies are hungry for it and we don't have a lot of it."* [Site A, Participant 2, 30]

Local data are a valuable source of evidence for staff working in public health and are an important factor for encouraging evidence-informed decision-making and practice (Bonin, 2007; Manske, 2001). The fact that public health organisations typically do not have the capacity, resources or expertise to collect localized surveillance data, provides further insight to the value placed on SHAPES data at Site A.

> *"I mean we don't have anything else that collects local data, so I think, yeah I think that's very key" [Site A, Participant 3, 334].*

[2] The term SHAPES data is used by organisations participating in the SHAPES-Ontario Knowledge Exchange Extension (KE Extension) to refer to localized youth physical activity and tobacco use surveillance data that was collected through the SHAPES survey. The SHAPES survey and data collection process was possible through their partnership with the University of Waterloo. The SHAPES surveys collect data at the individual school level. Each school that participated in the project received a feedback report summarizing their specific school data. The public health organisations received a feedback report summarizing the aggregate data from across the schools in their region. The public health organisation could gain access to the individual school data by receiving permission from the schools.

Participants from Site A really value their access to SHAPES data, as it is *Relevant* to the youth within the schools who they work with, which is an important characteristic of the information source (Manske, 2001).

> *"Well, I mean obviously without SHAPES we wouldn't have as much detailed data and information on youth… the SHAPES survey has been the evidence to support the tobacco programs, especially XXX [a youth smoking intervention] at our health unit. So I guess that's, that would be the contribution*." [Site A, Participant 1, 83]

Having access to SHAPES data provided Site A with the evidence necessary to inform and support their school-based programs, contributing to evidence-informed practice at Site A. Another participant identified having access to SHAPES data as a valuable contribution to evidence-informed practice at Site A, as it provides direction for their work. *"Yeah. I mean the SHAPES survey done by Waterloo was, you know, it was informative… it's, it certainly gave us a direction…gave us some stats, some definite stats…"* [Site A, Participant 5, 78]. The SHAPES data provided staff at Site A with the necessary evidence to inform their work.

From the passages above, it is clear that participants from Site A viewed SHAPES data as an important source of evidence. This is further supported by the fact that there were several instances across the transcripts that provide concrete examples of how the staff at Site A have used the data in their daily work. *"… it [SHAPES] provided background knowledge and a rationale. And it gave us directions for program planning…And we, it, it got us considering the advocacy issue with regards to trying to get physical activity…"* [Site A, Participant 5, 42]. Staff at Site A benefited from their access to SHAPES data, as it was used to inform their work and evaluate their programs, practices and policies. *"I wrote with XXX an XXX [a youth smoking intervention] evaluation and we did use the SHAPES data for that… It's been, like the data's been used whenever there's a new policy that comes out… I know the programs use it all the time"* [Site A, Participant 1, 47].

> *"So we have an annual planning cycle. And usually in October we start thinking about our operational planning for the next year, as well as re-jigging our logic models. And that would be based on what we hear from community input, as well as, an example, the SHAPES data or any other evidence that would support what we need to be doing for the next year."* [Site A, Participant 4, 92]

Furthermore, staff at both levels of the organisation, frontline (e.g., Public Health Nurses, Health Promoters) and management (e.g., Program Managers and Evaluation Officers), actively used the SHAPES data in their work.

> *"Well I know that the, that the nurses involved in the high schools that they do presentations to the principal and then to the school staff on the[SHAPES] results specific to that school. And I know that higher up in management have used the [SHAPES] results more, not specific to individuals, but you know the report that was for everybody, kind of general." [Site A, Participant 2, 6]*

Having access to SHAPES data was particularly relevant to the work that Site A does in the schools, further contributing to evidence-informed practice.

> *"I mean the nurses are still using the [SHAPES] results in their presentations I believe to schools and school boards… For physical activity we did have a pamphlet that went out that I think included some of the SHAPES data."* [Site A, Participant 1, 15]

Many of the staff at Site A have shared the SHAPES results with the schools through presentations, pamphlets and meetings with the staff from various levels within the schools.

> *"… well in conjunction with XXX, developed a PowerPoint presentation that, that staff could take out and give to the schools…Currently I'm working with XXX to get the [SHAPES] results out in a more creative way through slam poetry."* [Site A, Participant 3, 6]

Some staff even worked with the schools to find creative ways to share and use the data among the student body. Having access to the SHAPES data while working with the schools significantly contributed to evidence-informed knowledge use within the schools and Site A.

The fact that the organisation made the SHAPES data accessible to all staff further reflects the value that the organisation placed on the SHAPES data in terms of evidence-

informed practice. *"So we've extended that information [SHAPES] for all staff to be able to benefit from that information and then see how they can integrate it within their own practice"* [Site A, Participant 4, 64]. In fact, some of the staff at Site A gave precedence to the SHAPES data, as it is local to the population they serve.

> *"…for the most part we ask programs to use local evidence when it's available and if not, you know, of course we'd have to use provincial data if that was available or national data."* [Site A, Participant 1, 107]

This demonstrates the *Relative Advantage* of the SHAPES data, which is an important *Characteristics of the Information* for knowledge use (Manske, 2001).

Based on the analysis, it is apparent that having access to SHAPES data was a key factor (or core theme) influencing evidence-informed knowledge use related to youth physical activity at Site A and within the schools. Access to SHAPES data was identified as the core theme, as it consistently came up across all of the transcripts and on numerous occasions. The participants at Site A repeatedly emphasized the importance of having access to the local evidence in their work, specifically referring to SHAPES data. Having access to SHAPES data was valuable because it directly informed the programs and practices within Site A. This core theme of having access to SHAPES data is the underlying building block of all of the other themes to emerge from the data, which will be expanded on in the following sections.

5.4.2 Emergent Theme: *SHAPES Engages Relevant Partners*

Having access to SHAPES data was particularly valuable to evidence-informed knowledge use at Site A, as it provides an important evidence source when working with partners. The analysis revealed that the SHAPES data were an effective resource when engaging partners in evidence-informed practice regarding youth physical activity. Staff at Site A would share

the results with other partners to identify opportunities for evidence-informed planning in the schools. *"I know that higher up in management have used the results [SHAPES data] more… with interacting with planning with other agencies around planning for the high school population"* [Site A, Participant 2, 6-10]. One participant mentioned how the SHAPES data were effective at capturing their partner's interest.

> *"Well the, the first thing that comes to mind is when I can share [SHAPES] data…People like hearing those types of numbers, it gets their interest. And if they, you know, if they weren't really onboard before with working with the youth, that really makes them say hey, this is a pro, you know, our, our planning is working, our programs are working so let's, you know, be more participatory"* [Site A, Participant 2, 26]

Furthermore, sharing the SHAPES data with their partners encouraged them to work with Site A around planning and programming for the youth, based on the data.

Local schools and school boards are the primary partners that Site A works in collaboration with towards evidence-informed practice regarding youth physical activity. Staff at Site A primarily use the SHAPES data in their work with the schools.

> *"Well we've used them [SHAPES data] a lot in our dealings with the school population. The schools were extremely interested in the feedback [SHAPES data]"* [Site A, Participant 3, 6].

In fact, the SHAPES data were very well received at many different levels within the schools, including superintendents, principals and students.

> *"But the schools were very receptive and I think that was a, I think that was great. They, they really liked the results and you know, sometimes they went to not only the principals but it might have been to… the youth groups, it might have gone to sometimes staff meetings or parent council meetings, that kind of thing."* [Site A, Participant 3, 6]

Various staff from Site A took a role in sharing the SHAPES data with the schools and engaging them in discussions concerning the use of the data. For example, the Medical

Officer of Health (MOH) at Site A engaged the schools through a presentation summarizing the SHAPES data for their schools.

> *"We've used it in doing presentations firstly with the four superintendents from the four different school boards. MOH, we prepared a presentation for him on all of the SHAPES data and he shared that information with them in an open forum for discussion with them on how this data could be used in each of their schools."* [Site A, Participant 4, 4]

Not only did this increase awareness and understanding of the SHAPES data among the school administration, it also provided an opportunity to discuss how the results could be used within the schools, further contributing to evidence-informed knowledge use. The schools themselves became actively involved in understanding the SHAPES data and how they could be used to inform their strategies and programs. *"Well once again, when they [schools] see, you know, where their rates [SHAPES data] are on, on, well tobacco or physical activity, then you can plan your strategies around that"* [Site A, Participant 2, 310].

> *"So they [schools] have…an idea… of what was going on in the school at that time in terms of, you know, smoking rates and awareness, you know, and different behaviours and they can use it for their planning, can identify whether they're, they're, you know, lacking in certain programs or the students have a certain need."* [Site A, Participant 1, 319]

As demonstrated above, the schools would look at their SHAPES results around physical activity to inform their strategies. The schools even began to take an active role in finding creative uses for the SHAPES data. One participant describes how the schools would integrate the data into classroom learning. *"…students could also use some school [SHAPES] data to…learn from"* [Site A, Participant 1, 319]. The fact that the SHAPES data are specific to their student population really encouraged their involvement with understanding and applying the data. *"Well I think, I think that the [SHAPES] data, as I said before, specific to their school helps"* [Site A, Participant 2, 446]. *"And when you get the specific school data, that's where they can say well this is what's going on in our own*

school. What can we do? You know, to kind of shift things for the better" [Site A, Participant 2, 310]. The schools recognized that the SHAPES data were an important source of evidence for identifying the needs of their student population and opportunities for programs and strategies to address those needs.

The SHAPES data also provided support for the work that Site A was already doing within the schools. *"So SHAPES has been supportive in being able to stay in the schools"* [Site A, Participant 4, 248]. The SHAPES data were continually used to engage the schools and provide ongoing support and direction for Site A's school-based strategies to address youth physical activity.

> *"The lead teacher doesn't always understand the concept of what we're [Site A] trying to promote. We're trying to get the least active students active. We're not trying to offer more sports to the people who already are members of, of sporting teams. And so the, the stats [SHAPES data] for that help to, we have to sometimes bring them back to that. You know remember that the stats say that you have to, you have to work on the girls…it [SHAPES data] helps bring it back to the reason and the basis and the direction we need to take for the programming."* [Site A, Participant 5, 363]

Site A even developed resources that summarized the SHAPES data, providing support for their work within the schools. For example, one participant from Site A described a display highlighting SHAPES data that provided support for their school-based physical activity program.

> *"…and it [display summarizing SHAPES results] was meant to really get people onboard and to understand the issues and therefore the reason why we're in the schools for the XXX [Site A's school-based physical activity program]."* [Site A, Participant 5, 90]

Such resources raised awareness and understanding among the student population around the topics covered in the SHAPES data, particularly youth physical activity. The SHAPES data were so effective at engaging the schools in collaborative evidence-informed practice with Site A that some of the schools have requested further data collection. *"But a lot of schools*

would still like to have us come back and re-survey, you know" [Site A, Participant 3, 182]. This demonstrates the value of having access to the SHAPES data when working with the local schools.

Overall, the analysis demonstrated the value of SHAPES data when engaging partners in evidence-informed practice regarding youth physical activity. Having access to the SHAPES data was a particularly important source of evidence when working with the schools. The core theme of 'access to SHAPES data' was an underlying factor influencing the buy-in and participation of relevant partners in evidence-informed strategies regarding youth physical activity.

5.4.3 Emergent Theme: *Formal Partnership with Schools*

As demonstrated in the previous emergent theme, evidence-informed knowledge use at the school-level is a unique and important form of knowledge use at Site A for youth physical activity. The emergent theme of 'formal partnerships with the schools' recurred throughout the data, as a key factor facilitating Site A's participation in evidence-informed practice with the schools. Site A has a formal partnership with one of their schools boards and engages the other three school boards through their school liaison. One of the participants from Site A describes the relationship with the schools boards.

> *"One of them [school board] we have a formal partnership with and the reason that we have that is so that we can have more, more interaction to influence policy at the board level… And we've also helped them implement daily physical activity legislation within that school… the other three school boards we do have a public health nurse who is a liaison with them, meaning that she brings the information directly to the school board on anything that we might be doing or seeking permission to be able to do. So they're in communication regularly."* [Site A, Participant 4, 316]

This participant really captured the value of the formal partnership with the schools in terms of engaging the schools. The formal partnership ensures regular interaction between Site A

and the school boards around planning, programming and policy development. For example, one participant at Site A describes how specific staff at Site A are in contact with the schools to discuss issues within the schools and potential public health programs that may address those issues.

> *"so we have some nurses, from my understanding, that are, that are in contact with the principals of each school and then we have a few nurses that are in contact with the school boards and this is just one example, I guess they meet every so often to discuss issues that arise and to talk about new public health programs and to see, you know, whether they're appropriate for the schools and whether the schools are interested and that sort of thing"* [Site A, Participant 1, 279].

Furthermore, along with this formal partnership, Site A has been working to establish a formal knowledge exchange process with the schools: *"we've tried in the last few years to formalize information exchange between the school boards and [our health unit] Public Health…"* [Site A, Participant 2, 258]. The goal of this process would be to encourage sharing of knowledge and collaboration between public health and education, contributing to evidence-informed practice.

An important component of the formal partnership is school assignments. Frontline staff from Site A are assigned to work with a specific school, serving as the "go to" person for that school around public health issues.

> *"And when it comes to the individual school levels… we have a Public Health Nurse assigned to each school, so there's their go to person for Public Health. And once again, we've moved back to school assignments for nurses so that they get that same face and they build that relationship."* [Site A, Participant 2, 458]

A benefit of the school assignments is that the schools become familiar with their staff representative from Site A. This allows for a relationship to be built between the individuals at the schools and Site A, further facilitating communication and collaboration.

> *"…because they know a specific staff that's assigned to their school and that relationship that I talked about has been built, they're more likely to open an e-mail and read it and take it seriously and contact the nurse if they have questions. So there's a formal process to get in there and then once you've got their approval this front line staff that's associated with the school is responsible for actually trying to make it happen in the school"* [Site A, Participant 5, 331]

One participant describes this sense of responsibility and commitment that goes along with the individual relationships of the schools assignments. *"Because of course there's, are all kind of commitments to relationships. So if you have a go to person from health for that superintendent to link with and vice versa"* [Site A, Participant 2, 458]. The school assignments allow for easy and efficient communication with the schools, further facilitating collaborative work between Site A and the schools. *"If I need something, if I need information about the school board, I know I can call this person and if it's not the person that can give me the stuff she'll put me onto someone who can"* [Site A, Participant 2, 458]. The school assignments even provide staff from Site A various opportunities to work with the students.

> *"Well I think we have 52 high schools…So we have a public health staff working in each of those schools, so that might be a public health nurse or a project officer who is assigned…usually we work with a lead teacher with those students and they design activities that does meet the needs of their population…" [Site A, Participant 3, 202]*

Staff assigned to the schools work with the student to understand the needs of their schools and brainstorm strategies to address those needs. These many benefits of the schools assignments have important implications for evidence-informed practice within the schools.

The formal partnership even has implications for the management level staff. For instance, the Medical Officer of Health from Site A and the superintendents from the local school boards meet on a regular basis.

> *"…we [Site A] get the superintendents, a, a superintendent rep from each of the four boards to meet with the Medical Officer of Health. And we try and do that twice a year. And at board meetings a Public Health Nurse is at the table"* [Site A, participant 2, 258].

The formal partnership also provides opportunities for program managers at Site A to meet with superintendents from the schools to discuss school-based programming.

> *"There is a very formal process for schools. We meet with superintendents I think three times a year or twice a year. So the big superintendents of the boards. I meet with her manager and the supervisor of the school age health program. And they bring forth issues and topics. And if we know of some programming that's coming up we'll bring them up and get some feedback on that"* [Site A, Participant 5, 331]

This meeting provides opportunities to discuss issues within the schools and potential programming and strategies to address those issues. Overall this formal partnership at the management level is successful at engaging the school boards, facilitating information sharing and collaboration. *"And we, we really have great attendance of the superintendents to our superintendent meetings to receive the information and to provide feedback to us"* [Site A, Participant 4, 316]. The formal partnership at the management level is an important factor for gaining school buy-in and cooperation. *"…when you have support at top level at the school boards…and the schools get that from, from the top end, you have better buy in…"* [Site A, Participant 2, 234]. More importantly, the formal partnership with the schools really encouraged the sharing of the SHAPES data, and subsequent uptake and use of the SHAPES data in the schools.

> *"I actually went to a school council meeting. So that's where all these…the trustees from the school board meet to plan. So I was at one of the school boards to present the SHAPES data to them there as well. So that was very informative to them as to how they would like to, to prioritize their issues in their school. So they have, the school board has decided to make health one of their top three priorities and one of them being tobacco, then nutrition and physical activity… And that school board we have a formal partnership with and that's why we were able to do this."* [Site A, Participant 4, 260-264]

Presenting the SHAPES data to the schools contributed to evidence-informed practice regarding youth physical activity in the schools, as it allowed the schools to identify the priorities of their population based on the SHAPES data. This example also illustrated the value of the core theme, having access to SHAPES, on evidence-informed knowledge use, through the formal partnership with the schools.

In order for Site A to work in collaboration with the schools and provide services to the school population they must receive board approval before approaching the individual schools. *"If whoever wants to introduce an initiative or a project into a school we have to present it to all four school boards, to a specific superintendent, give them formal hard copies"* [Site A, Participant 5, 331]. Therefore, another important element of the formal partnership is the board approval process that has been established between Site A and the schools. As part of this formal approval process, one department from Site A organizes all of the information regarding the school-based initiatives offered across the organisation into one monthly letter to the schools.

> *"Public Health, you know, we've got different departments that have hands in schools as far as service delivery. And we try to streamline so that it's not 50 million knocks on the school doors or the school board doors…our program coordinates the approval process as far as each month we have a mail out, so the other programs know they need to get their stuff to our program assistant and she does the mail out to those…again the five superintendents that meet with our Medical Officer of Health, they get that mail out once a month…the superintendents will do a sign off and get back to us with the support of a, of an initiative or resource or whatever it may be…and we've got an agreement, you know, ten day turnaround from this day, turnaround for them to sign off."* [Site A, Participant 2, 274-294]

This process ensures that the school boards receive all of the necessary information. Futhermore, the process also requires that the schools board provide their approval in a timely manner. Overall, this formal approval process seems to facilitate information exchange and coordination of joint initiatives between public health and the schools. Once

there has been formal approval at the board level, frontline staff from Site A can approach their assigned schools to acquire their buy-in and support to move forward with an initiative.

> *"…we prepare a letter with all activities that will be happening. It goes to the superintendents and they approve it. Then from there…if the strategy has been approved… [we can] approach the principal to get something to happen in the school."* [Site A, Participant 4, 236]

Moreover, a component of the formal partnership is that staff from Site A develop standard processes for sharing information with the schools to ensure consistency. For example, frontline staff developed a standard process for sharing the school-specific SHAPES data with individual schools. *"…the process that was set in place was that the Pubic Health Nurse associated…with the high school… they would first share the school report [SHAPES feedback report[3]] with the principal and then they would do a presentation to the school staff…"* [Site A, Participant 2, 332]. This standard process of sharing the SHAPES data with the schools also demonstrates Site A's score of Routine knowledge use on the KUU scale, as the uptake and use of the SHAPES was stabilized (Hall et al., 1975).

Overall, the formal partnership with the schools appears to facilitate collaboration and buy-in from the schools. The analysis also revealed some important elements of the formal partnership, such as school assignments and a formal approval process, that supported joint initiatives between Site A and the schools. Collaboration between Site A and the schools has important implications for evidence-informed practice regarding youth physical activity. While having "access to SHAPES data" was demonstrated to be the core factor contributing to evidence-informed knowledge use concerning youth physical activity, the formal partnership with the schools, further facilitates the uptake and use of SHAPES data. The

[3] The schools that participated in the SHAPES-Ontario project received a Feedback Report that summarized their individual school results. The Ontario health units participating in the project received a Feedback Report that summarized the aggregate data across all of the schools within their service area. The feedback reports also included suggestion for action based on the results to encourage the use of the data.

analysis demonstrated specific instances where the formal partnership with the schools really encouraged the sharing of the SHAPES data, and subsequent uptake and use of the data in the schools. Such instances also illustrated the value of the core theme, 'having access to SHAPES', on evidence-informed knowledge use, through the formal partnership with the schools.

5.4.4 Emergent Theme: *Working Groups*

Another theme to emerge from the analysis was the formation of working groups among staff at Site A. In general, these working groups were found to encourage integration and coordination across the organisation, which plays a role in evidence-informed knowledge use at Site A. One participant commented on how the organisation is really moving towards integration and collaboration in order to achieve greater coordination among their programs and services.

> *"Within the whole division it's, there's a real push towards integration and working…collaboratively on various projects…so we work more closely together because it's a natural fit…we definitely, you know, we have "all staff" meetings where people are presenting what they're doing to keep everybody informed. So there's definitely an attempt to, to work collaboratively and share ideas and support."* [Site A, Participant 5, 210-214]

This organisational collaboration ensures that information is shared across the entire organisation and that there is adequate support for staff. Furthermore, staff at Site A became aware that the different programs across the organisation were working on similar efforts, but independently from each other.

> *"…we recognize that sometimes people in different programs were doing the same type of thing and not even realizing it. So we're really, there's been efforts made to really make each other aware of what the other programs are doing and if there's a chance for integration, working together… And so we, we try to, we're trying more and more to work as teams."* [Site A, Participant 5, 222]

The formation of working groups or teams is an important catalyst in achieving this communication and coordination across the various programs at Site A. Overall, staff members at Site A view these working groups as a positive contribution to the organisation as a whole and their individual work. One participant from Site A describes the value of working groups in keeping initiatives on the "forefront".

> *"Oh, yes we have working groups all the time and it, it is positive because it keeps it on the forefront. Whereas if you didn't have the working group together sometimes we just gets so tied up down in doing the daily activities, things get forgotten."* [Site A, Participant 4, 228]

These working groups are fairly common at Site A. They are important for keeping staff focused and ensuring that specific tasks or initiatives are not overlooked.

Staff at Site A formed a specific SHAPES working group that involved all the individuals from the organisation who had some role in the SHAPES project. This specific working group emerged frequently across all of the transcripts as an important contribution to evidence-informed practice regarding youth physical activity at Site A. One participant from Site A described this working group as a steering committee, involving staff from various programs and units.

> *"Well we had a steering committee with really all people involved with SHAPES. You know, the physical activity manager was there, the XXX [comprehensive school-based physical activity program] supervisor was there, my supervisor was there in tobacco. Program planning was there, like just basically the key players and we met I'd say for… probably a year or more on a fairly regular basis, which significantly helped us I think through the implementation phase"* [Site A, Participant 3, 86]

Having the key players across the organisation come together through the SHAPES working group facilitated the implementation and application of the SHAPES data. The analysis revealed that the SHAPES working group had many of the defining characteristics of a Community of Practice (CoP). As demonstrated in the previous passage, the SHAPES

working group met on a regular basis allowing for mutual engagement, to reach their common goals and objectives throughout the implementation of the project (Wenger, 1998). All decisions with regards to the SHAPES data at Site A occurred at the working group level, demonstrating joint enterprise of the working group (Wenger, 1998). *"…a lot of the SHAPES decisions were made at the steering committee level"* [Site A, Participant 3, 188]. Being engaged through joint enterprise allowed the group to make the necessary decisions to reach their common goals (Wenger, 1998). Furthermore, the working group would meet to discuss how the SHAPES data could be shared with the schools, which was a common goal among the working group members.

> *I was part of the SHAPES committee, so what we did was staff training sessions on how the documents could best go out to the schools and developed, well in conjunction with XXX, developed a PowerPoint presentation that, that staff could take out and give to the schools. So sometimes we did that in conjunction with the XXX [comprehensive school-based physical activity program] team and sometimes we just did it with the tobacco results."* [Site A, Participant 3, 6]

These negotiations lead to the development of a SHAPES presentation that the staff could use when sharing the SHAPES results with the schools, representing the shared repertoire of the working group (Wenger, 1998). Communities of practice have been recognized as a mechanism to encourage interaction and efficient diffusion of knowledge within an organisation, generating an environment that is supportive of knowledge use (Robinson, 2006). The SHAPES working group encouraged constant interaction among CoP members, facilitating the use of the SHAPES data and the subsequent development of SHAPES resources.

> *"…There's been a lot of interaction between, like XXX and I have worked closely together and then this person from physical activity, when she was involved it was, especially when they trying to get the pamphlet [SHAPES resource] out, there was a lot of, you know, discussions about the implementation phase and for a while we [SHAPES working group] were*

> *meeting weekly. But a lot of it was just sort of constant… interaction between us."* [Site A, Participant 3, 118]

The continuous interaction among members from the SHAPES working group allowed for continuous mutual engagement around the joint enterprise that allowed for the development of the shared repertoire.

Another benefit of the SHAPES working group is that it involved staff from all levels of the organisation, including managers, program staff, and frontline staff. One of management-level staff described her role on the SHAPES working group.

> *"When we were trying to look for, for some more funding to continue on with doing the SHAPES survey again, I was sitting at the table to help coordinate that, to get senior management buy in. When they wrote, when they helped support XXX in his submission of a proposal for surveillance and we were working together on that, those components" [Site A, Participant 4, 220]*

Having management-level representation on the working group helped to gain management buy-in to continue supporting the SHAPES project. This example also demonstrated the value of leadership to coordinate efforts and follow through on specific initiatives. Another way in which the SHAPES working group was an important contribution to evidence-informed practice at Site A was the fact that it served as the primary channel for Site A's involvement in the KE Extension. It was through this working group that staff at Site A communicated with the University of Waterloo (UW).

> *"So we had a small group of staff working together regularly on this…SHAPES knowledge exchange and how we'd like to implement it within XXX [Site A]. So they would be communicating regularly with you guys [University of Waterloo] to get the support that we require. So you've been more than, than fantastic in helping us with that."* [Site A, Participant 4, 48]

This working group would communicate with UW to ensure they had adequate support to carry out their joint enterprise of utilizing the SHAPES data. Another participant commented on the working group's interaction with the University of Waterloo. *"Well basically the*

interactions with Waterloo. I think Waterloo was extremely supportive all the way through. I think we worked very collaboratively" [Site A, Participant 3, 26]. The working group was able to work very collaboratively with UW to get the necessary support. The sustainability of the SHAPES working group at Site A was partially dependent on the progress of the SHAPES project at UW.

> *"There was some talk yesterday that we [SHAPES working group] might get together again…I would like to see it… I guess depending on where we're deciding to go or where Waterloo is going with this as well"* [Site A, Participant 3, 110]

This demonstrates the importance of having support from UW and the KE Extension on the success of the SHAPES working group and subsequent evidence-informed practice regarding youth physical activity at Site A.

One participant from Site A even mentioned the KE Extension Community of Practice, as being influential to the uptake and utilization of the SHAPES data. This participant described the informal interaction among CoP members, which was important for effective information sharing. *"Well I liked the, more the informal interaction… But it, it was always interesting to hear where other people were at, you know, and just I think collectively we could do way more than individually"* [Site A, Participant 3, 38]. Being able to hear what other public health organisations were doing with the SHAPES data through the CoP was an important form of information sharing. This participant highlighted the importance of being able to work towards the joint enterprise (e.g., using the SHAPES data) of the CoP through mutual engagement (e.g., monthly teleconferences), rather than each public health organisation working independently.

Overall, the various working groups that emerged from the analysis appeared to be an important interactive process at Site A, facilitating evidence-informed practice. More

importantly, the presence of a SHAPES working group allowed staff at the organisation to engage in discussion regarding SHAPES initiatives (mutual engagement and joint enterprise) that lead to the development of resources that utilized the SHAPES results (shared repertoire). The SHAPES working group took advantage of Site A's 'access to SHAPES data', further encouraging the uptake and use of SHAPES data across the organisation. This demonstrates the value of having 'access to SHAPES data' in combination with the interaction among working groups on evidence-informed knowledge use regarding youth physical activity.

5.5 Summary

'Access to SHAPES data' emerged as the core theme contributing to evidence-informed knowledge use around youth physical activity at Site A. The other themes to emerge from the analysis had elements of interactive processes that also played an important role in the uptake and use of the SHAPES data. Firstly, having 'access to SHAPES data' was an effective resource when engaging partners in evidence-informed practice regarding youth physical activity. The analysis also revealed that the formal partnership with the schools really encouraged the sharing of the SHAPES data, and subsequent uptake and use of the data in the schools. Finally, the formation of working groups also contributed to evidence-informed practice at Site A regarding youth physical activity, as a result of having Access to SHAPES Data and being able to share and use the data as a group. Overall, the emergent themes appear to enhance the benefits of having Access to the SHAPES Data.

5.6 Site B Case Study: Overview of Organisation

Site B is an Ontario Public Health Unit participating in the SHAPES-Ontario Knowledge Exchange Extension Project. Similar to Site A, the organisation is situated within a City Department, with regional and community elected appointees who represent the three municipalities within the organisation's service area, serving as the Board of Health. Site B delivers public health services, including health promotion and disease and injury prevention. The organisation is divided into five Divisions, one of which includes school health, which is of particular relevance to this project. Each Division of the organisation employs staff at different levels of the organisation including directors, program managers, and frontline staff. The staff at Site B consists of over 225 employees and 150 volunteers who deliver the mandatory health programs and services. The organisation provides these services to over 180,000 residents in the community, across a service area of approximately 6,500 square kilometres. The employees are located in either the main office or the three satellite offices.

Similar to Site A, Site B also has an associated PHRED[4] unit, which advances applied public health research and training in collaboration with local post-secondary institutions. One of the advantages to the PHRED unit, is that is provides the organisation with access to additional resources for research, such as research evidence and expertise. As a result of the PHRED unit, it is assumed that the organisation as a whole and the staff have a greater history of prior evidence-informed knowledge use, compared to other public health organisation that do not have partnerships and activities that resemble the PHRED program (Manske, 2001). Furthermore, staff at Site B may also have a greater commitment and

[4] The Public Health Research, Education & Development (PHRED) program involves boards of health (Health Unit), health science programs of Ontario universities and colleges and the Ministry of Health and Long-Term Care. The program contributes to health promotion, protection and prevention in Ontario by conducting research related to public health practice. There are five PHRED Health Units across Ontario

receptiveness to research evidence, as a result of the PHRED unit, which would have an overall influence evidence-informed knowledge use within the organisation (Manske, 2001).

All four staff members who were interviewed from Site B had some involvement in the KE Extension Project and worked on the School Health Team at Site B. One of the participants is the program coordinator of the comprehensive school health program offered to the local schools through the School Health Team. Two of the participants are public health nurses (PHN) on the School Health Team, working in the schools to deliver the programs and services. The final participant is a Physical Activity specialist on the School Health Team, which is a position unique to Site B, as it is a joint position between public health and the local school boards. This individual was formerly a teacher, who works within Site B to liaise with the local schools and school boards on initiatives to increase students' physical activity. Another unique element to this position is the fact that her salary is shared between Site B and their local schools board. The existence of such a position speaks to the value that both Site B and their local schools boards place on joint initiatives and coordination between these sectors. This position is of particular relevance to this thesis project, considering that evidence-informed knowledge use regarding youth physical activity at Site B largely occurs at the school level. The importance of such a position that links public health with local schools around youth physical activity will be discussed further throughout the analysis of Site B.

5.7 Site B Case Study: Organisational Knowledge Use

Site B received a "moderate" level of knowledge use on the KUU scale, achieving four levels of knowledge use, including Orientation, Mechanical, Integration and Renewal. These levels of knowledge use were further confirmed through the analysis of the interview transcripts

from staff members at Site B. Many of the participants from Site B referred to the SHAPES data to inform their programs and program development. *"I mean again the [SHAPES} information has been used to help shape programs within our agency"* [Site B, Participant 2, 64]. Of particular relevance, the SHAPES data provided staff at Site B with valuable research evidence to inform programs within the schools. *"The organization has used the [SHAPES] results to try and look at programs within schools with respect to physical activity and tobacco"* [Site B, Participant 2, 8]. Furthermore, staff from Site B would refer to SHAPES data in their working group with the local schools. These examples reflect the organisation's score of integration, as staff are using the SHAPES data in their work and in activities with the schools to achieve a collective impact of their work and school-base programs on youth health (Hall et al., 1975). As a result of sharing the data with their local schools, it increases awareness of youth health in general and encourages school buy-in for joint initiatives between Site B and the schools. Sharing SHAPES data with the schools through presentations, newsletters, posters and displays, encouraged the schools to look at their data to identify issues specific to their school population. Such instances of knowledge use will be further explored throughout the following sections to understand the factors that encourage the use of SHAPES data.

5.8 Site B Case Study: Analysis Results

The following analysis will explore the main themes to emerge from the interviews conducted with staff from Site B. These themes will provide further insight into evidence-informed knowledge use regarding youth physical activity.

5.8.1 Core Theme: *Working Relationship with School Boards*

A key factor influencing evidence-informed knowledge use at Site B with regards to youth physical activity (e.g., SHAPES data) is the positive working relationship between Site B and the local schools boards. Site B has established a good working relationship with their boards of education over the years, which facilitates working with the individual schools. This working relationship consistently emerged across the transcripts as an important facilitator of their work in general at Site B.

> *"I think one of the things that helps us achieving things is our working relationship with the school board. We have a strong partnership with our school boards so that really allows us to approach them with a variety of ideas. And work in conjunction with staff at the school board to get things accomplished."* [Site B, Participant 3, 135]

As a result, Site B can easily approach the school boards with ideas and initiatives. *"I think it [relationship with school board] is a facilitator because you can introduce the evidence and you can bring it into play"* [Site A, Participant 1, 835]. This participant even commented on the influence of this working relationship on the use of evidence in their work. Similar to Site A, evidence-informed knowledge use at the school-level was the primary outlet for utilising the SHAPES data among staff at Site B. In order for staff at Site B to successfully work with the schools they need school board approval and buy-in, which is ultimately facilitated by the positive working relationship.

Several instances emerged from the analysis that demonstrated the importance of this ongoing working relationship with the school boards for joint initiatives with the schools.

> *"Yeah I mean the partnership with the board of the education, they're ultimately the ones you know when you're working in schools [who] have to accept the information, accept the data etcetera, whether they buy in or they don't buy in."* [Site B, Participant 2, 164]

Having buy-in and support from the boards for specific initiatives (e.g., SHAPES) is important, considering that education does not always have the same priorities as that of the public health system. *"That's a big huge factor right now with the boards, like why is it important?…Because, basically, they have to understand why it would be important to them specifically"* [Site B, Participant 1, 533-537].

> *"Well the board of education for sure. We can have the best research backing reasons to do something and if their priorities are set at something different or they're focused on something different and that could depend on the staffing there as well, then we don't, we can't get much farther."* [Site B, Participant 4, 207]

Demonstrating to the school boards why an initiative or information is relevant to them is essential for gaining their support, which can have important implications for evidence-informed practice. Furthermore, individual schools are much more likely to take an active involvement in initiatives with Site B that are supported by their school board and administration. *"I think the schools are helped when the administration at the school board supports an idea and I think the administration appreciates the working relationship they have with public health"* [Site B, Participant 3, 411]. The working relationship described above is also something that the school administration appreciates, which seems to influence their buy-in and support for work at Site B.

A significant factor facilitating this working relationship and school-board support is having individuals within the board that value the activities of Site B within the schools. *"…And he's [superintendent at the school board] worked inside the board…was that champion to sort of promote things. And even like the SHAPES studies and things like that, he and another fellow, they were open to that"* [Site B, Participant 1, 341]. *"But I still think at that school board level you have to have people who are committed as well and who also value research…"* [Site B, Participant 4, 215]. Identifying individuals within the school

board that value research was particularly valuable for their work with the schools on the SHAPES project. Even at the individual school level, the presence of a leader or champion was an important facilitator of evidence-informed activities that utilised the SHAPES data.

> *"I think from a school perspective if the [SHAPES] information is trickled down to the right person it helps with programming within the schools. I think, from the feedback that I've had… was it just depended on where the information ended up coming back to as to whether it was filtered down to the right person."* [Site B, Participant 2, 176]

The presence of a leader was an important component of the working relationship and an important contextual factor influencing knowledge use (Manske, 2001). Finally, one participant highlighted the importance of having endorsement of the upper management at Site B (e.g., the Medical Officer of Health) for the working relationship with the board and gaining their support.

> *"So when Dr. XXX, our Medical Officer of Health, can send a memo over you know identifying the SHAPES data for example and what was found in the schools the administration kind of sits up and looks around and it trickles down to the school level and how are schools going to use that information and address the issues."* [Site B, Participant 3, 415]

The support from the Medical Officer of Health for the SHAPES project was one of the key factors encouraging school board buy-in, and subsequent uptake and use of the SHAPES data within the schools.

The analysis for Site B established that having an ongoing working relationship with the schools boards was critical (i.e. core theme) for joint initiatives with the schools and evidence-informed practice that utilizes the SHAPES data in the schools. Not only did this theme emerge consistently throughout the transcripts from Site B, participants also placed a great emphasis on this idea. The analysis also identified some important characteristics of this relationship (e.g., leader/champions and upper-management support) that facilitated school board support. The analysis revealed several other elements (e.g., emergent themes)

of the Working Relationship that further encouraged interaction and collaboration between Site B and the local schools and boards. These elements of the Working Relationship emerged so frequently and consistently across the transcripts that it was necessary to distinguish them as a separate emergent theme. The emergent themes of Working Groups and Knowledge Brokers are directly related to the working relationship and were an important influence on the uptake and use of the SHAPES data. These emergent themes and their reciprocal relationship with the core theme will be further discussed throughout the following sections.

5.8.2 Emergent Theme: *Working Groups*

An important theme to emerge from Site B was the presence of a working group that brought together key people from Site B and the local schools. This specific working group consistently emerged across all of the interviews at Site B. The analysis revealed that this working group was a very effective approach for Site B to involve school boards in evidence-informed activities regarding youth physical activity. This working group had a reciprocal influence on the positive working relationship with the school board. This meant that the creation of this working group was possible because of the working relationship established between Site B and the local school boards, and in turn, the working group provided valuable opportunities to strengthen this relationship. Upon further analysis the working group demonstrated many of the defining characteristics of a community of practice (CoP). For example, the participants of the working group, both those from education and public health, referred to this group as the Secondary Strategy Group, which represents the common language among community members that is characteristic of shared repertoire (Wenger, 1998). The Secondary Strategy Group came together as a result of having access to the

SHAPES data. One participant who was involved in the Secondary Strategy Group describes the evolution of the group.

> *"It [Secondary Strategy Group] came out of the SHAPES [project]. So after we had the SHAPES studies done…then we had $4,000 for Knowledge Exchange Extension. So then what we did was we got a group together…So we said, you know, we'd like to do something, you know, directly benefiting the high schools from the high schools' perspective and from the teachers' perspective…So what they did was they had representation for every high school and different types. There was like a V-P [vice-principal] and science and phys-ed…"* [Site B, Participant 1, 157-161]

The mutual engagement among participants of the Secondary Strategy Group allowed the group to negotiate their shared purpose and goals, which included identifying ways to use the SHAPES data and the funding from the SHAPES-Ontario Knowledge Exchange Extension (KE Extension) Project (Wenger, 1998). Furthermore, the mutual engagement lead to the development of the joint enterprise, which involved the development of initiatives based on the SHAPES data and the school's perspective that would benefit the schools (Wenger, 1998). This working group provided the ideal outlet for sharing the SHAPES data with various representatives from different levels within the schools.

> *"We have a Secondary Strategy Group…and [SHAPES] information is shared among that committee, from both public health and then among themselves…and then within that committee [Secondary Strategy Group] we looked for one representative per school. Sometimes it was the phys ed person…it was the principal, sometimes it was a teacher so we really looked for a variance in people on that committee" [Site B, Participant 2, 188-192].*

The fact that the Secondary Strategy Group involved individuals with different positions and perspectives from within the schools is an important characteristic of communities of practice. Considering the wide range of individuals involved in the working group, it provided the ideal opportunity for staff at Site B to communicate with the schools. *"XXX, our physical activity specialist for the XXX board is on that [Secondary Strategy Group]…So this is also an opportunity for her to connect with secondary"* [Site B, Participant 1, 221].

The physical activity specialist from Site B, whose job is to work with the schools, even takes advantage of the opportunities to involve the schools through the working group.

The Secondary Strategy Group has remained sustainable over time, which has important implications for evidence-informed knowledge use. One participant described how the working group is planning to meet again to continue working towards the original mutual goals and objectives of the working group. *"Well, we have a Secondary Strategy Group that's still ongoing…around the physical activity stuff and it's been going for over a year now. And we look at, you know, trying to promote physical activity and healthy eating…"* [Site B, Participant 1, 53].

> *"…So out of that [Secondary Strategy] group it continues to meet and continues to look at school capacity. Things that are missing, good things that are happening, just brainstorming sessions. So that was a good thing."* [Site B, Participant 4, 11]

Continuing to meet over time allows for this mutual engagement and joint enterprise around youth physical activity and school health capacity.

In addition to being very effective at engaging the schools, the Secondary Strategy Group is also very productive in terms of encouraging the uptake and utilisation of the SHAPES data within the schools. For example, one participant from Site B illustrates how members of the working group would meet to discuss the SHAPES results and understand what the results meant at the individual school level.

> *"It [Secondary Strategy Group] came about looking, first to look at the [SHAPES] data and…the schools came back…and talked about not so much who did well and who didn't, but where the gaps were and where the issues were and how the money would best be spent."* [Site B, Participant 4, 227]

The joint dialogue between staff at Site B and the schools lead to a greater understanding of the SHAPES data, which informed decisions around how the groups would spend the money from the KE Extension. Another participant describes how the Secondary Strategy Group

utilises the data to inform the group's decisions. *"Most of our focus has been on physical activity and we have a Secondary Strategy Group…who are looking at implementing healthy schools so the information from SHAPES has been very instrumental in directing the decisions that they're making"* [Site B, Participant 3, 15]. This also demonstrates the important contribution of the working group to evidence-informed practice around youth physical activity within Site B and the schools.

It is apparent that the Secondary Strategy Group resulted in a greater understanding of the SHAPES data among the group members. Even more importantly, the working group also encouraged the uptake and use of the SHAPES data within the schools. School representatives of the Secondary Strategy Group worked with their school to look at their data and understand what it meant for their student population.

> *"And again, that was when the schools with their Secondary Strategy Group, they had to go back and look at their SHAPES results and look at the issues for their school…And then we did a huge brainstorming and kind of a needs assessment with that group as well. And that's where some of these things came out." [Site B, Participant 1, 1031-1035]*

This same participant even described the members of the Secondary Strategy Group as being leaders in gaining schools' involvement at the student level.

> *"Well, again, the different representatives on the…[Secondary] Strategy Group and getting involved in different programs…a number of the high schools looked at where were the issues…and those were the Secondary Strategy people that really lead the way. And they looked at what were the issues at their school. So people did different things."* [Site A, Participant 1, 1108]

Members of the Secondary Strategy Group really took the lead in having the schools understand the needs and priorities of their schools based on the SHAPES data. Finally, the Secondary Strategy Group was also productive in terms of developing resources for the schools that were based on the SHAPES data to encourage physical activity among the

students. One participant provides the example of the Healthy Active Living Certificate. *"Well, this [Secondary Strategy] group created a Healthy Active Living Certificate… And it was accepted by the board and it's done through their guidance. The guidance [counsellors] are very…on board with it… And we designed with them, the Public Health…"* [Site B, Participant 1, 193-205]. The development of the Health Activity Living Certificate represents the shared resources and shared repertoire of the working group (Wenger, 1998). This example also illustrates the value of involving the schools through the working group in terms of gaining school buy-in and board support for these evidence-informed resources.

Throughout the analysis it was clear that the Secondary Strategy Group was an important organisational structure of Site B for involving the schools in mutual engagement and joint dialogue. There is a reciprocal influence between the working relationship with the schools (core theme) and the working groups (emergent theme). The development of a working group that engages representatives from each school would not have been as successful without the ongoing working relationship that Site B has with the school boards. Furthermore, the working group contributed and helped to sustain this working relationship. As a result of the working group, there was a significant uptake and use of the SHAPES data within the schools. The Secondary Strategy Group resulted in both conceptual (e.g., greater awareness and understanding of the SHAPES data) and instrumental (e.g., development of resources based on the SHAPES data) forms of evidence-informed knowledge use. Overall, the Secondary Strategy Group made an important contribution to evidence-informed practice regarding youth physical activity.

5.8.3 Emergent Theme: *Knowledge Brokers*

Another important theme to emerge was the organisational structure of knowledge brokers at Site B. These knowledge brokers were represented through two unique staff positions within Site B. The first position is a 'School Health Program Coordinator' who acts as a liaison between Site B and the local school boards. The second position is a Physical Activity Specialist, who was formerly a teacher, seconded to public health to work with public health and education to target youth physical activity in the schools. Both of these positions demonstrate some of the positive characteristics of knowledge brokers as they provide an important link between decision makers in public health and education, facilitating their interaction and influencing each other's work (CHSRF, 2003). These positions are formal structures within Site B to encourage the relationship between Site B and the schools and facilitate knowledge sharing. The existence of these two positions further demonstrated the positive working relationship Site B has with the school boards, and these positions continued to enhance and support this relationship. The analysis demonstrated that these two positions had an important influence on the involvement of schools with staff from Site B towards evidence-informed knowledge use.

There were many ways in which the role of the School Health Program Coordinator supported the working relationship with the school boards and evidence-informed practice regarding youth physical activity. The most important characteristic of this role for school involvement is the fact the School Health Program Coordinator is a formal position at Site B, with formal policies regarding the nature of the relationship with schools.

> *"Well, we actually have a policy on -- like, I have a formal sort of role as the coordinator for the school health program and…then we have a formal laid out sort of liaison and direction, you know, how we carryout the relationship with our boards of education."* [Site B, Participant 1, 645]

This position formalizes processes with the school boards, enhancing the positive working relationship and encouraging collaboration between Site B and the individual schools. Comparable to a knowledge broker, the School Health Program Coordinator is the official liaison between public health and the schools, building relationships and establishing partnerships that encourage communication between public health and the schools (CHSRF, 2004). The School Health Program Coordinator describes her role as a filter between Site B and the school boards.

> *"I'm a filter…because I think you get a handle on…all the teams, like we have family, adult, school, dental, communicable disease, sexual health, we have a number of teams. And if you have all those teams trying to go at the board for different things then it gets very confusing for them…I keep the whole team in the loop though."* [Site B, Participant 1, 737-741]

The School Health Program Coordinator acts like a knowledge broker by coordinating all of the communication between the schools and Site B, facilitating interaction and sharing of information with the schools boards. The School Health Program Coordinator is able to organise the information and communication from Site B with the schools, so that it is less overwhelming for the schools, while keeping the various teams from Site B informed as to what is going on in the schools. Overall, the School Health Program Coordinator is an important channel for staff at Site B to share information with the schools and school boards. *"Again, our school health coordinator has relationships with the Board[s] and Parent councils so information then goes through that avenue…"* [Site B, Participant 2, 252]. As such, the staff at Site B recognize the value of this position in terms of their positive working relationship with the schools and the subsequent involvement of schools. *"That's a huge thing. So the relationship that we have here with them [the school board] is really important. And XXX's [School Health Program Coordinator] that coordinator, that liaison. So we have a good relationship…"* [Site B, Participant 4, 211]. Staff at Site B recognize that having a

good relationship (core theme) with the board is important and that the role of the School Health Coordinator is an important mediator of this relationship.

The position of the School Health Program Coordinator encouraged the creation of an equivalent position within the school board, further contributing to this positive working relationship and school involvement. Having an official contact within the school board for the School Health Program Coordinator further facilitates the communication and interaction between Site B and the school boards. *"Well I know XXX [school health program coordinator] has a liaison with the school board, we will take specific issues back and forth to them and look at the issues"* [Site B, Participant 4, 283]. These two positions allow for the back and forth flow of communication that is necessary for effective knowledge sharing and interaction, which is an important quality of knowledge broker (CHSRF 2004). The School Health Program Coordinator further describes how she has been able to facilitate this interaction between Site B and the schools boards, as a result of the good relationship (core theme) that she has established with her contact at the schools board.

> *"But the person I'm working with at the board level -- I have a good relationship with all the secretaries as well, because they've gotten to know me well, so they usually put things through to that person or I'm able to connect with the person easily…Because they don't stop me at the door…"* [Site B, Participant 1, 767-771]

Through her position she has been able to build rapport with individuals at the school board, making it easier for her to connect with the key people at the board. As a result, the School Health Program Coordinator can easily gain school involvement and secure buy-in.

> *"…if we want them [schools] to really pay attention to something at the school level the assistant director, or…the other superintendent for secondary, they will send it through with their name. So I send something electronically with an explanation. And then they will send it through to the schools because it'll have that person's name on it, so they'll open it." [Site B, Participant 1, 745].*

The School Health Program Coordinator demonstrated above how her role facilitated the sharing of information. Once the information reaches the appropriate individuals within the school boards, they can in turn communicate with the schools to raise awareness and solicit their involvement.

Furthermore, the School Health Program Coordinator has played a very important role in sharing the SHAPES data with the schools. The School Health Coordinator described how she prepared a SHAPES presentation for the school board when Site B was working to connect with the schools around the SHAPES data. *"…when we wanted to get SHAPES pushed I did a presentation to the principals group, for the secondary, and then I did a presentation with the vice-principals group"* [Site B, Participant 1, 759]. Another participant described the important role of the School Health Program Coordinator in sharing the SHAPES results with the schools.

> *"XXX as our [School Health Program] Coordinator…she's been probably the most instrumental in highlighting the importance of the [SHAPES] data at a variety of meetings and levels within the school board."* [Site B, Participant 3, 299]

Demonstrating the relevance of the SHAPES data to the schools and the school boards is essential for bringing awareness to the data and gaining the school boards approval for working with the individual schools to use the data. The School Health Program Coordinator played an important role in encouraging the use of the SHAPES data in decision-making between the school boards and Site B. *"…it [SHAPES data] was shared and continues to be shared I guess and referred to between the school health coordinator and the board when they're making decisions with respect to stuff"* [Site B, Participant 2, 224]. *"Especially through the influence of XXX [school health program coordinator], she does a great job of bringing decisions back to what the [SHAPES] data shows and keeps it relevant to our*

work" [Site B, Participant 3, 83]. Ensuring that the decision-makers within the schools had access and understanding of the SHAPES data was a valuable contribution of the School Health Program Coordinator, and knowledge brokers in general, towards evidence-informed practice (Armstrong et al., 2007). These SHAPES-informed decisions between Site B and the school boards are an important form of instrumental evidence-informed knowledge use (Walter, Davies, & Nutley, 2003).

The Physical Activity Specialist at Site B is the other knowledge brokering position that emerged as an important facilitator of evidence-informed practice regarding youth physical activity. This position differentiates from the School Health Program Coordinator, as it is a formal joint position between Site B and the schools boards. This position has a reciprocal influence on the positive working relationship (core theme) with the school boards. A joint position between Site B and the school boards would not have been agreed upon without the positive working relationship, and this position continues to support this positive working relationship. One of the participants from Site B captures the nature of this joint position.

> *"She's [Physical Activity Specialist] on our staff…we pay her the majority of her salary and she has a desk that's two down from mine. And but she's also, you know, employed by the board to make sure she still has her teacher's salary. So it's a joint position."* [Site B, Participant 1, 225]

This position is particularly valuable to evidence-informed practice regarding youth physical activity, as her role is to connect education and public health on the topic of youth physical activity. The individual who fills the position is familiar with both public health and education sectors. *"Right and I'm actually a teacher who has been seconded to public health so I've got a fairly good working knowledge of both organizations"* [Site B, Participant 2, 240]. This is a valuable characteristic of a knowledge broker, as she is able to gain insight

into the various complexities of public health and education, facilitating interaction and communication between the two sectors (CHSRF, 2004). Similar to the School Health Program Coordinator, the Physical Activity Specialist also acts an important liaison between the schools and public health. *"Yeah and although I'm not the sole coordinator, I mean [I] do a lot of the liaison and feedback just because of my relationship with the board"* [Site B, Participant 2, 244]. The focus on physical activity of this position is an important contribution to the working relationship with the school boards. *"Whereas in XXX [physical activity specialist] case she's completely committed to the physical activity piece of it, and that's where, you know, she's a huge asset, yeah"* [Site B, Participant 1, 293]. Having someone within Site B committed to working on physical activity with the schools, greatly contributes to evidence-informed practice regarding youth physical activity.

Overall, the presence of these two positions that serve as knowledge brokers between Site B and the schools is an important result of the positive working relationship with the school boards and they continue to sustain this relationship. There are also specific instances where these positions encouraged the uptake and use of the SHAPES data, contributing to evidence-informed practice around youth physical activity. Engaging the schools through these knowledge brokering positions and working groups are important organisational structures and process within Site B.

5.8.4 Emergent Theme: *Access to SHAPES Data*

Another underlying factor to emerge from the analysis that further facilitated the working relationship with the school boards was having Access to SHAPES Data. This emergent theme also has a reciprocal relationship to the core theme. Having Access to SHAPES Data was an effective way to engage the schools and boards, and in turn, the working relationship

with the boards facilitated the use of the SHAPES data. Staff at Site B have indicated that having Access to SHAPES Data has been effective for involving schools, as the data were relevant to program and activities at both Site B and in the schools. One participant from Site B highlights the importance of having access to this research evidence to share with the school boards.

> *"Because I know that at a school board level and school level, especially school board…you almost have to have the evidence in their face…and in our case specifically we're looking at the physical activity piece and we may need to revisit it [SHAPES] for the XXX board…"* [Site B, Participant 1, 505-517]

It is helpful to have research evidence when approaching the school boards, where the SHAPES data provided an important source of evidence with regards to youth physical activity in the schools. The SHAPES data were very relevant to the work that Site B was doing with the schools, which has been identified as an important characteristic of information for knowledge use (Manske, 2001).

> *"A lot of what we're working with the schools to do is to increase capacity within the schools…So it's kind of reminding them of the SHAPES data and keeping that as an important part of the decision making for what they're going to be doing." [Site B, Participant 3, 403]*

Initiatives that Site B is working towards in collaboration with the schools are strongly supported by the SHAPES data. Being able to refer to the school-specific data throughout the decision-making process was a primary way to involve the schools in evidence-informed practice.

Considering that Site B had a positive working relationship with the school boards and the boards had a positive impression of the SHAPES data, the data have proven to be an effective tool for engaging the individual schools. One participant described how their work carried more weight with the schools boards when the SHAPES data were supporting it. *"The school board listens so when we have SHAPES data to support an idea, the idea is*

more credible for sure" [Site B, Participant 3, 291]. The school boards viewed SHAPES as a **credible** source of information, which has important implications for the uptake and use of the data within the schools (Manske, 2001). *"And the superintendent, I mean, one of the ones that was big [with] not allowing all the research in through the board level she commented on how phenomenal SHAPES was"* [Site B, Participant 1, 1286]. Even staff within the school board who were typically not supporters of research recognized the value of the SHAPES data.

Staff at Site B commented on how the schools have taken an active role in using their SHAPES data, contributing to evidence-informed practice within the schools. *"I mean I know the feedback has been valuable within the schools that have used it and have actually got a hold of the information so it's not sitting in a principal's office"* [Site B, Participant 2, 180]. As a result of having access to the SHAPES data, the individual schools have worked with their data to better understand youth health and physical activity.

> *"And I, I know it's [SHAPES] initiated thought and work toward developing how to get the kids more involved in reaching their, you know, their, their highest capacity that they can…So we built off of the results, identifying where the need is especially and then looking at programming around that."* [Site B, Participant 4, 15]

The schools, in collaborations with staff at Site B, used the SHAPES data as a starting point for activities and programming within the schools, contributing to evidence-informed practice and the working relationship.

> *"…so it [SHAPES] gave us data to say this school does have an identified need…So we take, take that back to the school board, the board of health and use that to back the programs that we are doing...And then to promote for new programs."* [Site B, Participant 4, 103]

The SHAPES data identified the need for school-based programming from Site B, further encouraging their working relationship with the school boards and evidence-informed knowledge use.

Overall, the analysis revealed that Access to SHAPES Data was an important tool for staff at Site B to engage the schools through the working relationship with the school boards. The analysis also identified some characteristics of the SHAPES data (e.g., relevance and credibility) that made having access particularly valuable when engaging the schools. The reciprocal influence to the core theme was further demonstrated, as the working relationship with the schools boards encouraged the uptake and use of the SHAPES data among the individual schools.

5.9 Site B: Summary

In summary, the analysis demonstrated that the positive working relationship with the school boards was the most important factor encouraging joint initiatives with the schools and evidence-informed practice that utilised the SHAPES data. The analysis further identified organisational structures and interactive processes that had a reciprocal influence on this working relationship, while contributing to evidence-informed practice related to the SHAPES data. These emergent themes further engaged schools and school boards. The creation of the working group involving staff from Site B and the local schools was possible because of the working relationship (core theme), and in turn, the working group provided valuable opportunities to strengthen this relationship. The existence of the two knowledge brokering positions between Site B and the schools boards further demonstrated the positive working relationship (core theme), and these positions continued to enhance and support this relationship. Finally, having Access to SHAPES Data was an effective way to engage the

schools and boards through the working relationship (core theme), and in turn, the working relationship with the boards facilitated the uptake and use of the SHAPES data among the individual schools. These three emerging themes also had an important influence on evidence-informed practice regarding youth physical activity, as they provided an effective means for engaging the schools, encouraging the uptake and use of the SHAPES data.

5.10 Site C Case Study: Overview of Organisation

Site C is an Ontario Public Health Unit that collected SHAPES-Ontario data as part of the SHES project with the University of Waterloo in 2007. Site C did not participate in the original SHAPES-Ontario project and therefore, could not be involved in the SHAPES-Ontario Knowledge Exchanged Extension. As such, Site C serves as an ideal comparison organisation for this project. This public health organisation is comparable to Site A and B, as their board of health is guided by the same Mandatory Health Programs and Services outlined by Minister of Health and Long-Term Care in the Ontario Public Health Standards. As a result, Site C delivers similar public health services, including health promotion and disease and injury prevention. The organisation is divided into three departments, including Health Promotion, Health Protection, and Administration & Finance, employing approximately 180 administrative and professional staff. The three departments are further organised into various program areas. Site C serves approximately 158,000 residents, of which, 26 per cent are youth (19 years of age or younger). The organisation serves two counties spanning approximately 8,581 square kilometres. The employees of Site C are spread across two office locations, one of which is the head office.

The four participants from Site C who were interviewed for this project are all employed within the Department of Health Promotion, under the Chronic Disease

Prevention, Early Detection Cancer, Heart Health Programs (a.k.a. the Chronic Disease Prevention team). All four participants were involved in the collection or dissemination of the SHAPES data. One of the participants is a Program Manager, two are public health nurses, and the remaining participant is a public health dietician. The public health nurses and dietician work directly with the schools to deliver the programs and services of Site C.

It is important to note that Site C collected their SHAPES data in 2007, whereas Site A and B collected their data in 2005 as part of the SHAPES-Ontario project. The number of students who completed the SHAPES survey in Site C's region (approximately 2,500 students) was significantly less than the other three public health organisations involved in this study. Staff at Site C recently focused their work on sharing and utilizing the SHAPES data. Therefore, many of the instances of evidence-informed knowledge use captured in the interviews involve planning and partnership development, as opposed to more concrete and instrumental uses of the data. The staff interviewed for this project had a very positive impression of the SHAPES data, in terms of the credibility, which has important influences on knowledge use (Manske, 2001). At the time of the interviews, Site C was in the process of completing the TEIP (Towards Evidence-Informed Practice) program offered through the Ontario Public Health Association. This demonstrates that Site C views evidence-informed practice as a priority, which has important implications for the uptake and use of the SHAPES data (Manske, 2001).

5.11 Site C Case Study: Organisational Knowledge Use

Site C received a "low" level of knowledge use on the KUU scale, achieving Orientation, Mechanical and Integration. This low score is largely attributable to the fact that Site C recently collected their SHAPES data and they have not had as much time as the other public

health organisations involved in this study to implement strategies regarding the data. Analysis of the interview transcripts also reflects the limited use of the SHAPES data across the organisation. Orientation to the SHAPES data emerged strongly across the transcripts. Much of their work around the SHAPES data has focused on gaining additional information about the SHAPES data, familiarizing themselves with the data and how they can be used, and identifying the necessary resources. Their achievement of Integration was largely demonstrated through Site C's efforts to partner with the schools to begin planning how the SHAPES data can be used to achieve a collective impact on the students and school environment. Much of the analysis revealed plans developed by Site C to use the data and engage the schools in the SHAPES data, contributing to evidence-informed knowledge use.

5.12 Site C Case Study: Analysis Results

The analysis identified several main themes that emerge from the interviews conducted with staff from Site C. The following section will investigate these themes and their relationship to evidence-informed knowledge, providing greater insight to their score on the KUU scale.

5.12.1 Core Theme: *Access to SHAPES Data*

The core theme to emerge from the analysis was having Access to SHAPES Data. Simply having access to the data was the most prominent factor contributing to evidence-informed practice regarding youth physical activity at Site C. Staff at Site C have a very positive impression of the SHAPES data. In particular one participant highlighted the credibility of the data, which was partly related to the fact that the SHAPES survey came from the University of Waterloo. *"Well I think the fact that it's [SHAPES] coming out of the University of Waterloo helps it right there. I think lends itself to a lot of credibility…it's*

credible, it's applicable and it's certainly timely" [Site C, Participant 3, 90]. Furthermore, this participant commented on the relevancy and applicability of the SHAPES data to their work. *Credibility, Timeliness* and *Relevance* are three characteristics of the source and information that have been identified as important factors for evidence-informed knowledge use (Manske, 2001).

There are several characteristics of the SHAPES data that makes them valuable to staff at Site C. The fact that the SHAPES data were relevant and applicable to their local student population makes the data particularly important for evidence-informed practice at Site C. Due to the dearth of local research data available, the staff at Site C largely referred to provincial-level surveillance data.

> *"…we try to look local. There's just not a whole lot of local stuff. So something like SHAPES is, is wonderful for us because we're, often when we are looking at evidence-based stuff it's more provincial…we don't often get local information so something like SHAPES is, is great for us to work with."* [Site C, Participant 1, 206]

The staff value local due to its relevance to their population and work, giving SHAPES a Relative Advantage over many sources of provincial data. The Relative Advantage of the SHAPES data was an important characteristic of the information for knowledge use (Manske, 2001). One of the participants valued their access to the SHAPES data, as they provided a link to the local community, allowing for action research (Participant 2). Having Access to SHAPES Data allowed Site C and the local school boards to better understand each individual school population that participated in the SHAPES project. *"It's nice to hear, it's nice to reinforce it in our own…So just to hear that this is what, you know, this is real for us…"* [Site C, Participant 1, 166].

> *"…the fact of being so localized and individualized to that exact school because we've got some tiny rural schools, we've got some big city type schools. You know, one size does not fit all and you've got to make sure that*

> *it's specific to their capabilities and their needs. So I think it's a brilliant way to come at it."* [Site C, Participant 3, 408]

The SHAPES data were particularly valuable for understanding the specific priorities of each school, especially when there is such variance across the schools in terms of their size and capacity. Overall, the fact that the SHAPES data are specific to their region carries a lot of weight for the staff at Site C.

> *"Well I think people like, I mean I think when you hear information, say provincially, you just think oh yeah, well that's happening in Toronto or that's happening wherever…but when you hear information that's specifically been given back from your students, that, that has a much stronger impact."* [Site C, Participant 1, 444]

This illustrates the impact of local evidence that is specific to students in their region, such as the SHAPES data.

Having Access to SHAPES Data and the fact that they are local to their student population was further valued because the data can directly inform the programs and services of Site C. *"…I think it's [SHAPES data] a great thing…it's going to give us some, you know, individualized data that, local data that will help us in our programming"* [Site C, Participant 1, 114]. The SHAPES data were a very important source of evidence to focus Site C's planning and programming. *"…it may, may not be something that we wouldn't have even thought of or known, but it, it's [SHAPES] going to help pinpoint where we should focus our energies"* [Site C, Participant 3, 102]. According to the Manager of the Chronic Disease Prevention, the SHAPES data were also an important source of evidence to support the programs and strategies, especially to the Board of Health and the Board of Trustees (Participant 2). She also mentioned that the SHAPES data were the ideal source of evidence to inform program planning around the Healthy Eating Active Living Initiative put forth by

the Ontario Ministry of Health Promotion. Another participant also commented on the relevance of the SHAPES data to Ontario's action plan for Healthy Eating Active Living.

> *"Relevant to the needs and that whole healthy eating, active living strategy that is coming down the line from the provincial government. I mean we, this is the areas, or the area we need to work on right now and our school boards are looking for assistance, so it's just going to be great if we can deliver something back to them that is applicable and, and specific to their school…"* [Site C, Participant 3, 94]

Furthermore, the Ontario Ministry of Health Promotion requires that Ontario Public Health Units collect local surveillance data. The SHAPES data, which are specific to the student population that Site C serves, helps to fulfill this need (Participant 2). Having Access to SHAPES Data is valued by Site C for its ability to support the requirements of the Ministry of Health Promotion, greatly contributing to evidence-informed practice regarding youth physical activity at Site C.

The SHAPES data provided a comprehensive assessment of their local schools and have encouraged staff at Site C to critically assess their schools. *"Well I thought it [SHAPES] was very comprehensive and it certainly made you look at that school setting a little differently"* [Site C, Participant 3, 82]. The SHAPES data have great relevance for work at the school level, and collaborative work between public health and the local schools. *"…it's going to give us [Site C] a place to start…this data will really give schools and ourselves a good direction and how we can help them best…"* [Site C, Participant 3, 542]. *"Future planning I would think…there's probably lots to gain from it [SHAPES] and lots of movement that we can make in terms of physical activity in the schools"* [Site C, Participant 4, 294]. Staff from Site C anticipated that the SHAPES data will provide direction for their planning in the schools, particularly related to physical activity. Using the SHAPES data to inform their programs and strategies for the school population is an important form of

evidence-informed knowledge use. The SHAPES data really assisted the school administration, teachers, and even students in understanding the realities of youth physical activity at their school.

> *"I think it [SHAPES] really makes the teachers and the principal and the, and the school employees sort of, and even the students once they started answering the questions, I think it made them really realize what it all entails, physical activity and nutrition. How broad encompassing that whole concept is."* [Site C, Participant 4, 174]

Another participant commented that having access to the SHAPES data is so important, simply because it increases the schools' awareness of the issues reported in the data. *"it's positive…I think everyone agrees that it [SHAPES] helped the schools sort of move in the direction of at least awareness"* [Site C, Participant 4, 206]. Increasing awareness of youth physical activity in their schools is an important form of conceptual knowledge use. In general, staff at Site C feel that the SHAPES data may encourage the schools to take an active role in making the necessary changes to benefit their student population. *"Use of SHAPES results, I think it would again…encourage them and perhaps even support them to make the necessary changes within their, within their schools"* [Site C, Participant 4, 624]. One participant from Site C had spoken to a principal who had simply read the SHAPES survey questions and had already begun to critically think about these topics in her school, motivating her to act on the results of the SHAPES data.

> *"Because I know the one principal when I went into the school she said oh XXX we're, we're going to get right on this, I know we're not really good at some of these things, but we're certainly going to start in the next year getting a lot better. Like she had read the [SHAPES] survey and of course realized some of her short, or some of the school's shortcomings."* [Site C, Participant 4, 182].

This further demonstrates the value of having Access to SHAPES Data at the school level in terms of raising awareness and encouraging the schools to take action based on the SHAPES data.

Based on the analysis, it appears that having Access to the SHAPES Data has important implications for evidence-informed knowledge use at Site C. The SHAPES data have such potential to influence evidence-informed practice for many reasons, such as: the demand in public health for local surveillance data; the fact that the data directly apply to Site C's local youth population; and the data provide direction and support for the programs and services offered by Site C. There are additional factors that emerged from the data that further take advantage of Site C's Access to SHAPES Data and support the use of the data. Organisational support is one of the strongest factors contributing to their Access to SHAPES Data and encouraging evidence-informed practice.

5.12.2 Emergent Theme: *Organisational Support for Evidence-Informed Practice*

An important theme to emerge from the analysis was the support that Site C provides for evidence-informed practice. As an organisation, Site C is trying to promote a culture of evidence-informed practice in their work environment, which has important implications for the uptake and use of the SHAPES data (Participant 2). Staff at Site C commented that there is an expectation within the organisation to bring evidence to planning and programming, which demonstrates this organisational shift towards evidence-informed practice (Participant 2).

> *"…it's all this towards evidence informed practice now that's sort of guiding us… our manager is very big on that evidence informed practice, so that's the direction we're all supposed to be going. That's, that's probably our biggest guide I would say."* [Site C, Participant 3, 138]

In fact, this participant commented that evidence-informed practice is currently one of the strongest guidelines informing their work. During the time of the interviews, Site C was in the process of completing the TEIP (Towards Evidence-Informed Practice) Program, which is offered through the Heart Health Research Centre of the Ontario Public Health Association (Participant 2). Approximately 50 staff members at Site C had participated in workshops with program managers of the TEIP program (Participant 2). The Manager of the Chronic Disease Prevention team repeatedly mentioned the TEIP program in her interview and how important it was to the work at Site C. Staff at Site C have even begun to incorporate concepts and strategies from the TEIP Program in their project planning (Participant 2).

> *"I look for stuff that's evidence-based. And look at the research articles and the, or the research that's been done that's been significant. Not, definitely not, you know, one, one study here or there, but things that have been very, you know, repeated over and over and have the evidence behind them. And definitely research-based, not something that comes out from some pharmaceutical company who've done one study perhaps and you know, all of a sudden that's the hype."* [Site C, Participant 4, 286]

As a result of these efforts, the staff are increasingly using research-based evidence in their work and have become more critical when assessing research information.

The organisational support for evidence-informed practice is also illustrated through Site C's efforts to coordinate information sharing across the organisation, to ensure that all of the staff have access to the necessary information and research evidence. One of the staff members interviewed commented on how communication and information sharing is an area that Site C, as an organisation, needs to improve.

> *"I think communication is a big area for improvement for our organisation. Because it does tend to be by word of mouth and, and sort of a trickling through effect instead of a everybody knows everything at the same time. And even within our team sometimes people directly involved with that, you know, if it's your working group that's working on it you know more and for, for a longer period of time than before the rest of the team finds out. So it, that, that can be challenging and sometimes frustrating…"* [Site C, Participant 3, 276]

The informality and lack of coordination of communication and information sharing has been recognized as an overall weakness of the organisation. Currently, there are various initiatives to encourage this integration and coordination. One participant mentioned how the organisation is starting to enforce regularly scheduled meeting times for the various teams within the organisation.

> *"…the whole vision is that we have regular meetings at regular times so if anyone wants to teleconference in and ask questions or have, need support on something that they're doing within their geographic area, that's an opportunity."* [Site C, Participant 1, 286]

These consistent meeting times provide opportunities for individuals who are not involved in the team to benefit from the meetings when relevant to their work. Eventually the organisation would like to encourage other programs to communicate through these scheduled meetings to coordinate their work.

> *"…this is kind of a new concept for us, we'd also like to see other programs joining in…because… that program is dealing with youth and we're dealing with youth as well only, you know, in a different way. So just even having crossed the, you know, different programs within the health unit, sharing and working together to make things more fluid and, and supportive of our clientele."* [Site C, Participant 1, 294]

The Manager of the Chronic Disease Prevention team described how the organisation is trying to move toward inter-departmental planning process to ensure greater coordination of efforts across the organisation (Participant 2). Another way in which the organisation is attempting to streamline information sharing to encourage evidence-informed practice is by integrating staff into working groups external to their assigned department.

> *"And then as I say, that next step will be to bring in even our, our partner, like our, our other teams in the health unit like tobacco, sexual health, reproductive health, bring them in, you know, a representative to sit on one of these small working groups…they are going to then have that input and, and get that knowledge exchange between the teams, which may not happen so well right now."* [Site C, Participant 3, 192]

> *"… they're actually working on that…if I have information I could go to another team, health promotion team, you know, they might be dealing with just youth or another team might be just dealing with sexual health and I would pass along my information there or we would get together, like I'm going to a meeting next week and it's on community engagement and capacity building with the youth team. So in, in that way it's…healthy, sort of the integration."* [Site C, Participant 4, 500]

The benefit of this integration is the increase in knowledge exchange across the organisation, thereby encouraging evidence-informed knowledge use. This has important implications for the dissemination and knowledge exchange around the SHAPES data. One of the participants commented on how these integrated working groups encourages communication and collaboration work together with staff beyond the silos of the organisation. *"… the health unit is starting to do this a little more so there's not so many silos"* [Site C, Participant 4, 516].

This integration has important implications for the work Site C does with the schools, as there are many different teams and programs that work with the schools.

> *"…what they [Site C] hope to do too then is take that expertise and link it to the other programs like sexual health that works out of all the schools, right, or the tobacco program that has peer leaders in all those schools. And so if we, if we start within our own team and then pull in people from other teams who are also working in that same school then we can get that message out in all different ways, not just from our team…But right now we all kind of do our thing in a silo. And, and so we're really trying to break those walls down and say hey, sexual health nurse why can't you be speaking to physical activity and healthy eating while you're in that school too right? And doing things to promote it."* [Site C, Participant 3, 162-166]

This communication across the organisation to coordinate information sharing and initiatives with the schools is very important for Site C. This also has particular relevance and implications for the sharing, uptake, and use of the SHAPES data with the schools.

Most importantly, the organisational support for evidence-informed practice is reflected in the value that Site C placed on the SHAPES data, which has direct implications

for the uptake and use of the data. The staff at Site C emphasized how important it is to gain support from upper management in order for initiatives to move forward within the organisation.

> *"So if our director decides that that's just a blackout crazy thing, it may not, it may not get the nod…you know, if, if there isn't buy in it will get stalled and ignored and not funded…" [Site C, Participant 3, 396].*

The Manager of the Chronic Disease Prevention team had to get approval from her director of the organisation (e.g., the MOH) for the SHAPES project.

> *"She needs to go to our director for sure first… So the director of health promotion would have to OK the time of staff, like staff usage and, and resources being put towards that [SHAPES]. So, and that, and then the director of health promotion reports up to the Medical Officer of Health." [Site C, Participant 3, 268].*

The manager was successful in gaining organisational approval for the dedication of staff time and resources to the SHAPES project. This is a great indication of the organisational support for SHAPES (Participant 2). The Manger of the Chronic Disease Prevention team was really the leader in attaining Site C's involvement in the SHAPES project. She mentioned on several occasions throughout her interview how supportive the Board of Health and the Medical Officer of Health had been of her and the SHAPES project (Participant 2). She further described how she would be presenting the SHAPES results at the next Management Meeting to the Board of Health, as a way of sharing the data with the organisation and demonstrating the value of the data for their work (Participant 2). She also led her team in the development of an action plan for sharing and utilising the SHAPES data (Participant 2). Overall, staff at Site C had a positive impression of the SHAPES data and the organisation was very supportive. *"I think the other thing that I, like I would say our organization as a whole, the XXX Health Unit is very pleased with the, with the [SHAPES]*

data and the research project" [Site C, Participant 1, 130]. Such support for the SHAPES project is important for potential uptake and use of the data.

At the time of the interviews, Site C was particularly focused on making evidence-informed practice a priority. This organisational support for evidence-informed practice was illustrated through Site C's involvement in the TEIP program and through the attempts to facilitate information sharing and communication across the organisation. Finally, organisational support for evidence-informed practice specific to SHAPES was reflected through the overall positive impression of the data and the dedication of staff, time and resources to the project. The support of Site C for the SHAPES project and evidence-informed practice in general has important implications for future efforts of staff at Site C, towards the uptake and use of the SHAPES data. While the integration of staff into working groups has been identified as an important way of supporting evidence-informed practice, the following section further illustrates the role of working groups related their access to the SHAPES data.

5.12.3 Emergent Theme: *Working Groups*

Working groups emerged as an important organisational structure for encouraging information sharing and evidence-informed knowledge use. This was particularly the case for the Chronic Disease Prevention team, who has been responsible for the SHAPES project at Site C. One participant described how the Chronic Disease Prevention team has been organised into smaller working groups. These smaller groups allow for greater focus and group consensus that was not always possible within the larger team setting.

> *"And that's what we've found to have all of us working on all those big issues was too much. Like it, it was just, you didn't get anywhere, right, cause you were too many people involved and not enough consensus on how to move*

> *forward and that's what then spurred on these smaller working groups that we just formed this year…So now that you get people in a smaller setting, in a smaller group, in a more focused topic, we seem to be making some progress that way."* [Site A, Participant 3, 192]

These smaller working groups seem to facilitate the moving forward of initiatives, which has important implications for the uptake and use of the SHAPES data. In general, these working groups bring greater focus to evidence-informed practice as the organisation is increasingly emphasizing the use of evidence in their work. *"…that whole evidence-informed practice area that it's, it's going to increase it just constantly more. I think it may not used to have been thought about as much, but it certainly is now. So I think working in that group brings in all the, more of that focus"* [Site C, Participant 3, 256]. Another advantage to these smaller working groups is the greater sense of responsibility to follow through with the tasks of the group. *"Yeah, just for more accountability and so you knew if, if you didn't do it it really wasn't going to happen, whereas sitting on that bigger team well if you didn't do it well, you know, there were eight other people that should have done something."* [Site C, Participant 3, 196]. This increased accountability ensures that projects move forward.

Working groups provide an ideal forum for staff to effectively and efficiently share relevant information with the rest of the staff. *"…we have regular team meetings and then we have our regular…working group meetings and even teleconferences…as well for information sharing"* [Site C, Participant 1, 366]. Working groups at Site C have regular meetings that structure in time for information sharing.

> *"So, I would say probably like lots of information and evidence base that comes…then I would say then it would go to the working group…for instance if someone even sat in on a web, webinar or something…then they might share it at a team meeting. So I, I would say that, that would be the, the best way that information is shared."* [Site C, Participant 1, 382]

The opportunities provided through working groups have demonstrated to be one of the most effective forums for sharing information and research-based evidence with the rest of the staff. This is particularly valuable to evidence-informed knowledge use at Site C, considering the stage they are at for the SHAPES project.

Furthermore, working groups typically involve staff from varying research backgrounds and expertise. By bringing together various staff members, working groups can encourage the use of evidence, as these individuals have greater access to a variety of sources (Participant 2).

> *"And we each have a lead in a certain area, like for example, mine would be early, early detection and screening of cancer. So when the latest research comes out on that then I pass that on. And you know, physical activity is certainly in there in terms of decreasing the risk of cancer. So that's all disseminated from me. Someone else might have a lead on nutrition and how that fits with physical activity. So you know…working together that way we each have our little areas…"* [Site C, Participant 4, 456]

> *"…if I get something from Cancer Care Ontario then I would send it off to everyone in our [working] group …And, and then if someone is, you know, they often come to me and say you know XXX I'm doing a project…and we want to talk about healthy living and can you give me your stuff? Can you give me your material…so I'd send it off to them…So people are pretty clear on who's, who's working on, in what area."* [Site C, Participant 4, 492].

Working groups provide staff with direction and easy access to a wide variety of information that they can tap into and use in their own work. Overall, it appears that working groups provide the ideal social forum at Site C for staff to share and access various sources of information and research evidence. Providing individuals with relevant and credible sources of information has been found to be a very important factor contributing to evidence-informed knowledge use (Manske, 2001).

Most importantly, the analysis revealed that working groups at Site C played an important role in the SHAPES project. Many of the benefits of working groups previously

identified are also relevant to the sharing and uptake of the SHAPES data across Site C. The Manager of the Chronic Disease Prevention team introduced the SHAPES project to Site C at a team meeting. *"It was my supervisor XXX who brought it [SHAPES] to the table and had shared with us the research that was going on with…population health research, PHR [UW research groups responsible for SHAPES]"* [Site C, Participant 1, 74].

> *"…she [the supervisor] sort of agreed to do this [SHAPES] project…with the university…And then brought the material to us at a team meeting. And we looked it over and we were sort of given our role in this, in this research study, which was to assist the schools or work with the schools…"* [Site C, Participant 4. 134]

Since then, the Chronic Disease Prevention team has taken the lead at Site C for the SHAPES project, and works together to share the workload.

> *"…the chronic disease prevention team consists of public health nurses, a dietician and health promoters…we're all split into geographic areas, so depending on where the school was, whose geographic area it was, that's the person who collected the [SHAPES] data."* [Site C, Participant 1, 54]

> *"Well for our team certainly that's [SHAPES] something that our manager at one of our team meetings, you know, told everybody because you worked at assigned schools…we'll all shared that workload…So that was a pretty clear directive at a team meeting where, where these things should, should be talked about."* [Site C, Participant 3, 288]

This working group provided the ideal setting to work collaboratively on the SHAPES project to coordinate the SHAPES data collection with their assigned schools. The working group allowed all of the staff to be aware of the data and work collaboratively to encourage the use of the results. *"everybody can sort of be not only privy to the [SHAPES] information, but also work towards advocating for the research results"* [Site C, Participant 4, 540]. In fact, the SHAPES project was influential on the development of a specific working group for schools.

> *"Well I think part of it [SHAPES] has prompted the development of a small working group for schools…I think it really is going to help and focus that*

> *group. Because what we've done is broken up our larger team into three or four members sitting on these smaller working groups in each of these specific areas."* [Site C, Participant 3, 150]

This smaller working group is referred to as the 'school committee' and has really taken the lead in working with the SHAPES data. Considering that staff were in the early stages of orienting themselves to the SHAPES data, much of their work has simply focused on getting together as a working group to discuss the data and establish a working plan to determine specific goals for utilising the data.

> *"…we have specific committees that we've broken our chronic disease team into. So the school committee consists of a few of our team members…But as far as taking that [SHAPES] information and using it, we have not, we just really decided that in our work plan…that we will take, you know, what we know and what our mandate is and, and really just go and connect with those key people in the schools…"* [Site C, Participant 1, 210]

The members of the working group were trying to identify strategies to align the use of the SHAPES data with their mandate, and identify individuals within the schools to collaborate with.

The manager of the Chronic Disease Prevention team mentioned that the 'school committee' was in the process of developing a strategy to share the SHAPES data with the individual schools (Participant 2).

> *"So for the school work group, they are going to be the ones putting together…compiling this [SHAPES] data and then out into each one in their geographic area and saying OK, these are the main things to work at in your school area. You know, for your geographic area, the school there. So I'm hoping that they, they will be able to do that, as I say, it hasn't happened yet but that's the goal… The small working group will then be able to pinpoint what needs to happen where in each of the schools that took part [in the SHAPES project]"* [Site C, Participant 3, 150-154]

One of the goals of the school committee is to work with the SHAPES data to understand the priorities for each school, which encourages the development of school-based initiatives that

are informed by the SHAPES data. Such efforts of the 'school committee' encourage evidence-informed knowledge use of the SHAPES data within Site C and the schools.

The establishment of this 'school committee' working group was similar to that of the naturally evolving Community of Practice (CoP). The negotiation among working group members to establish the goals and action plans, resembled the mutual engagement characteristics of Communities of Practice (Wenger, 1998). Due to its relevant infancy, the 'school committee' working group has not had the opportunity for the joint enterprise that addresses the goals and work plans established through their mutual engagement. Furthermore, there has not been adequate opportunity for the development of shared repertoire among the working group members. Therefore, at this point in time, the 'school committee' working group cannot be labelled as a CoP without future investigation.

Overall, the analysis revealed that working groups provide an important social environment for interaction and collaboration among staff at Site C. Specifically, working groups were found to focus initiatives, increase accountability and ownership of work among staff, and provide an opportunity for staff to share and access a wide variety of information and research evidence. These all have important benefits for the uptake and use of the SHAPES data, and evidence-informed practice in general. The SHAPES project encouraged the development of a specific working group that has taken the lead on planning various initiatives around the use of the SHAPES data. This working group has facilitated conceptual forms of evidence-informed knowledge use, such as sharing the SHAPES data with the organisation and raising awareness. Working groups in general encourage evidence-informed practice at Site C, as a result of the inherent benefits identified above.

5.12.4 Emergent Theme: *SHAPES Supports Partnership with Schools*

The final theme to emerge from the analysis was the many opportunities to build partnerships as result of having Access to SHAPES Data. *"…I think there's a real potential to build partnerships… and work on whatever the [SHAPES] results are that need to be addressed"* [Site C, Participant 4, 568]. These partnerships are important for working on the priorities identified from the SHAPES data. Having access to the SHAPES data is particularly relevant to collaborative opportunities with the local schools, which is something that Site C has begun to focus on. *"…we've talked about working with…the schools that participated in SHAPES…hearing from them what they're ready to work on…So I think the [SHAPES] information is great and I think it'll, it'll be helpful in us supporting them [schools]…"* [Site C, Participant 1, 114]. The SHAPES data provided staff at Site C with the ideal opportunity to connect with the schools.

> *"It [SHAPES] gave us an in to the schools in terms of going in there with our message because we were associated, even though it wasn't our material, but through, through the researcher it was a venue for us to approach the schools and, and work with them or at least create that awareness and education."* [Site C, Participant 4, 242]

The SHAPES data also help the schools understand what they should be focusing on in terms of youth physical activity. *"I think it's [SHAPES] really going to help them focus their energies and, and get them up to speed."* [Site C, Participant 3, 542]. In general, the SHAPES data were effective at engaging the schools and increasing their awareness and understanding of youth physical activity.

> *"I sometimes feel they kind of glaze over and say oh my gosh, not something else. But, in general, but when we come with our physical activity issues, you know, they know. Because of the [SHAPES] evidence, because, you know, it's really up there…I mean it's something they can't ignore and, and they don't ignore it. So that's on the positive. We have the research and the [SHAPES]*

> *evidence on our side in terms of the, the magnitude of this issue."* [Site C, Participant 4, 688]

The schools pay attention to the SHAPES data because they demonstrate the magnitude of the problem within their own student population.

> *"…I think when they [schools] receive their [SHAPES] feedback reports[5], especially if there's been some shockers, like if there's been some information that they weren't anticipating, that that would I would hope create a momentum that they want to move forward on certain areas and that they're willing to partner for support." [Site C, Participant 1, 444]*

Not only can the data capture the schools' attention and increase their awareness, but they may even motivate them to take an active role in working towards the issues identified in the data and partnering with Site C for support. Furthermore, schools are receiving increasing pressure to make physical activity a priority.

> *"I think the, the increased focus and just the need that, we need, we can see that there needs to be action… because all the other sectors are now, they're all aware of, you know, the physical activity, the, the healthy eating, the schools are really getting hit with, you know, you've got to, you've got to look after all the kids in these departments and they are thinking what are we going to do. So I think the time is right for us to get some things in order and help them out because you know, their, their main job should still be the academics… And that's where we can help them out."* [Site C, Participant 3, 216]

> *"It's not like we're coming with some great big new funky initiative that no one's heard of and we're trying to, you know, convince them to do something that's totally out there. This has kind of been the movement for quite some time and just especially with all the, the things about childhood obesity and all that, we're just, you know, we're just supporting evidence-based stuff that people already know about."* [Site C, Participant 1, 496]

Schools have been increasingly involved in initiatives that address childhood obesity and youth physical activity. Working with schools to address issues like youth physical activity

[5] The schools that participate in the SHAPES-Ontario project received a Feedback Report that summarized their individual school results. The Ontario health units participating in the project received a Feedback Report that summarized the aggregate data across all of the schools within their service area. The feedback reports also included suggestion for action based on the results to encourage the use of the data.

through the use of the SHAPE data is an important way that Site C can support the schools, while greatly contributing to evidence-informed practice.

Having Access to SHAPES Data also provides an opportunity for Site C to build their relationship with the schools.

> *"I think any, any time that the more we communicate and do things collaboratively with the schools the more, the stronger the relationship becomes and the more comfortable in, in, you know, sharing information and, and supporting them in their own, in their own efforts. So I think that SHAPES provides them with more information about their particular school and then also provides an opportunity for us to, to develop stronger relationships with them."* [Site C, Participant 1, 492]

Developing relationships with decision-makers at various levels within the schools is important for increasing awareness and encouraging the use of SHAPES data at the school-level (Participant 2).

> *"Well I think anything, you know, anytime that you develop a face to face relationship with anybody who has decision-making powers, I think it's really important. I, I mean that's of course influences in a, in a positive way. And the other thing I think I mentioned, we go in our geographic areas, we often go in, go into the schools for other things and you know, meeting the teachers, meeting the principal, that all has a, has a strong influence, meeting the parent council has a strong relational influence to make physical activity one of the headlines."* [Site C, Participant 4, 668]

Building relationships with principals, teachers, and parent council will further facilitate collaboration regarding SHAPES, thereby encouraging the uptake and use of the SHAPES data.

Involving the schools throughout the process of the SHAPES project is important for developing the relationship with the schools and influencing the use and uptake of the SHAPES data.

> *"I think including them from the get go…So I think having them there at the table…the hindrance would come if public health walks away with that [SHAPES] data, comes up with a plan, you know, little small working groups for schools all on their own and said isn't this fabulous, this is what we're*

> *going to tell the schools to do…That would hinder the progress…So we need to have the, the schools involved, we need the, the sexual health nurses or the tobacco peer leaders, whoever else is going to help do this in the end and, and get it out there right at ground level in the schools needs to be a part of that"* [Site C, Participant 3, 530-534]

Involving the schools right from the outset is very important for collaborative work around the SHAPES data. Another participant expressed the importance of working collaboratively with the schools to help them understand the SHAPES data presented in the feedback report and the implications for their school. *"…we're not just dropping the feedback form on their lap hopefully, but we're offering ourselves to support them. I think that's, you know, very positive… we're here to help you, what would you like to work on?"* [Site C, Participant 1, 500]. It is particularly important that staff at Site C work to also understand what the schools are ready and willing to work on based on the SHAPES data.

> *"…with these particular issues [identified in the feedback report] when you look at them, how, what do you prioritize?…So just trying to meet them where they're at and walking alongside them instead of pointing a finger and saying this is what you should be doing."* [Site C, Participant 1, 118]

> *"So taking that [SHAPES] data and transforming it into something that's an action plan. But I think really it just needs to be about the school and the students and meeting them once again, where they're at." [Site C, Participant 1, 174]*

This approach encourages collaboration and the use of the SHAPES data, while addressing areas that the school also views as a priority. Specifically, Site C is planning to have staff meet with the schools in their assigned geographical area to look at the SHAPES data and determine together what the schools want to work on.

> *"So that the geographic rep for that area could then look at this [SHAPES data] and say OK, this school really needed, or wanted to work on this topic. So that's the area that they will help them with… That's in theory what's supposed to happen."* [Site C, Participant 3, 74]

The SHAPES data can also demonstrate to the schools how Site C can support them and help them address the issues, such as youth physical activity. *"This is going to be wow, this is what your [SHAPES] survey told us about your school environment and look at what we can do to help improve."* [Site C, Participant 3, 94]. Demonstrating to the schools what actions can be taken based on the SHAPES data is an important contribution to evidence informed practice.

In order for successful collaboration and the subsequent uptake and use of the SHAPES data, it is very important to have buy-in and support from the school boards.

> *"…that relationship with the board I'm thinking that's the biggest one that's going to make it [SHAPES] fly or not. That if the school board just said we've got no time, money or desire to put any effort into this, then I'm thinking we would be beating our head against a wall to keep it going. So, unless something really changed with our school board I would imagine there would be support for us."* [Site C, Participant 3, 400]

Fortunately, the relationship that Site C has established with the school boards through the SHAPES project thus far has been positive. Some participants at Site C draw on their experiences from collecting the SHAPES data to demonstrate the importance of school buy-in for moving forward on joint initiatives with the schools. *"…if you had really keen students and keen administration at a school it [SHAPES data collection] went smoother. And when you didn't have quite the same buy in, maybe not quite so smooth and, and, and maybe not as large a response"* [Site C, Participant 3, 110].

> *"But, so yeah I think and, you know, you just have to find a champion within the school. So you'd find the phys ed teacher, whoever was willing to take this on and they were the coordinator. And as long as you provide them with the packaging and the, the basic information, they're more than willing to participate in things."* [Site C, Participant 1, 488]

There is also great value in having a champion within the school who will support the partnership and take responsibility for the necessary work.

An important way in which Site C has engaged the schools in the SHAPES data was through a meeting with the schools boards (Participant 2). Site C hosted a meeting with the two school boards and asked researchers from the University of Waterloo to present the SHAPES results for their region at the meeting (Participant 2). Staff from the Chronic Disease Prevention team, who have been largely responsible for the SHAPES project at Site C, took the lead in organising this meeting with the school boards.

> *"They did have a big meeting with our school board, when was that, earlier this month on the 6th of June and I was not at that meeting. Some of our other health promoters and our manager certainly was… But I know they were releasing some of the [SHAPES] information and…which areas to focus on."* [Site C, Participant 3, 74]

This meeting provided a forum for both the staff at Site C and the schools boards to become familiar with the SHAPES data and key messages that emerged from the data. As a result of the meeting, Site C was successful at gaining support and buy-in from the schools to work collaboratively to share the SHAPES results with other relevant partners (Participant 2). Specifically, Site C and the school boards decided to host a community forum where they will present their regional SHAPES results to the wider community and other important stakeholders, such as municipal leaders (Participant 2). This forum will allow for a greater dissemination of the SHAPES data and recommendations for action based on the data, contributing to evidence-informed practice.

Having Access to SHAPES Data presented many opportunities to work collaboratively with the schools to address the priorities identified from the data. These partnerships have many important benefits such as understanding the schools' perspective, increasing the schools' awareness and understanding of the SHAPES data, identifying opportunities for Site C to support the schools, and encouraging the schools to take an active role in utilising the SHAPES data. These benefits of working collaboratively with the

schools ultimately encourage the uptake and use of the SHAPES data and contribute to evidence-informed practice at Site C and the schools.

5.13 Summary

Overall it appears that having Access to SHAPES Data was the strongest factor influencing evidence-informed knowledge use regarding youth physical activity. The analysis also revealed that organisational support for evidence-informed knowledge use further encouraged the uptake and use of the SHAPES data among staff. Working groups were found to provide an important social forum within Site C to take advantage of their Access to SHAPES Data, and in general they encouraged information sharing and knowledge exchange across the organisation. Finally, having Access to SHAPES Data presented many opportunities to collaborate with the schools, and in turn, these opportunities, facilitated the uptake and use of the SHAPES data.

5.14 Site D Case Study: Overview of Organisation

Site D is a Regional Health Authority from Manitoba that collected data using similar surveys as those from the SHAPES project. Site D does have access to "SHAPES-type" data, but by not being involved in the SHAPES-Ontario Knowledge Exchange Extension (KE Extension), makes this organisation an ideal comparison for this study. The participants at Site D refer to their "SHAPES-type" data as the Youth Health Survey (YHS) data. Both the SHAPES and YHS data involve the collection of local surveillance data at the individual school level from secondary school students. The Community Health Assessment Unit from the Planning Department at Site D took the lead in collecting the YHS data. The YHS data were collected from all schools (grade 6 to 12) in the region that Site D serves, except for the

First Nations schools and Hutterite communities, using many of the validated questions from the SHAPES physical activity and tobacco use modules. The data was collected in the fall of 2005 and was compiled into a feedback report[6] that was comparable to those created for the SHAPES project. Each school that participated received an individualized feedback report, summarizing the data from their schools. A regional report was also developed that summarized the data across all of the schools in the region.

Similar to the other three public health organisations, Site D is responsible for the operation and administration of health programs and services within a regional district. Site D differs from the other three public health organisations, as it exists within a different provincial context. While the other three public health organisations were guided by the Ontario Public Health Standard, Site D follows the Manitoba Regional Health Authorities Act from 1997, which defines the duties and responsibilities of the RHA's to ensure effective health planning and delivery. The strategic priorities of the RHA include: Integration Primary Health Care Model; Population Wellness & Disease Prevention; Appropriate, Accessible and Sustainable Resources; Engaged Community and Stakeholders; Provide a Safe Healthcare Environment. Site D has a Board of Directors, whose members are appointed by the Minister of Health. The Board of Directors is the governing body of Site D and is responsible for determining the policies and activities that the organisation is accountable to. The Board of Directors is connected to the organisation through the Chief Executive Officer (CEO), which is equivalent to Ontario's Medical Officer of Health. The

[6] Similar to the SHAPES project, all of the schools that participated in the YHS received a Feedback Report that summarized their individual school results. Site D also compiled a general Feedback Report that summarized the aggregate YHS data across all of the schools within their service area that participated in the YHS. The purpose of this general Feedback Report was to use in their work at the organisation, and to share the data with the community and their partners. Staff at Site D or their partners could gain access to the individual school data by receiving permission from the schools. The feedback reports also included suggestion for action based on the results, to encourage the use of the data.

CEO is the sole employee of the Board of Directors and is responsible for carrying out the strategic plans and policies established by the Board.

The organisation consists of approximately 1,800 employees across 22 programs and services. The Region that Site D serves is an expansive geographical area encompassing approximately 26,000 square kilometres with approximately 76,000 residents. The five individuals from Site D who participated in this study included the Data Analyst, who took the lead in collecting the YHS data, the Vice President of Planning, two Health Promotion Coordinators and a Public Health Nurse. All of the participants had a significant involvement in the YHS data collection process and continue to work with the data in various capacities.

5.15 Site D Case Study: Organisational Knowledge Use

Site D received an overall "high" score on the KUU scale, achieving Orientation, Mechanical, Routine, Refinement, Integration and Renewal. The staff at Site D reported a wide range of use of the YHS data, from simply referring to the YHS feedback report in their daily work (Mechanical and Routine), to utilising the data to inform their Strategic Planning. Many instances of evidence-informed knowledge use related to the YHS have occurred within the working groups and partnerships (Integration) that staff at Site D have established. The achievement of Renewal was demonstrated through the efforts to modify and add questions to the Youth Health Survey in preparation for the second round of data collection in spring 2009. The analysis of the interview transcripts reflects the levels of use achieved by Site D on the KUU scale and will be explored in further detail.

5.16 Site D Case Study: Analysis Results

The analysis revealed several key themes that influenced evidence-informed practice related to youth physical activity at Site D. The following section summarizes these themes and their influence on the uptake and use of the YHS data.

5.16.1 Core Theme: *Access to YHS Data*

The analysis of Site D transcripts revealed the core theme of having 'access to the Youth Health Survey (YHS) data'. This theme consistently emerged across all of the interview transcripts as the primary factor encouraging evidence-informed practice regarding youth physical activity at Site D. Within this core theme emerged specific characteristics of the YHS data that further illustrates why the data are so valued and widely utilised among staff at Site D and their various partners. The most prominent characteristic of the YHS data that emerged from the analysis was the fact that they are specific to the local communities. The Youth Health Survey was largely driven by the demand from local community groups and various initiatives going on within the region that Site D serves.

> *"Our whole Youth Health Survey Process was driven by community need and what they needed in order to do their part in planning. I think we all used the data but that was the main reason was for them."* [Site D, Participant 2, 175]

> *"We had another initiative going on in the region that required local level risk factor information that we couldn't glean from other sources like our Comprehensive Community Health Assessment or the Canadian Community Health survey or other provincial data sources. So we set about trying to find a mechanism where we could collect local area data."* [Site D, Participant 1, 33]

Several participants also explained that there was a demand for local surveillance data, as the current sources were not 'hitting close enough to home' for the staff and community partners.

"…because you can provide national data, provincial data, regional data but then to say in

the community of XXX, in XXX our youth have told us this, do you know what I mean?" [Site D, Participant 3, 429].

> *"I mean I'm just absolutely amazed with the [YHS] information that we received and especially because one of the reasons we did it in the first place was you know the CCHSS I think data was just not getting close to home for our communities and our communities were saying well that might be the regional rate but what about XXX, what about XXX, and so this actually gave people that local information and it spurred them to action… You know the physical activity you know we learned a lot about what's required and it's really led to a lot of community action and school action."* [Site D, Participant 2, 95]

The YHS data provided the local data necessary to inform the various initiatives among the community groups. Because the YHS data provided the local specificity that the community groups were after, it gave the YHS data a *Relative Advantage* over other sources of data, further facilitating its use (Manske, 2001). *"And because it's innovative and new and local area we've never had local level data like this before. So I think that caught a lot of people's attention"* [Site D, Participant 1, 557]. *"I think the difference was that it was local data"* [Site D, Participant 2, 99]. Some of the participants even commented that the high uptake and use of the YHS data is largely attributable to the fact that the data is local.

The YHS data have been very timely to the work at Site D and their partners, given the current focus on childhood obesity and physical activity.

> *"especially with all the um information about childhood obesity and lack of exercise, all of that, it's very timely to everyone like us in myself and my job, recreation, the schools, kind of everybody, so I think it's very very timely."* [Site D, Participant 5, 155]

Timeliness of the data has also been identified as an important facilitator of evidence-informed knowledge use (Manske, 2001). Related to the timeliness of the data is the relevance of the YHS data to the programs and services at Site D, which is another important characteristic contributing to evidence-informed knowledge use (Manske, 2001). *"I think it*

[YHS data] gives a very good baseline. For physical activity… there 'is' things in there that are very relevant to our recreation directors in both communities" [Site D, Participant 5, 101]

> *"Our three main pillars are healthy eating, physical activity, and tobacco. And those were three areas that were looked at as well as some of the other areas, based on other partners or other areas…that were using the [YHS] data."* [Site D, Participant 4, 155]

The three main pillars of health that guide the work at Site D are addressed within the Youth Health Survey. In general, the YHS data provides the evidence-base necessary to support the work at Site D.

> *"Well I mean you have to have something real to talk about. I think that's probably the biggest thing. You know, I mean you can sit around and talk about well we think this is a problem and maybe we need to work on this. This provides us the evidence to know that we're addressing the right things."* [Site D, Participant 2, 315]

> *"…it's provided some information to our managers internally that they've been able to successfully go ahead with some programs like an implementation of a new teen clinic in XXX…And then on a higher level, for sort of overall regional programming we're going to be able to…well we've presented this [YHS] information to our board of directors as well and we're going to be able to use this information as we're going through through some strategic planning exercises."* [Site D, Participant 1, 163]

The YHS data have also informed the development of new initiatives and will provide direction to the strategic planning at Site D on many levels. Having access to the YHS data to inform the organisation's planning and programming is a very important contribution to evidence-informed practice at Site D.

Having access to YHS data was particularly relevant to the work that Site D does with their local partners, particularly the schools, further contributing to evidence-informed practice.

> *"…Public Health Nurses are involved in our schools, so it's it's [YHS data] a very important tool to look at when we're doing programming in the*

> *schools…I guess to share it with others who are involved um like recreation…the Youth Health Survey…it's something very good to know about and then review from time to time so that you can use some teaching or use some of this when we're in in the schools and involved with them."* [Site D, Participant 5, 485]

The YHS data are an important source of evidence to inform school-based programming and to share with other stakeholders who may work with the schools. Having access to the YHS data has increased awareness among the school population on the topics reported through the YHS, which is an important form of conceptual knowledge use.

> *"…but looking back at it [YHS data] and just seeing how the physical activity declines in girls when they get to senior years, just how few fruits and vegetables our kids are eating and how high our smoking rates are, for me myself, yeah, it was very eye opening."* [Site D, Participant 4, 163]

> *"…knowing about the information from the Youth Health Survey…like if the high school is using that information…it's a definite benefit to know that you know um half of your females are not physically active by the time they reach grade ten…what are the activities that they want to do. So um sharing that information or being aware of it and looking at it's definite benefit to use the information…"* [Site D, Participant 5, 655]

The YHS data also increased their understanding of the physical activity levels within each individual school, and reported the types of activities that students enjoy participating in. Taking what the youth reported on the YHS to inform physical activity planning within the schools is an important contribution to evidence-informed practice. Furthermore, one of the participants from Site D had received feedback from their community partners regarding the usefulness of the YHS data for directing their work.

> *"In our community groups we're hearing back from them that they…better understand some of their their more urgent needs with respect to healthy living programming in their communities so they…if they saw that the physical activity rate in their community was really low but the healthy eating rate was not so bad they knew that they were able to target their their programs on the areas of need…focusing on what the real issues were. Although they do want to get to all of the risk factors. They do want to make sure that they're touching the highest priority ones first."* [Site D, Participant 1, 163]

The YHS data brought some focus to their work and identified issues that were a high priority in their community.

Another important characteristic of the YHS data was the format in which the data was summarized and disseminated. Each school received a feedback report summarizing their school-specific results, which the participants identified as one of the strongest factors influencing the uptake and use of the YHS data.

> *"Yes I mean that's one of the reasons for the uptake you know, the way it has [been] developed is somewhat similar I think to the SHAPES reports where it actually, it gives you also information about what you can do about a result."* [Site D, Participant 2, 123]

The feedback reports also included suggestions for action based on the results, further facilitating evidence-informed knowledge use. By providing suggestions for action, the YHS feedback reports go beyond simple dissemination of the results. The feedback reports present the YHS data in a user-friendly format, further encouraging the uptake and use of the data among various stakeholders. *"the way we rolled it up -- we used fairly simple indicators to report the [YHS] data……we wanted to make sure it was in a format that community groups would be…able to use easily as well as the schools so."* [Site D, Participant 1, 117-129]

> *"…many of us went to other groups like parent advisory committees, parenting, parent groups or um community groups to relay the [YHS] information… there was summary pages of all the information like with everything on one page…from each area or you could go to the physical activity area and get the results. There was graphs, also written out information so each area then had a separate um area of it compiled. So very easy for anyone really to read through it or look at it and relay information."* [Site D, Participant 5, 135]

The user-friendly feedback reports made it easy for staff at Site D to share the data with various stakeholders and partners, increasing their understanding of the YHS data and contributing to evidence-informed practice.

The collection of YHS data at Site D and the value of the data to their work provided a model for other regions in the province to collect the data. *"…the Youth Health Survey was a powerful tool…it has been a model for other regions in the province to follow"* [Site D, Participant 3, 173]. In fact, the YHS tool is going to be used as baseline surveillance data across the province for the new Physical Education/Health Education curriculum in grades 11 and 12 from the Department of Education. *"…in our province also this mandated physical education piece has come in and that's why now everyone is going to use that [YHS] tool to get their baseline information"* [Site D, Participant 2, 323].

> *"And right now the province, through a partnership with education and health, are using this survey to find baseline data for kids in grades nine to twelve. because we've just had a curriculum change here about mandatory phys ed credits for grade eleven and twelve students. And they are using our [Youth Health] survey as a baseline data gathering tool for schools in every school in Manitoba"* [Site D, Participant 4, 83]

The schools in Site D's region have used the YHS data to inform school planning in preparation for the new policy.

> *"They can use it [YHS data] for their school planning…And here provincially…we now have like healthy food choices in schools and, this fall we will have a change in the physical activity policy. So they were able to use that [YHS] information in getting ready -- getting their programming ready for these two new policy changes."* [Site D, Participant 1, 171]

Utilising the data to inform school-based programming and policy development for youth physical activity is an important form of instrumental knowledge use.

Based on the analysis it is evident that having access to YHS data is the primary facilitator (i.e. core theme) of evidence-informed knowledge use regarding youth physical activity. As such, access to YHS data was identified as the core theme. It also consistently emerged across all of the transcripts as a valuable source of evidence for their work at Site D. Furthermore, staff identified characteristics of the YHS data that made it particularly

valuable to their work. The YHS data has been widely used among staff at Site D and their local partners to identify priorities and to develop and support action plans in their daily work. Having access to local data that is relevant and timely to their work is the most important factor contributing to evidence-informed knowledge use concerning youth physical activity at Site D. This core theme is interrelated to all of the other themes to emerge from the data, which will be explored further in the following sections.

5.16.2 Emergent Theme: *Support from Partners*

Another important theme to emerge from the analysis was the many external partners that Site D collaborated with throughout the process of the YHS project. These external partnerships have been essential in supporting the collection of the YHS data and subsequent initiatives that utilize the data, as they also see value in having access to the YHS data. Site D is a founding member of a partnership network that initially came together as a response to the need for surveillance data.

> *"It came about because of this whole surveillance idea, who is doing surveillance, are we duplicating effort, is there information? So once we talked to Cancer Care and they said you know how we could help…by doing your analysis of your data…Then the Canadian Cancer Society…We also had the Heart and Stroke Foundation who…became a partner. Anyways we developed…based on this experience with our Youth Health Survey, this group that is now, it started out with only four partners, ourselves and those three others that I just mentioned, and now it's grown to an organization that's really looking at trying to coordinate things in our province around risk factor surveillance."* [Site D, Participant 2, 303]

The collection and analysis of the YHS data was possible because of the support that each partner of this network contributed. The Canadian Cancer Society and Site D worked together to compile the YHS data into the feedback reports, making the data accessible to the staff at Site D, the various local partners, and the community at large. *"…the surveys were done by the teachers in the school. And then…we have a scanner that scanned the results.*

And then through Cancer Care. Their statisticians helped us to compile the data." [Site D, Participant 4, 25]

> *"…was all compiled by um someone within the XXX RHA who works on that, and…someone from the Cancer Society helped…they could compile it into their computer and they helped out a lot with it so it was when we got it [YHS data] it was done as a report already."* [Site D, Participant 5, 87]

Another participant mentioned their relationship with a specific group from the Manitoba Division of the Canadian Cancer Society that played a particularly important role in contributing to evidence-informed practice related to the YHS data. This specific group will be referred to as the CCS Working Group[7]. *"…because we have a close relationship they are a sounding board you know for any new planning because that's their whole basis is they do that research of evidence based, like what works"* [Site D, Participant 3, 373]. The CCS Working Group provided much support to Site D throughout the process of the YHS project and has been helpful for evidence-informed planning at Site D. One initiative with the CCS Working Group that has been very successful in encouraging evidence-informed knowledge use of the YHS data was a Knowledge Exchange Workshop. *"…we brought together various community groups and gave them kind of like a practice exercise where they had the [YHS] information…we were able to work through some steps with them and actually getting them to use the data in some of their planning."* [Site D, Participant 1, 61]

> *"…some people have the [YHS] evidence and the information and think it's great but they may not be aware or have the skill set to use this information to put into practice. And I know what happened the last time there were some sessions on evidence based workshops that all the partners were invited to and we had people come out and explain this is the information and this is what you can do with it, this is how you use it. Those kind of -- the tools were brought to the partners."* [Site D, Participant 4, 391]

[7] The CCS working group refers to a group based in the Manitoba Division of the Canadian Cancer Society. The overall goal of this group is to bridge the gap between research and research users and build capacity among community groups to use evidence for decision-making through the development of information packages that summarize effective practices in chronic disease prevention and healthy living.

> *"There were facilitators that basically provided an understanding of how to use…that evidence…It was a workshop where groups were broken up into their community organizations and then they would work through the [YHS] data and…there were [YHS] reports and then…to have a whole planning process basically. So you know according to that community what struck them about the report, what do they want to work on first. Then based on what they're working on you know was there enough evidence to say there was a need there. And then they worked through what is some of the research telling us about how to address that factor be it physical activity or whatever. So it was really done in a workshop component…"* [Site D, Participant 2, 187]

This workshop was very effective at supporting the community groups in understanding the YHS, the implications of the data for them, and how the data could be used to inform their planning. *"So that's probably been the biggest uptake…where the Knowledge Exchange Workshops have helped the community members in distilling that information and looking at what's most important to them and…what could they actually do in a community that's evidence based"* [Site D, Participant 2, 167]. *"it was just very positive…they gave people the skills or the tools they need and how to look at [the YHS] information, and why to look at it…"* [Site D, Participant 4, 407] This workshop greatly contributed to evidence-informed practice, as it built capacity among other groups and organisations to understand the YHS data and utilise the data in their work.

Currently Site D is building partnerships with the First Nations communities to prepare for YHS data collection in 2009, as they see great value in having access to the YHS data that is specific to their communities.

> *"We are right now establishing partnerships with our First Nations communities because the [Youth Health] survey is being done there. It wasn't being done there previously but they see the value and they want the data as well for their planning purposes and evidence"* [Site D, Participant 4, 367]

Similarly, the schools were very cooperative and willing to participate in the YHS data collection, as they also could see the value in having access to the data. *"Well if they [schools] wouldn't have thought it [YHS] was important they would have never cooperated*

to the extent they did…" [Site D, Participant 2, 323]. *"…this whole school division itself you know approved the youth health survey and were very interested…"* [Site D, Participant 5, 539].

> *"We have four major school divisions in our area…We've established strong partnerships with those groups. And through the [Youth Health] survey I think we've established trust. This is the first survey of its kind being done so they were a little bit apprehensive about what we were surveying, what we were going to do with the survey."* [Site D, Participant 4, 359]

The local schools were particularly important partners for the YHS project, considering that the data collection would not have been possible without the support and involvement of the schools. As a result of this partnership with the schools throughout the YHS data collection, the schools have had a greater uptake and use of the YHS data.

> *"And I think because, you know, if you have a relationship with an organization and they're more likely to look at that report than if it's something that comes in the mail you know. So because the report came from me and they know me and they have this relationship and they were involved in the actual, you know, implementation of the survey they're more likely to use… those results than just some kind of national survey that comes in the mail kind of unsolicited across their desk."* [Site D, Participant 1, 687]

Some of the schools have even been willing to share their individual school results with the public health nurses from Site D, further contributing to evidence-informed practice.

> *"Some of the public health nurses who have been involved in various initiatives at local school levels will also have access to their local school reports through their relationships with the school principals. But we as a region did not specifically hand out those school level reports. We wanted to build relationships between our staff and the school. And so the public health nurses had to go to the school and ask for them to share their information on an individual school basis"* [Site D, Participant 1, 69]

Having access to the YHS data that is specific to each individual school environment is particularly valuable for evidence-informed planning and programming in the schools. Finally, the schools are providing support to Site D by taking an active role in the development of the survey tools for YHS data collection in 2009.

> *"And not only are they keen to let us do it again they're keen to participate in the development of the new tool. We've already got a working group set up to re-look at our tool and methodology in preparation for next spring. And we've got members of education sitting on our committee."* [Site D, Participant 1, 603]

The cooperation and support from the schools is necessary for Site D to be able to collect the YHS data. As an external partner, the schools also value having Access to YHS Data and contribute to evidence-informed practice through their involvement with the YHS.

Overall, the analysis revealed that having support from the external partners was an important factor influencing evidence-informed knowledge use of the YHS data. The support from the external partners was necessary to collect and analyze the YHS data. Furthermore, this support also encouraged the uptake and use of the YHS data and supported initiatives that were informed by the data. Many of the partners provided the necessary support to Site D for the YHS project, as they also saw the value in having Access to YHS Data (i.e. core theme) and making use of the data. Therefore, there is a reciprocal relationship between the core theme of having access to YHS data and the emergent theme of Support from Partners.

5.16.3 Emergent Theme: *Working Groups*

Working groups that involved staff from Site D was another theme to emerge from the analysis. These working groups were found to be an important mechanism for staff at Site D to connect with local schools and members of the community. The YHS data are particularly relevant to the activities of local schools and community; therefore there were many valuable opportunities through these working groups for the uptake and use of the YHS data. There were many instances where staff at Site D have used the YHS data through the activities of their working groups. *"It [YHS data] is still referred to all the time no matter what*

committee I'm sitting with…" [Site D, Participant 3, 237]. There was a wide range of use among these working groups, from simply referring to the YHS data, such as the example above, to directly utilising the data to inform activities of the working group.

> *"I also sit on healthy schools committees, they've used that [YHS] data quite a bit within their schools for helping their school planning. Whether it be planning…because the kids identified physical or recreation activities they'd like to do, so some of those activities that were identified have been incorporated into the phys ed program"* [Site D, Participant 4, 199]

This participant worked with a school through their healthy schools committee, where the YHS physical activity data had been used to directly inform the physical education program. In general, the working groups that Site D has been involved in provided a unique opportunity to share experiences and examples of evidence-informed practice.

> *"…absolutely I think it increases. Especially when people are sharing their experiences and they refer to the evidence out there that you know we use this program and we based it on this evidence and this is what we did and this is successful and we never thought to do this but the evidence told us. You know I think it validates."* [Site D, Participant 4, 291]

This sharing of successful instances of evidence-informed practice validated the evidence and the process, further encouraging the use of evidence among working group members.

The analysis revealed one particularly active working group, the Health Promotion Working Group (HPWG), which demonstrated many of the defining characteristics of a Community of Practice (CoP). Staff members from Site D have been involved in this working group for numerous years, providing an important connection between Site D and many of their regional partners. *"…it's a very broad based group of regional employees and partners. And their mandate was just to promote various things related to healthy living whether it be through us, through our own programming or things in the community."* [Site D, Participant 1, 401].

> *"…Health Promotion Working Group…has been established for a number of years, before we did any surveys, did any data collecting. And they represent geographic areas of our region as well as different partners…such as education, culture, heritage, tourism and sports…when we're looking at planning for health promotion…all those partners we sit down and plan together and work together and support one another."* [Site D, Participant 2, 243]

The HPWG has been established for many years. This sustained and collaborative nature of these relationships through the HPWG represents the mutual engagement of the group, fostering a positive and productive work environment (Wenger, 1998). *"…because there is a long history to it [HPWG]…and it's a cooperative group and so it really does work very well…there has not been a problem getting people to work together in that group"* [Site D, Participant 2, 259]. Furthermore, this working group provided many opportunities to learn about initiatives of various community partners, share information (e.g., mutual engagement), and gain support from other group members who may have related expertise or evidence (e.g., joint enterprise).

> *"There is sharing of each group's activities whether it be a success or a challenge, and there's a lot of support from the others, or if someone identifies a program or an area that they'd like to work on people share knowledge, share experiences, share information, share tools, and also offer support."* [Site D, Participant 4, 271]

> *"They [HPWG] help inform some of the program and planning for our regional level. Kind of help steer us in the right direction when it comes to healthy initiatives. It keeps us connected with what [is]…going on in other jurisdictions with respect to healthy communities because we have very limited resources when it comes to healthy living initiatives and we don't want to be duplicating what other people are doing…And then support each other in different initiatives that are happening in all the different jurisdictions"* [Site D, Participant 1, 429-433]

Through the mutual engagement and joint enterprise of the HPWG, staff at Site D were able to gain valuable knowledge about the programs and planning occurring in their region, allowing for the coordination of these various initiatives. This sharing and understanding of

each others' knowledge and experiences, and identifying what each group member can contribute to the HPWG, captures the mutual engagement and joint enterprise of a Community of Practice (Wenger, 1998). Being engaged through the joint enterprise of the Health Promotion Working Group, which was to promote healthy living in their community through various initiatives, had important implications for evidence-informed practice related to the YHS (Wenger, 1998). In fact, The Health Promotion Working Group was a particularly influential group for raising awareness of the need for local surveillance data and motivating the development of the YHS and data collection, representing the joint enterprise of the working groups (Wenger, 1998). *"…the health promotion working group that I referred to has been [around] a long time, it actually…took a lead role in planning out the Youth Health Survey…"* [Site D, Participant 3, 641].

> *"…I'm involved with the health promotion [working] group in the XXX Regional Health Authority. Um, so I was kind of working with them and our Health Promotion coordinator who wanted to come up with a um I guess a baseline of looking at these things amongst our our students, because some of the activities we are looking at doing are with the students so we kind of wanted to get a baseline."* [Site D, Participant 5, 51]

Staff from Site D and other members of the working group found that local data, specific to the youth in their region, would be a helpful source of evidence for directing the activities of the group. Through the mutual engagements among members, the HPWG provided valuable input and support to the development of the surveys that were used to collect the YHS data. *"…part of our health promotion working group helped in the development of the survey tools so that had multidisciplinary different health partners on it from our region…"* [Site D, Participant 2, 31]. The involvement from the HPWG was an important contribution to the development of the YHS tools, as there was input from various partners and background, contributing to a very comprehensive survey that had broad relevance and applicability. The

HPWG has been very sustainable and productive over the years, and the YHS has been an important contribution to their work.

> *"And just to let you know how successful it's been our Health Promotion Working Group is still in tact, still working, very productive, and we heard there is another Youth Health Survey and they asked for volunteers. The entire committee had volunteered to help. Everyone sees the value…everyone wants to be part of it because it's so valuable."* [Site D, Participant 3, 243]

The YHS data have been so valued by the HPWG that the group members have all committed to supporting the next round of YHS data collection.

The working groups that were developed in response to the Chronic Disease Prevention Initiative[8] (CDPI) pilot project also emerged as important external working groups for evidence-informed practice related to the YHS data. Site D is an important partner in this initiative and provides support to these working groups. Several staff members from Site D actively participate in the working groups. Similar to the Health Promotion Work groups, the Chronic Disease Prevention Initiative (CDPI) Communities (e.g., CDPI working groups) were very influential in raising awareness of the need for local surveillance data.

> *"I think it [CDPI working group] has a huge impact on the use of the evidence. Partly because it was one of those groups that…requested we get local area evidence. And then partly I think because we've seen one [CDPI working] group use it [YHS data] so extensively that other groups are just starting to follow suit. So they see…how one group is using it for their programming and so they think oh it must be good so we can use it too."* [Site D, Participant 1, 579]

The greatest contribution of Chronic Disease Prevention Initiative (CDPI) Communities (e.g., CDPI working groups) to evidence-informed practice has been the significant uptake

[8] The Chronic Disease Prevention Initiative (CDPI) is designed to help communities address the three major risk factors for chronic diseases, including smoking, physical inactivity, and unhealthy eating. The overarching goal of the initiative is to reduce the rate of chronic diseases in Manitoba through local partnerships, citizen engagement, and community development. The region that Site D serves has four pilot CDPI communities, which are referred to as CDPI working groups for the purposes of this project. Site D is a CDPI partner contributing significant resources through funding or in-kind resource support.

and use of the YHS data to inform their action plans. *"…the [YHS] information…has helped inform the plan for our chronic disease prevention communities, which is a pilot project…they need to develop plans of what they're actually going to do in their local community based on the risk factors"* [Site D, Participant 2, 163].

> *"…when we were starting our plans with CDPI, Chronic Disease Prevention Initiative… we looked at our youth [health] survey for plans for what we wanted to do in each of these communities around the youth. And we used that data to help us see gaps, see areas that we could improve on."* [Site D, Participant 4, 45]

One of the participants described how a CDPI working group had used the YHS data to inform activities in their community that address youth physical activity.

> *"…one of our Chronic Disease Prevention Initiatives they looked at the fact that girls activity declines when they enter senior years. And so what that group has done is they have planned a girl's night, girls only. No boys, no parents, it's just girls with some supervision. And some of the activities that they're planning was based on activities identified in the Youth Health Survey."* [Site D, Participant 4, 299]

The CDPI working groups have further contributed to evidence-informed practice related to the YHS data by engaging the local schools in activities related to the YHS data.

> *"…the principals at both schools got the Youth Health Survey, but we've talked about them at our CDPI [meetings] so we have um teacher from the elementary and a teacher from the high school come to those meetings. So they [YHS data] were shared initially and then from time to time we talk about them or we look at some initiative that has to do with the youth health survey…"* [Site D, Participant 5, 597]

> *"The CDPI [through Site D] provided money. And the school came onboard and they were just looking at at-risk kids who had decreases in physical activity, decrease in nutritional status and it opened the gym there after hours and on weekends to give kids a safe place to be physically active and then providing nutrition, snacks for these kids. So they used their [YHS] data where the kids were at, what was or wasn't happening and these…partners had come together to form form this program and they've all brought a little bit of money or…space from the school to develop programming."* [Site D, Participant 4, 443]

One of the CDPI working groups even collaborated with a local school to develop programming that was based on the needs identified in the YHS data.

It was not possible from the information provided in the interviews to determine the exact nature and evolution of these CDPI working groups. It was unclear how the CDPI working groups engaged their members and worked together to address the goals of the CDPI project. Furthermore, these groups did not naturally evolve; they were purposefully created as a result of the CDPI project in Manitoba. Due to these limitations, determining whether or not these working groups can be labelled as Communities of Practice cannot be established with any confidence.

Overall, the working groups that emerged from the analysis appeared to be an important facilitator of evidence-informed practice related to the YHS data. The working groups provided an important mechanism for staff at Site D to connect with the local schools and members of the community, providing valuable opportunities to share and utilise the data among groups where the YHS data was particularly relevant. The emergent theme of working groups was fairly interconnected to the core theme of 'access to YHS data', as the working groups raised awareness for the need of the YHS data, and in turn, the data was extensively shared and utilised among these working groups. This demonstrates the value of having 'access YHS data' with the interactive support of the working groups on evidence-informed knowledge use regarding youth physical activity.

5.16.4 Emergent Theme: *Organisational Support for Evidence-Informed Practice*

A final theme to emerge from the analysis as an important facilitator of evidence-informed practice at Site D was the organisational support for the use of evidence in their work. This support from the organisation emerged from the analysis in many different

forms. One of the most basic forms of this support was the expectation among staff to use evidence in their organisational planning.

> *"…you can't go ahead and plan without having some evidence, some knowledge of the population you're planning for…there's just kind of a common understanding across the organization to use evidence to support what you're doing in order to ensure that you're being effective. And I think it's proven it's worth because prior to having this information people were planning and just based on gut feeling or provincial information, but now when you have local data you can streamline or design a program for the target population based on what they're telling you."* [Site D, Participant 4, 227-231]

'Having access to the YHS' data is a valuable source of evidence for meeting this requirement and successfully planning for their population.

Organisational support for evidence-informed practice largely emerged from the analysis as the dedication of staff time and resources. For example, one of the positions at Site D has evolved into making research evidence available to staff to meet the increasing demand for relevant research.

> *"Well, well we're really on sort of the cusp as an organization for really using evidence in planning. It's really only been the last couple of years that my job [health information analysis manager] has kind of focused on providing evidence…when managers are are planning or reacting to things they will both use quantitative and qualitative information…my job is to have enough data there so that at least its on the table when they're making decisions."* [Site D, Participant 1, 231]

> *"Well we have a health information analysis manager…and all of that information, I mean she is the one who really saw that [YHS] process from beginning to end and she is kind of the collector of all information and analysis within our region; that's her job." [Site D, Participant 2, 211]*

This position also provided the necessary support for the successful collection and compilation of the YHS data. Overall, Site D has been very supportive of the YHS project. One of the Managers commented on how she had made the YHS project a priority for her

portfolio, and committed the necessary resources to make data collection and analysis possible.

> *"…I'm the vice president of a portfolio, I look at the resources I have within that and it [YHS] was done all within my portfolio. So I decided that for example [the YHS] was going to be a priority for that year and so we would put a lot of focus on that, then I would discuss that with my senior management team and then the whole process along the way was trying to find people to help us to do that externally."* [Site D, Participant 2, 243]

> *"…so there's got to be money to pay for the people to put in the time to find that right tool and tweak it and then implement…do meetings with the staff to sell it. You know what I mean, like with the schools."* [Site D, Participant 3, 741]

Another participant commented on how the organisation provided the funding necessary to support the YHS process, from developing the proper survey tools to meeting with the necessary partners to gain their support. This also demonstrates the interconnection between this emergent theme and the theme of Support from Partners and the role they play in supporting evidence-informed practice related to the YHS data. Site D has also provided funding to support their external partners in the uptake and use of the YHS data and feedback reports. *"Yes and we've spent a lot of time in you know different parts of our group on funding those you know those 'action items'[9] that help students"* [Site D, Participant 2, 127].

> *"…our health promotion budget we have a little bit of dollars to use in communities so they apply to us like with plans of where they you know we would subsidize their, whether it's in physical activity…to read their proposals, they quote, they'll quote parts of the Youth Health Survey."* [Site D, Participant 3, 249-253]

This additional funding has encouraged community groups and local schools to use the YHS data to inform their proposals and planning, further contributing to evidence-informed practice related to youth physical activity.

[9] The term 'action items' refers to the recommendations that are included in the YHS Feedback Reports that suggest potential activities based on the needs identified in the data.

The support that Site D provides for evidence-informed practice is further demonstrated by the extensive use of the YHS data across the organisation. *"Well I work in health promotion and it's [YHS] one of the basic tools we do for planning and, yeah, planning and just doing like a temperature check I guess of our communities"* [Site D, Participant 4, 37]. The YHS feedback report is continuously accessed and utilised by the staff at many different levels within Site D. *"We use it [YHS feedback report] all the time. Like it's a document that doesn't sit on the shelf. It's on our desk and we refer to it…all the time…we've used that data to help us establish a teen clinic in one of our communities…open gym nights…"* [Site D, Participant 4, 215]. *"…it's [YHS data] provided some information to our managers internally that they've been able to successfully go ahead with some programs…"* [Site D, Participant 1, 163]. It has even been utilised by the managers of Site D to support the development of their programs and services. Furthermore, the YHS data has become one of the organisation's basic tools for planning and monitoring the health of their youth population, also demonstrating the value of 'having access to the YHS data' (core theme). The staff at Site D have shared the data with the Board of Directors, which lead to the use of the YHS data to inform their Strategic Planning. *"…well we've presented this [YHS] information to our Board of Directors as well and we're going to be able to use this information as we're going through through some strategic planning exercises."* [Site D, Participant 1, 163]

> *"…organisational [use] is with our Board, Strategic Planning, we develop a five year Strategic Plan but each year it is reviewed and updated and that [YHS] data is presented to the board, and they use that in helping plan where the organisation is going."* [Site D, Participant 4, 199]

The use of the YHS data to inform the overall direction of Site D, further illustrates the organisational support for evidence informed practice and the importance of 'having access to the YHS data' (core theme) at Site D.

Finally, organisational support for evidence-informed practice, and the value of having access to the YHS data, is demonstrated through Site D's current plans to conduct another round of data collection.

> *"Widely useful. We had used it [YHS data] time and time and time again. And we're actually in a process of planning to resurvey in the spring of 09, so that we will not only have baseline data but also some time trend data to include in our next comprehensive community health assessment which is due in September of 09."* [Site D, Participant 5, 83]

> *"… the XXX Regional Health…I think they view it as a very valuable tool. It's supported the request to redo the survey and it's going to be redone in 2009. The XXX uses this data for our strategic planning with our board. And XXX [Site D] has also been a leader in the province…And the fact that our organisation shared this with other RHAs." [Site D, Participant 4, 83]*

This also illustrates the importance of using the YHS data in their work. As a result of this opportunity for future data collection, Site D has continued to dedicate staff time to the YHS project to identify potential gaps in the YHS data and survey tools.

> *"I think right now because we're redoing it so we've just started to meet, and we're looking at what happened last time, I think that there's a number of other questions that we need, or answers that we need to get at to help us. For example physical activity declines in senior years. Is it because kids have jobs, have other responsibilities, transportation to get to activities, more of the after school activities, is that the issue or is it just kids don't want to do it? So you see the decline but we can't get at the reasons why."* [Site D, Participant 4, 171]

Utilising organisational resources to ensure more in-depth data collection will further support evidence-informed practice at Site D. This also supports Site D's achievement of Renewal on the KUU scale, where staff have modified the YHS tools to achieve a greater impact on their programs, services and local population (Hall et al., 1975).

This emergent theme of Organisational Support for Evidence-Informed Practice is a very important factor influencing evidence-informed knowledge use regarding youth physical activity at Site D. This organisational support emerged in many forms, including the expectation to utilise evidence, the dedication of organisational resource to YHS, and the extensive use of the YHS data on many levels of the organisation. This emergent theme is significantly interrelated with the core theme of having Access to YHS Data. In order for Site D to have access to YHS data, the organisation needed to provide the necessary support to collect that data. The wide uptake and use of the YHS data throughout Site D demonstrates the organisation support for evidence-informed practice and the value that Site D places on having access to YHS data. Having access to YHS data along with organisational support to utilize the data are important factors contributing to evidence-informed practice regarding youth physical activity at Site D.

5.17 Summary

Having access to YHS data is the most important factor (e.g., the core theme) contributing to evidence-informed practice at Site D. Support from the various partners at Site D have been important for the collection and analysis of the YHS data, and for subsequent initiatives that encourage the uptake and use of the data. Similarly, the various working groups that staff from Site D are involved in have also been instrumental to the collection and subsequent use of the YHS data. Finally, the organisational support from Site D for evidence-informed practice provided the necessary resources to collect to YHS data and support work that utilises the data. The three emergent themes provided support in order to have access to the YHS data, and they also encouraged the uptake and use of the data. The themes to emerge

from the analysis are highly interrelated, greatly contributing to evidence-informed practice regarding youth physical activity at Site D.

5.18 Cross Case Comparison

The analysis for each public health organisation identified many themes that played an important role in evidence-informed practice regarding youth physical activity. In order to further understand these themes and how they are interrelated, a cross case comparison was conducted. The cross case analysis examined the dominant similarities and divergences of the themes across the four public health organisations in this study. There were varying levels of knowledge use across the four public health organisations, which provide further insight to the role of these themes on evidence-informed knowledge use. The table below summarizes the core and emergent themes of the four public health organisations, along with the corresponding number of knowledge use levels achieved on the Knowledge Uptake and Utilisation Scale.

Table 3: Summary of Core and Emergent Themes by Site (with Levels of Knowledge Use)

Site A (6 Levels of KU)	Site B (4 Levels of KU)	Site C (3 Levels of KU)	Site D (6 Levels of KU)
Access to SHAPES Data*	Access to SHAPES Data	**Access to SHAPES Data***	**Access to YHS Data***
SHAPES Engages Relevant Partners	**Working Relationship with School Boards***	SHAPES Supports Partnerships with Schools	Support from Partners
Working Groups	Working Groups	Working Groups	Working Groups
Formal Partnerships with Schools	Knowledge Brokers	Organisational Support for Evidence-Informed Practice	Organisational Support for Evidence-Informed practice

*Bolded themes were identified as the Core Themes

It is important to note that the there is no hierarchy in the arrangement of the core and emergent themes in the table. The themes have been organised to highlight the similarities that emerged across the Sites. There are three overarching themes that consistently emerged across all four of the Sites, including Access to SHAPES/YHS Data, the role of Partnerships, and the presence of Working Groups. There is a particularly strong consistency of Access to SHAPES/YHS Data, as it emerged as the core theme for three of the four Sites.

5.18.1 Relating Themes to a Framework of Knowledge Use

As previously discussed, the guiding framework for this thesis project has been Manske and Leithwood's Knowledge Utilisation Conceptual Framework. This framework identifies three domains that either directly or indirectly influence instrumental and conceptual forms of knowledge use, including *Characteristics of the Source and Information*, *Characteristics of the Context for Use*, and *Interactive Processes* (Manske, 2001). Despite the grounded nature of the analysis, each of the core and emergent themes identified can be situated within one or more of Manske's Framework domains.

More specifically, Access to SHAPES/YHS Data consistently emerged across four different contexts of use, and was identified as the core theme for three of the four Sites. This theme falls within the *Characteristics of the Source and Information* domain of the Framework. It is important to note that the SHAPES and YHS data are very comparable sources of evidence. Both are considered local surveillance data that have been collected from secondary school students regarding their physical activity and tobacco use behaviours. Across all four of the Sites, staff commented on the local nature of the SHAPES/YHS data to their youth population. The local nature of the data emerged as a very important

characteristic, which made it particularly valuable to their work in public health. The analysis of this theme further revealed many important elements of the SHAPES/YHS data that have been identified in Manske's Framework as important *Characteristics of the Information* for knowledge use. Participants across all four Sites considered the SHAPES/YHS data to be very *Relevant* and *Timely* to their work. There was also sense of *Credibility* among Sites A, B and C, as the SHAPES data comes from University of Waterloo. The strength and consistency of this theme across the different contexts indicates the fundamental role that the Characteristics of Information and Source domain for knowledge use.

Another strong consistency across the four public health organisations was the role of Partners. The particular nature and influence of these partners varied across the different contexts, but were found to be an important facilitator of evidence-informed knowledge use of the SHAPES/YHS data. In general, these partnerships allowed for collaboration, information, and joint initiatives that facilitated the uptake and use of the SHAPES/YHS data. Considering these interactive elements of the partnerships, this theme is most appropriately situated within the *Interactive Processes* domain of Manske's Framework.

The final consistent theme to emerge across four of the contexts was the presence of Working Groups. Once again, the structure and level of involvement of the participants in these working groups varied across the Sites, but in each context, working groups provided an important social environment that encouraged the uptake and use of the SHAPES/YHS data. In some of the cases these working groups demonstrated many of the characteristics of Communities of Practice, which have been previously identified as an important *Interactive*

Process for knowledge use (Manske, 2001). As such, these working groups are most appropriately placed within the *Interactive Processes* domain of Manske's Framework.

Despite the grounded nature of the analysis, there were very few themes that were unique to individual Sites. The theme of Organisational Support for Evidence-Informed Practice emerged at Site C and D. This emergent theme captured many of the *Characteristics of Context for Use* from Manske's Framework, including the dedication of *Resources* and an organisation *Commitment* to utilise evidence in their work (Manske, 2001). Only one emergent theme was unique to an individual Site that did not capture similar elements to the other themes. This emergent theme of Knowledge Brokers from Site B provided an important social link that encouraged evidence-informed knowledge use of the SHAPES/YHS data. As such, this emerging theme is most appropriate in the *Interactive Processes* domain of the Framework (Manske, 2001).

Through this process of examining the core and emergent themes within the Framework, it became apparent the value of having elements from each of the three domains for evidence-informed knowledge use. All three of the domains in Manske's Framework were represented in some capacity through one of the emergent or core themes, particularly *Characteristics of the Source and Information* and *Interactive Processes*. The core and emergent themes will be discussed in further detail in Section 5.18.3 and 5.18.4.

5.18.2 Comparing KUU Scores across Sites and Themes

As demonstrated by the Table above, Site A and Site D achieved six levels of knowledge use on the KUU scales, while Site B and C achieved four and three level of knowledge use respectively. Sites A and D even achieved the same six levels of knowledge use on the KUU scale, which will be further explored throughout this section. A comparison

across the organisations revealed that Site A, C and D had fairly consistent themes. Most notably, all three Sites had Access to SHAPES/YHS Data as their core theme. Considering the consistency across these three Sites in terms of their themes related to evidence-informed knowledge use, it is interesting to observe the lack of consistency in their overall KUU scale scores. Exploration beyond the interview transcripts was necessary to attempt to understand and explain this disconnect. Through personal conversations with Steve Manske, who has had extensive experience working with each of these organisations, and an understanding of knowledge use, it was possible to glean potential explanations for these conflicting observations.

Firstly, while all three Sites had Access to SHAPES/YHS data, staff at Site A and D had extensive *Previous Experience* and *History of Prior Knowledge Use* with the data compared to the staff at Site C. *Previous Experience* and *History of Prior Knowledge Use* have been identified as important personal characteristics of the user for knowledge use (Manske, 2001). Site A collected SHAPES data, prior to the SHAPES-Ontario project, in 2004[10] to evaluate their comprehensive school based tobacco program. Not only does this indicate Site A's extensive *Previous Experience* and *History of Prior Knowledge Use*, but it also demonstrates the ambitiousness of the staff at Site A to identify a means to collect local evidence, necessary to inform the programs and activities of the organisation. Site D has similar *Previous Experience* and *History of Prior Knowledge Use*, as the staff at Site D also took the initiative to identify the resources and tools necessary to collect local youth surveillance data, in order to address an identified need for surveillance data in their region. Through collaboration with external partners, Site D was able to develop surveys comparable

[10] Site A collected SHAPES data in 2004, using only the tobacco modules of SHAPES, in order to evaluate their comprehensive school-based tobacco cessation program.

to SHAPES (using many of the validated questions from the SHAPES physical activity and tobacco use modules), collect, analyze and compile the data. Site D collected the data in 2005 and is currently preparing to collect a second round of data in 2009. Compared to Sites A and D, the staff at Site C have had very limited *Previous Experience* or *History of Prior Knowledge Use*. Site C had only begun to work with the SHAPES data months prior to their interviews for this project, as their SHAPES data was collected in 2007. Considering that staff at Sites A and D had more experience and felt more comfortable utilising the SHAPES/YHS data compared to staff at Site C, provides further insight into the higher number of knowledge use levels achieved on the KUU scale (Manske, 2001).

Another factor to consider is that staff at Sites A and D have greater access to resources for conducting, interpreting, and utilising research. Availability of *Resources* considers the capacity of the organisation in terms of time, money and staff, and has been identified as an important characteristic of the context for knowledge use (Manske, 2001). Site A is a PHRED Health Unit[11]. As a result, Site A collaborates with post secondary institutions in the area to conduct research, providing the organisation with additional resources and support for evidence-informed practice. Site D has access to significant research resources and support through a group within the Manitoba Division of the Canadian Cancer Society (CCS). For example, the CCS supported the collection and analysis of the YHS data. Site C is a very small organisation compared to Sites A and D. Furthermore, Site C does not have the organisational capacity of a PHRED health unit nor the comparable support from external partners. Manske's Framework (2001) stipulates that

[11] The Public Health Research, Education & Development (PHRED) program involves boards of health (Health Unit), health science programs of Ontario universities and colleges and the Ministry of Health and Long-Term Care. The program contributes to health promotion, protection and prevention in Ontario by conducting research related to public health practice.

if an organisation has limited resources, instrumental knowledge use is often hindered. This provides support for the above speculation, where the greater levels of knowledge use achieved by Sites A and D can be attributed to the fact that they have greater resources for evidence-informed knowledge use compared to Site C.

Sites B and C have fairly similar scores on the KUU scale, scoring four levels of knowledge use and three levels of knowledge use respectively. While not definitive, potential explanations for why Sites B and C may have had lower scores on the KUU scale compared to Sites A and D are as follows. First Sites B and C are much smaller organisations, with approximately half the number of employees compared to Sites A and D. As a result, they had fewer positions with the expertise to interpret the data and work collaboratively to identify initiatives or activities that utilise the data. Furthermore, compared to Sites A and D, Sites B and C have had limited *Previous Experience* and *History of Prior Knowledge Use* with the SHAPES data, as Sites A and D were the leaders and initiators to collect SHAPES/YHS data. Where Sites B and C differ is in the themes that emerged from the analysis at each Site, which will be discussed in further detail in section 5.18.3, and their achievement of Renewal on the KUU scale. Site B achieved Renewal on the KUU Scale, where Site C did not. Renewal is the highest level of knowledge use on the KUU scale, where users re-evaluate the quality of the SHAPES data and seek modifications to have an increased impact on the target clients (Skinner, 2007). Site C likely did not achieve Renewal, as the staff had access to their SHAPES data for a much shorter period of time leading up to their interviews compared to the staff at Site B. As previously discussed, Site C collected their SHAPES data in 2007 and had access to the data only months before their interviews, where Site B had collected their data in 2005. Once Site C has had more

time and experience working with the data they will likely begin to evaluate the SHAPES data and its ability to have an impact on their clients.

5.18.3 Comparison of Core Themes across Sites

As previously discussed there was a striking consistency of the core theme, Access to SHAPES/YHS Data, across three of the four organisations. Within this core theme emerged specific characteristics of the SHAEPS/YHS data that further elucidated why the data were so valued and widely used among the staff across these three contexts. The most prominent characteristic of the SHAPES/YHS data across all three Sites was the *Relevancy* of the data. The data were relevant on many different levels and to many different stakeholders. Staff from all three contexts mentioned the relevance of the SHAPES/YHS data to their student population and the programs and services offered by the organisation, particularly school-based programming. At an even broader level the SHAPES/YHS data had relevance across two Provincial contexts. In Ontario, staff from Site C mentioned the relevance of the SHAPES data to the Healthy Eating Active Living Strategy, and staff from Site D highlighted the relevance of the YHS data to the three pillars of health and the Manitoba Physical Education Policy. The data were also relevant to staff at many levels within each of the organisations, including frontline and management staff. Related to the relevance was the *Timeliness* of the SHAPES/YHS data due to the current global issues concerning childhood obesity and physical activity.

Another important characteristic of the SHAPES/YHS data that emerged across all three transcripts was the unique, local nature of the data. It was often the local nature that gave SHAPES/YHS a *Relative Advantage* over other sources of evidence that were not as specific to their regions. Having Access to SHAPES/YHS Data was particularly valuable, as

there was demand for local evidence in their work and among their partners for local data. Staff from all three Sites demonstrated a *Relative Advantage* towards the SHAPES/YHS data, which is an important *Characteristic of the Information* for knowledge use (Manske, 2001).

Unlike these three Sites, having Access to SHAPES Data was not the most important factor contributing to evidence-informed knowledge use related to youth physical activity at Site B. Rather, the core theme to emerge was the Working Relationship with the School Boards. It is important to acknowledge this difference and explore potential explanations. Firstly, the primary outlet for utilising the SHAPES data at Site B was with the local schools. In order to engage the schools throughout the SHAPES project, Site B needed to receive school board approval and support. The positive working relationship with the board facilitated Site B in approaching the school board about the SHAPES project, allowing staff to demonstrate the relevance and importance of the SHAPES data to board work and their schools. Considering that board buy-in was essential for the success of the SHAPES project and use of the data, staff at all levels of Site B who were involved in the SHAPES project valued this working relationship. Finally, even though Access to SHAPES Data was not the core theme at Site B, the SHAPES data still emerged as an important theme for facilitating evidence-informed practice, as it was found to be an effective way to engage the schools and further support the Working Relationship with the School Boards. Access to SHAPES Data was valuable for engaging the schools for many of the same reasons identified at the other three Sites, including the relevance to school-based programming, and the fact that the school boards view the SHAPES data as a *Credible* source of information.

The Working Relationship with the Schools Boards would have had similar implications at Sites A and C. However, the process by which each public health organisation engages their boards of education and local schools differs. As such, the nature of this relationship and the value placed on it depends on the context and the process of engagement. This may explain why the Working Relationship with the School Board was more important to evidence-informed knowledge use at Site B, compared to Sites A and C. Also, two of the participants interviewed from Site B are required to work with the schools and school boards in their position; therefore, they would particularly value the Working Relationship with the School Boards. The engagement of the school boards and/or the schools did emerge an important factor contributing to the uptake and use of the SHAPES data at Site A (e.g., SHAPES Engages Relevant Partners) and Site C (e.g., SHAPES Supports Partnerships with Schools). This was not the case for Site D, which could be related to the fact that public health is not mandated to work with education in Manitoba. Furthermore, much of their work related to the YHS data and evidence-informed practice related to youth physical activity was in collaboration with local community groups, rather than the schools.

5.18.4 Consistency and Contrast among Emergent Themes

As previously discussed, all four Sites had emergent themes related to Partnerships and Working Groups. While these were not core themes, the consistency of these themes across four different public health contexts is noteworthy and warrants further exploration and interpretation. The particular nature and characteristics of these Partnerships and Working Groups varied across the contexts. Therefore, the remainder of this chapter will focus on the role of partnerships and working groups on evidence-informed knowledge use related to youth physical activity.

Firstly, the partnerships that emerged across Sites A, B and C were specific to their local schools and school boards. This is largely due to the fact that in each of these contexts, evidence-informed knowledge use at the school level was the primary outlet for utilising the SHAPES data. These partnerships were uniquely characterized within each Site, but overall, the partnerships were valuable to evidence-informed practice, as they ensured collaboration and information sharing with their local schools and school boards. Site A has a formal partnership established with one of their school boards and engages the other three schools boards through their school liaison. Site B has a positive working relationship with their school boards (e.g., core theme) and also has positions within the organisation that provide a similar link to their school boards as the liaison at Site A (e.g., Knowledge Brokers theme). Both Site A and B have some form of an established relationship or process to engage their school boards, which has been very valuable to their daily work, and particularly to the SHAPES project.

Unlike Sites A and B, the relationship between Site C and their local schools boards did not have this same formalized or established nature. Rather, the SHAPES project provided an important opportunity to engage and build relationships with their local school boards and schools. Site C was able to connect with the decision-makers of the schools boards, as a result of the SHAPES data. This led to joint dialogue between public health and education to better understand each other's priorities, which is an important characteristic of collaborative partnerships. The opportunity to engage the school board through the SHAPES project also emerged at Site A, but considering the established nature of that partnership, the extent to which they engaged the schools regarding the SHAPES data was much greater and broader (e.g., superintendents, principals and students) than that of Site C. Site C also has

school assignments (e.g., public health nurses are assigned to schools based on geographic location), which provide a comparable link to the schools, as the liaisons and knowledge brokers of Sites A and B respectively. These schools assignments emerged as an important link between Site C and the individual schools for sharing the SHAPES data.

Both Site A and C found that engaging the schools and school boards through the SHAPES data had a direct impact on the uptake and use of the SHAPES data. Not only did it increase their awareness and understanding, but it also encouraged the schools to take an active role in addressing the SHAPES data. In the case of Sites A and C, the SHAPES data (e.g., *Information)* provided an important way of engaging their relevant partners (e.g., *Interactive Processes*), which ultimately encouraged the uptake and use of the SHAPES data (e.g., *Knowledge Utilisation*). This demonstrates the reciprocal influence of *Information* and *Interactive Processes* of the partnerships on *Knowledge Utilisation* (Manske, 2001). Specifically, the SHAPES data have been an important source of information to engage the school boards and schools, as it is *Relevant* to the priorities of both public health and education.

Finally, the theme of Partnerships at Site D differed from the other three Sites, as the partners involved were not limited to those in education and the role that these partners played throughout the YHS project was much more involved and broader. This is largely related to the fact that Site D took the lead developing a system to collect YHS data, whereas the other three Sites were given the opportunity to collect SHAPES data through a system that was already created by the University of Waterloo. The partners of Site D were essential for the entire process of the YHS project, from the creation of the survey tools to the uptake and use of the YHS data. The involvement of these partners (e.g., *Interactive Processes*) was

largely driven by the value they saw in having access to local data (e.g., *Information*). In turn, these partnerships were important to the uptake and use of the YHS data (e.g., *Knowledge Utilisation)*. Once again, there is a reciprocal influence of the *Information* and the *Interactive Processes* of the partnerships on *Knowledge Utilisation*, similar to what was found in the partnerships of Sites A and C (Manske, 2001). Finally, another explanation for why there was less of a focus on education partnerships at Site D could be related to the fact that Manitoba Regional Health Authorities (e.g., Site D) are not mandated[12] to do school-based programming like Ontario public health.

While there were some differences in the nature of these partnerships and the processes of engagement, there were some similarities across the contexts that are worthwhile noting. The following table summarizes the most salient characteristics of partnerships that facilitated evidence-informed knowledge use related to the SHAPES/YHS data. The characteristics included in the table were those that emerged across more than one Site.

[12] Manitoba Regional Health Authorities are not governed by a mandate that specifically requires them to do school-based programming, but they are mandated to work with relevant stakeholders, which would include education.

Table 4: Characteristics of Partnerships Across Sites

Characteristics of Partnerships Across Sites
• Regular and efficient interaction (*Interactive Processes*) (Site A, Site B). • Access and interaction with other important partners (e.g., individual schools and students) (*Interactive Processes*) (Site A, Site B). • Upper-management involvement and buy-in from both public health and education (*Interactive processes*) (Site A, Site B). • Formalized positions that provided a link between public health and education (*Characteristics of Context*) (Site A, Site C). • Champions within the schools (*Characteristic of Context)* (Site B, Site C) • Joint initiatives (*Interactive Processes*) (Site B, Site C, Site D)

The ultimate outcome of these partnerships was the uptake and use of the SHAPES/YHS data (*Knowledge Utilisation*). As the table demonstrates, many of the characteristics of the partnership that emerged encouraged interaction with the schools through many outlets and on many levels. Considering that the many common characteristics were related to connecting public health and education, Site D was not represented in the table. As previously discussed, the partnerships that emerged from Site D were not specific to those in education and the activities that they engaged in were much broader than those from the other three Sites. The characteristics of the partnerships from Site D that made them particularly important to evidence-informed knowledge use related to the YHS data largely involved joint initiatives around the different stages of the YHS project. Finally, the table also categorizes the characteristic into the domains of Manske's Framework. These partnerships demonstrate characteristics that are related to *Interactive Processes* and *Context for Use*, confirming their importance and reciprocal influence on *Knowledge Utilisation* (Manske, 2001).

Working Groups was the other common theme to emerge across all four of the Sites. The primary characteristic that differentiated the working groups across the four public health organisations was whether or not they were internal or external to the organisation. For the purposes of this discussion, working groups that simply involve individual staff members from one specific Site are considered internal working groups, and working groups that involve individuals from that Site and external to that Site are considered external working groups. Both Site A and C have internal working groups that were found to be an important interactive process for evidence-informed practice related to youth physical activity. Site A developed a working group that was specific to the SHAPES project that involved all the staff at Site A that had some role in SHAPES. Initially, Site C did not have a SHAPES specific working group, but an internal 'school committee' working group (*Interactive Processes*) has been recently developed at Site C as a result of having Access to SHAPES Data (*Information*). This is similar to Site B, where having Access to the SHAPES Data (*Information*) encouraged the development of an external working group (*Interactive Processes*) with their school boards. This working group has been an effective way for Site B to involve the school boards in evidence-informed practice related to youth physical activity. The working groups at Site B and C demonstrate the reciprocal influence of the *Information* and *Interactive Processes* on knowledge use (Manske, 2001). Finally, Site D has several external working groups, two of which were found to be particularly valuable for engaging their local schools and communities.

Comparing across the internal and external working groups at each Site identified many common benefits of these working groups. The following table highlights the most characteristics of working groups that facilitated evidence-informed knowledge use related to

the SHAPPES/YHS data. The characteristics included in the table were those that emerged across more than one Site.

Table 5: Characteristics of Working Groups Across Sites

Characteristics of Working Groups Across Sites
• Information sharing (*Interactive Processes*) (Site A, Site C, Site D)
• Awareness of other relevant initiatives (*Interactive Processes*) (Site A, Site D)
• Sustained interaction over time (*Interactive Processes*) (Site D, Site B)
• Engage and gain support from relevant stakeholders and partners (*Interactive Processes*) (Site A, Site B, Site D)
• Involving all relevant stakeholders and key players across the organisation (*Interactive Processes*) (Site A, Site B)
• Constant and informal interaction (*Interactive Processes/Mutual Engagement*) (Site A, Site C)
• Decision-making capacity (*Interactive Processes/Joint Enterprise*) (Site A, Site B)
• Focus on joint goals (*Interactive Process/Joint Enterprise*) (Site A, Site B, Site C)
• Focuses initiatives (*Interactive Processes*) (Site A, Site C, Site D)
• Ensure that they follow through with initiatives (*Interactive Processes*) (Site A, Site C, Site B)

Similar to the partnership, the ultimate outcome of these working groups was the uptake and use of the SHAPES data. The table categorized the characteristics into the domains of Manske's Framework. It is clear from the table that the characteristics of the Working Groups across the four contexts are largely *Interactive Processes*, demonstrating the value of this domain of Manske's Framework (2001) for evidence-informed knowledge use. In many of the cases, the working groups allowed staff at the Sites to engage in discussions and joint initiatives regarding the SHAPES/YHS data. These working groups would often take advantage of their access to SHAPES/YHS data, further encouraging the uptake and use of

the data across the organisation. Similar to the partnership that emerged, these working groups demonstrate the value of the SHAPES/YHS data (*Information*) in combination with the interaction of working groups (*Interactive Processes*) on evidence-informed knowledge use regarding youth physical activity (Manske, 2001). The many common characteristics of working groups across the four contexts may imply that there are no significant differences of internal versus external working groups in terms of their influence on evidence-informed knowledge use. Overall, it appears that it is important to engage all relevant stakeholders, through *Interactive Processes,* to address the joint goals of the working group.

The analysis also distinguished some of the working groups as Communities of Practice. Due to the limited information provided in the interviews, it was not always possible to understand how some of the working groups came together and how they evolved to engage members in joint enterprise and shared repertoire. As such, it was not always possible to identify whether or not a working group was a Community of Practice. Working groups were found to be an important influence on evidence-informed practice related to youth physical activity, whether or not they demonstrated the defining characteristics of a CoP.

Overall, the underlying elements of the Partnerships and Working Groups across the contexts were the *Interactive Processes*. Through the interactive processes of the working groups and partnership, the Sites were able to collaborate and engage with important stakeholders for the uptake and use of the SHAPES/YHS data. The comparison and consistency across Sites reveals that Partnerships and Working Groups are important *Interactive Processes* facilitating evidence-informed knowledge use (Manske, 2001).

6 Discussion

6.0 Overview

The increasing prevalence of childhood obesity and the future implications on the health care system have resulted in the dedication of significant government dollars for public health initiatives that address these concerns (Merrifield, 2007). Considering this, and the increased accountability, public health practitioners must be able to acquire and utilise the best available research evidence to inform effective and efficient initiatives to increase physical activity and reduce childhood obesity (Naylor, Macdonald, Reed, & McKay, 2006; Intersectoral Healthy Living Network, 2005; Lomas, 2000). While there is a large body of research that has increased our understanding of the factors influencing the knowledge use process (e.g., Bonin, 2007; Manske, 2001), there is still a need for greater support with respect to the implementation of evidence-informed policies and practices in public health (Medlar et al., 2006; Mendelson, 2007; Morrison et al., 2007). The findings of this thesis project have contributed to our understanding of the knowledge utilisation process in public health, the value of interactive processes, and their reciprocal relationship with other factors in the knowledge utilisation process. This study further provides valuable implications for practice and interventions designed to encourage the uptake and use of evidence among public health practitioners.

6.1 Revisiting the Research Question

The research question guiding this thesis project attempted to explore and build understanding of the interactive support provided through the SHAPES-Ontario Knowledge Exchange Extension (KE Extension) on evidence-informed knowledge use concerning youth

physical activity in public health. The overall goal of the KE Extension is to establish relationships among researchers from the University of Waterloo (UW) and participating Ontario Public Health Units to capitalize on the opportunities provided by the SHAPES-Ontario Project to translate the research findings into practice. The research question further defined interactive support of the KE Extension as consisting of three components: a) Collaborative Partnership (e.g., relationship between UW and each individual Ontario Public Health Unit), b) Community of Practice (e.g., interaction among public health practitioners from all of the Ontario Public Health Units and researchers from UW), and, c) presence of a Knowledge Broker (e.g., facilitates communication between public health staff and researchers from UW). The analysis of the two intervention public health organisations (Sites A and B) that are involved in the KE Extension, revealed only minimal influence of the KE Extension. While participants from Site A and B were asked questions that directly probed at the influence of the KE Extension on evidence-informed practice (e.g., *How has the CoP facilitated your use of SHAPES evidence? How has the KE Extension/CoP contributed to evidence-informed practice in the health unit?*), their responses did not reflect much of an influence. In many cases, participants were unable to comment on the influence of the KE Extension, which was largely related to their lack of personal involvement with the KE Extension (i.e., CoP teleconferences, face to face meetings).

While the interactive support specific to the KE Extension did not emerge as a theme from either Site A or B, all four of the Sites had themes where *Interactive Processes* were the underlying element. In fact, those themes where interactive processes were central, often resembled those of a collaborative partnership (e.g., partnerships between schools and public health), communities of practice (e.g., working groups), and knowledge brokers, but were not

specific to the KE Extension. It is important to acknowledge the emergence of these themes in terms of the research question, as they allow for a greater understanding of the role of interactive processes for evidence-informed knowledge use. These themes can also provide insight as to why the support of the KE Extension may not have had a visible influence. Furthermore, they can offer suggestions for future interventions that also aim to establish relationships for evidence-informed knowledge use.

The Collaborative Partnership of the KE Extension did not emerge from the analysis; however, partnerships did emerge as an important theme across all four Sites. A common characteristic of these partnerships was the involvement of the intended users of the SHAPES/YHS data. In the case of Sites A, B and C the partnerships often involved the local school boards, as this was the primary outlet for utilising the SHAPES data. At Site D, the partnerships involved many of their local community partners plus the schools. This implies that partnerships that focus on involving stakeholders from the intended user population are particularly important for evidence-informed knowledge use related to the SHAPES/YHS data. This is understandable considering that the literature largely identifies partnerships and interaction with the end users as being particularly influential for the translation of research into practice (Davis, Nutley & Walter, 2005; Lavis, Ross, McLeod et al., 2005; Weiss, 1979). This was also the intent of the Collaborative Partnership of the KE Extension but this was not necessarily achieved. Furthermore, many of the partnerships that emerged from the analysis at Sites A and B were focused on specific initiatives to utilise the SHAPES data, and subsequently involved activities that lead to knowledge use (e.g., relevance to both partner and appropriately resourced).

Considering that the literature has frequently reported that the most common barriers to research use is the limited resources for collecting and evaluating research and being able to access high-quality evidence, it is interesting that the Collaborative Partnership with UW really did not emerge from interviews with Site A and Site B (Jewell & Bero, 2008). It was through this partnership that Site A and B were able to have Access to the SHAPES data that they valued and the literature supports the value of this access (Jewell & Bero, 2008). A potential explanation for why the partnership between UW and Site A and B did not emerge from the analysis may be related to the fact that both Site A and B have large organisational capacities for research, as both Sites have PHRED[13] departments. As such, staff at these Sites have quick and easy access to relevant research and resources for research. In public health organisations that do not have access to research and statistical expertise internal to their organisation, the partnership with UW may have been more influential on evidence-informed practice related to youth physical activity.

Similar to the Collaborative Partnership, the analysis did not indicate an influence of the KE Extension Community of Practice on evidence-informed knowledge use at Site A and B. Working groups did emerge across all four Sites as an important influence. In some of the cases, the working groups that did emerge had many of the defining characteristics of a Community of Practice. The analysis indicated that whether or not a working group could be characterized as a Community of Practice (e.g., mutual engagement, joint enterprise, shared repertoire) did not influence their effectiveness on evidence-informed knowledge use. This is congruent to findings from other studies, where the researchers have argued that a CoP is comparable to networks or multidisciplinary teams (Gabbay, LeMay, Jefferson, et al., 2003;

[13] The Public Health Research, Education & Development (PHRED) program involves boards of health (Health Unit), health science programs of Ontario universities and colleges and the Ministry of Health and Long-Term Care. The program conducts research related to public health practice.

Iedema, Meyerkort & White, 2005; Norman & Huerta, 2006). Furthermore, the elusiveness and lack of consistency in the CoP literature makes it challenging to identify, implement and evaluate communities of practice. Therefore, it may be worthwhile to focus on supporting the positive characteristics of working groups that emerged from the analysis, such as information sharing and constant and informal interaction, rather than trying to achieve mutual engagement, joint enterprise and shared repertoire.

Considering that many of the characteristics of the working groups from the analysis are also true of the KE Extension CoP begs the question of why the KE Extension CoP may not have emerged from the analysis of Site A and B. There are some characteristics unique to the KE Extension CoP that may explain the minimal influence of the KE Extension CoP on evidence-informed practice at Site A and B. Firstly, the CoP was purposefully formed by the University of Waterloo for the purposes of the KE Extension. According to Lave and Wenger (1991) a Community of Practice cannot be purposefully formed by an organisation. This was contradicted in future work (e.g., Wenger, McDermott & Snyder, 2002), which found that organisations can cultivate CoPs to enhance their productivity. Based on this, it is unclear from the literature whether this purposeful coming together of the KE Extension CoP is truly a limitation.

The KE Extension CoP was able to successfully meet on a monthly basis for approximately one hour over the phone from February 2006 to October 2008. Although, a major limitation was the fact that between these teleconferences there was minimal communication, if any, across the participating health units and with UW. This lack of informal interaction among the members of the KE Extension CoP is a significant hindrance to the success of the KE Extension CoP, as the commitment to informal interactions and

social environment is critical for advancing ideas and skills for knowledge use (Lave & Wenger, 1991; Brown & Duguid, 1991; Conklin, Stolee, Luesby, Sharratt & Chambers, 2007). Furthermore, one of the key characteristics of the Working Groups that emerged from this thesis analysis of the four Sites was the constant and informal interaction.

The level of involvement from each health unit in the KE Extension CoP may also provide insight into the lack of influence of the CoP on evidence-informed practice at Site A and B. Typically only one staff member from each health unit would participate in the CoP teleconferences. It was often the primary contact[14] from each health unit that participated in the CoP teleconferences, but even this was not consistent over time. As a result, any benefits of the KE Extension CoP, such as learning about what other health units were doing with the SHAPES data, may not have necessarily transferred back to the other secondary contacts at the health unit involved in the KE Extension. This offers further understanding as to why the staff members at Site A and B were not able to comment on the influence of the KE Extension CoP. Furthermore, there had been turnover in the KE Extension Knowledge Broker on two occasions since the beginning of the KE Extension. While the involvement of new members into a community of practice has been found to facilitate the development and productivity of the CoP, the KE Extension CoP did not provide the necessary support to newcomers, such as documentation of CoP activities or mentoring from experts, necessary for these individuals to feel apart of the community (Wenger, 1996; Wenger & Snyder, 2000). Due to the high levels of inconsistency and flux of members in the KE Extension CoP, both from the individual health units and from UW, there did not seem to be adequate

[14] Each Health Unit participating in the KE Extension has an assigned primary contact. The primary contact essentially serves as the link for the secondary contacts within each health unit to the KE Extension. The main distinction between a primary contact and secondary contact for the KE Extension is that a primary contact agreed to be interviewed four times over 18 months and secondary contacts agreed to be interviewed two times over 18 months.

opportunity to build strong relationships among members that are essential for a CoP to evolve and be productive (Wenger, 1996; Wenger & Snyder, 2000). Furthermore, these conditions also question whether labelling this groups as a CoP is appropriate. The KE Extension Knowledge Broker took on the role of the facilitator of the CoP, but considering the majority of the other members of the CoP were not mutually committed and engaged in the activities questions whether the group is truly a CoP.

As previously mentioned, the KE Extension Knowledge Broker was responsible for organising the activities of the CoP, bringing the members together, and leading the teleconference. The role of the Knowledge Broker within the CoP resembled that of a *facilitator* (Wenger et al., 2002). While the role and extent of support that these facilitators provided varied across studies, one study found that facilitator fatigue resulted in the breakdown of Communities of Practice (Pereles, Lockyer & Fidler, 2002). The changeover in the KE Extension Knowledge Broker may have had a similar effect on the CoP in terms of the loss of momentum of the group. The interviews with staff from Site A and B occurred during this period of time where the CoP did not meet for the monthly teleconferences, which may further explain the lack of observable influence of the KE Extension CoP at Site A and B. The literature has not yet identified the consequences of changeover in a CoP leader/facilitator and the influence this has on the productivity and effectiveness of the CoP.

Similar to the Collaborative Partnership and Community of Practice, the KE Extension Knowledge Broker (KB) did not emerge as an important factor influencing the uptake and use of the SHAPES data at Sites A and B. One of the emergent themes at Site B was the role of Knowledge Brokers within the organisation who were intended to provide a link between Site B and the local school boards. There were specific characteristics that

differentiated the Knowledge Brokers at Site B from the KE Extension KB. Firstly, the Knowledge Brokers at Site B were internal to their organisation, whereas the KE Extension KB was external to their organisation. In fact one of the KB positions was a joint position (i.e., financially supported) between Site B and one of the school boards. The other KB position has an education counterpart within the school board, which allowed for consistent interaction, resulting in trust and rapport. Given that the Knowledge Brokers at Site B were integrated into the functioning of both organisations, these positions had formal policies that governed the interaction between public health and education. This was not the case for the KE Extension KB, who was not integrated into the overall functioning of Sites A and B. As a result, the extent to which staff utilised and interacted with the KE Extension KB was only minimal compared to the Knowledge Brokers internal to Site B.

Another important difference between the KB positions is the extent to which staff at Site B interacted and accessed them, thereby influencing their ability to facilitate evidence-informed practice. The Knowledge Brokers at Site B were highly utilised by the staff, as working in collaboration with the schools boards is a high priority for staff across the entire organisation. In contrast, collaboration with the University of Waterloo is not a priority of Site B and it would have only been relevant to those staff working on the SHAPES project. The infrequent interaction between the KE Extension KB and the public health staff at Sites A and B is one of the major limitations of the KE Extension KB. Furthermore, unlike the Knowledge Brokers from Site B, the KE Extension KB only worked on the project part time and the KB role was only one component of the job position. Once again this did not allow for sufficient interaction with the public health staff. Finally, the fact that there was staff turnover in the individual fulfilling the position of the KE Extension KB may also explain the

minimal influence on evidence-informed practice at Site A and B. This did not allow for the relationship building and trust that makes knowledge brokering effective (CHSRF, 2004; Kramer et al., 2004). Overall, this component of the KE Extension Intervention was too weak compared to the other activities at Site A and B to have had a noticeable influence on evidence-informed practice. This is confirmed by some of the literatures that suggestion the need for intensive and sustained interaction in order to effectively facilitate information sharing and evidence-informed knowledge use (Hargadon, 1998; Kramer et al., 2004; Kramer & Wells, 2005).

6.2 Contribution to Manske's Framework

This study confirmed the important role of interactive processes in the knowledge utilisation process. The findings identified instances of a reciprocal influence between the *Interactive Processes* (e.g., partnerships or working groups) and the *Information* (e.g., SHAPES/YHS data) and *Characteristics of Context* (e.g., leaders/champions) on evidence-informed knowledge use. Meaning that the uptake and use of research through interaction and social processes is further mediated by the nature of the evidence and the context in which the information is being disseminated. This confirms the value of each domain identified in Manske's Framework and the complex interplay of these characteristics. These findings and the three domains of Manske's Framework have been further confirmed by other research for their role in the knowledge utilisation process and their reciprocal influence throughout the process (Rycroft-Malone, Kitson, Harvey, McCormack, Seers, Titchen et al., 2002)

An important contribution of this study to the Manske's Framework is the differentiation between mechanisms that facilitate interaction, specifically, collaborative

partnership, Communities of Practice and knowledge brokering. To date, the literature has not examined the collective influence of these interactive mechanisms of the KE Extension within a public health context. The study identified the value of comparable interactive processes across four distinct public health contexts on evidence-informed knowledge use related to youth physical activity. The study even identified the specific characteristics of these interactive processes that make them are particularly valuable for evidence-informed knowledge use. This study has provided initial insight into the role of these interactive processes and potential implications for such interventions. These specific interactive processes should be further examined in other settings (e.g., *Characteristics of Context*), utilising a different types of research data (e.g., *Information*) to confirm their value and inclusion in the Framework. The more we know and understand about the role of interactive processes and their interplay with other elements of the Framework, the greater understanding we will have of the complex process of knowledge utilisation to inform public health programming and decision-making.

6.3 Implications for Practice and Comparable Interventions

Given the findings of this study and the relation to current body of literature, there are some important implications for future interventions comparable to the KE Extension. The discussion noted two potential limitations of the interactive support of the KE Extension, including lack of integration in the overall functioning of the organisation (e.g., Sites A and B), and the lack of intensity and consistency of the interactive support. Specific to the Knowledge Broker component of the intervention, it appeared that the lack of influence was partially related to the fact that the Knowledge Broker was not integrated into the functioning of the organisation. Establishing organisational integration and compatibility of the

interactive mechanisms will ensure greater evidence-informed practice, as the user's context is one of the most important considerations for research use (Estabrooks, 2003; Landry, Amara & Lamari, 2001).

Another important implication that can be drawn from this discussion is that the specific interactive processes of the KE Extension may have been more effective if the intervention was more intensive. This is especially true for the Community of Practice and Knowledge Broker. It is difficult to quantify this dose, as this goes against the qualitative nature of this study and the underlying elements of social learning. Furthermore, it is difficult to understand the level of intensity required, as this will vary depending on the context and the recipients of the intervention (Cousins & Leithwood, 2003; Kraemer, Cole, Hepburn et al., 2005; Conklin & Stolee, 2008). Recognizing the intensity of dissemination and the influence on the uptake and use of research goes all the way back to the work of Huberman (1989). In order to be effective there needs to be "sustained interaction", meaning the interaction should occur over a long duration and be frequent and intense (Huberman, 1989). The dynamic nature inherent within collaborative partnerships and communities of practice require constant nurturing through intensive and sustained interactions (Kramer & Wells, 2005). Based on this discussion, future interventions that aim to facilitate the uptake and use of research evidence in public health practice through interactive mechanisms should be integrated at the organisational-level and ensure sustained and intensive interaction that is appropriate for the context.

As previously discussed, due to the considerable organisational capacity for research at both Sites A and B, the KE Extension may not have had an influence on evidence-informed practice regarding youth physical activity. Given this, it may be worthwhile to

assess the capacity of the organisation in terms of the resources, history of prior knowledge use and previous experience with research, and focus the intervention within organisations that have smaller capacities for research use.

6.4 Implications for Future Research

There are several important extensions of this study that may further increase our understanding of the role of the interactive processes and evidence-informed knowledge use related to youth physical activity in public health. Firstly, the extent to which the research question could be addressed was dependent on the experiences of Site A and B. Future research that attempts to evaluate the KE Extension, may consider gaining insight from across all of the public health organisations involved in the project. The data set used for this study captured an in-depth picture from only two of the public health organisations participating in the KE Extension. This study found that many participants could not comment on the influence of the KE Extension due to their lack of personal involvement. Therefore, it may be most valuable to examine one to two individuals within each organisation, focusing on interviews with the primary contacts at each Site. The primary contacts have the greatest potential for involvement in the KE Extension and may provide further insight into the influence or shortcomings of the KE Extension.

Based on the findings and the discussion around Communities of Practice it is clear that there is still a need for research that further defines the necessary conditions for creating an effective CoP (Chronic Disease Prevention Alliance of Canada, 2008). This will help with the identification, implementation and evaluation of effective Communities of Practice (Gabbay, LeMay, Jefferson, et al., 2003; Iedema, Meyerkort & White, 2005; Norman & Huerta, 2006). Furthermore, this thesis investigation identified the need to explore the

consequences of changeover in a CoP leader/facilitator and the influence this has on the productivity and effectiveness of the CoP. Also, if a Community of Practice does undergo drastic changes, such as turnover of the facilitator, what actions can be taken to avoid any negatives effects on the Community of Practice and its members?

Finally, the Knowledge Utilisation Uptake (KUU) scale that was used as part of the interview process for this study and the KE Extension could use further testing, development and refinement. A previous study validated the KUU scale for measuring several levels of knowledge use (Bonin, 2007). Further validity testing would be ideal, such as construct, concurrent criterion related validity, Inter-correlations or Principals Components Analysis, for further establishment of the effectiveness and value of the scale. Due the small sample size used for this thesis and the corresponding low power, it was not possible to do any further validity or reliability testing. Another area that requires future investigation is the criterion outlined by Bonin (2007) that categorizes organisations into "low", "moderate" and "high" levels of use, which was describe in detail in Section 4.3. This categorization fails to consider the actual levels of knowledge use achieved by the organisation, and therefore may inaccurately categorize an organisation, misleading the interpretation and comparisons to other organisations. Without further testing to verify the ability of the criterion to accurately capture an organisations level of knowledge use, the labels of high, moderate and low, should not carry too much weight in the interpretation of knowledge use.

6.5 Strengths and Limitations

There were several strengths of this study. Firstly, the thesis investigator conducted all of the interviews that were included in the data set for this project. Also, the thesis investigator has worked with the KE Extension project since May 2007 through Research Assistantships at

the University of Waterloo. As a result, the investigator has a strong background and understanding of the health units participating in the KE Extension (e.g., Sites A and B), which facilitated the analysis of the contextual influences that may have come into play for evidence-informed knowledge use. The methodological strengths of this study included the use of member checking and inter-coder reliability. Member checking ensured a credible data, as each participant was asked to review their transcribed interview for appropriate representation. Finally, the use of multiple coders confirmed the reliability of the analysis and corresponding methodology (Lincoln & Guba, 1985).

There were also some limitations to the study that deserve some attention. The interview guide used for Sites A and B was originally designed for the KE Extension and not for the purposes of this thesis project. While the interview guide directly probed at the influence of the interactive support of the KE Extension on evidence-informed knowledge use, the level of detail of this influence may have been limited. Therefore, this may have limited our insight into the role of the interactive support of the KE Extension for knowledge use.

Another limitation was the study design. The interviews included in this data set may have occurred too long after the Health Units in the KE Extension received their SHAPES data. SHAPES-Ontario data collection occurred in 2005 and the interviews with participants from the KE Extension occurred in spring, 2008. Therefore, the interviews may not have captured some of the important influences of the KE Extension on evidence-informed knowledge use when the data was new and the interactive processes of the KE Extension may have been more intensive. Similarly, the interviews only captured a “one time”

experience and do not provide an overall picture of the interactive processes of the KE Extension and knowledge use over time.

There were also some limitations of the data set used for this thesis project. Due to a lack of response or scheduling conflicts for interview times, not all of the KE Extension contacts from Sites A and B were able to be included in the data set. Due to technical problems with the digital recorder, the interview with Participant 2 at Site C was not recorded. An extensive summary of the interview was developed, analysed and coded with the other interview transcripts. Compared to the interview transcripts, the summary could not possibly capture the same level of detail. Therefore, instances of evidence-informed knowledge use and the role of interactive processes may not have been captured accurately and may have even been overlooked.

Finally, individuals interviewed for this project were purposefully selected, and therefore, not necessarily representative of the entire organisation. These individuals were either participants of the KE Extension at Sites A and B, or had been identified as being appropriate for this project by primary contacts at Sites C and D. As a result, the analysis and findings described for each Site may not be representative of the organisation and cannot be generalized to the experiences of each organisation as a whole.

While, there are some limitations regarding the study design and data set used for this study, the impact on the results are likely limited. The overall methodology and measures taken to ensure valid and reliable findings, such as member checking and inter-coder reliability, overcome some of these limitations and add to the strength of the study.

6.6 Overall Influence of the KE Extension

The overall picture painted by the interview transcripts is somewhat bleak in terms of the KE Extension project and its ability to influence evidence-informed practice regarding youth physical activity. Through personal involvement with the KE Extension Project and upon reflection of the research question, emerged some positive representations of the KE Extension that could not be captured through the interviews. Through anecdotal observation, there was at least one case where the sustained commitment of one of the participants (Site B, Participant 1) throughout the course of the KE Extension project resulted in a recognized value for the interactive support. Participant 1 is the primary contact at Site B, who has stayed committed to their role as the primary contact for the KE Extension throughout the course of the project, regularly attending the teleconferences. Most important, this individual has established ongoing, informal interaction with various KE Extension staff at the University of Waterloo, resulting in a trusting and sustained relationship (Conklin et al., 2007). In this case, the proper intensity and reciprocity was achieved in order for interactive support of the KE Extension to have a positive influence on evidence-informed knowledge use related to the SHAPES data.

Furthermore, the definition of the KE Extension used in this study is relatively narrow. Recent literature has referenced the need for integrated systems of data collection (e.g., surveillance, SHAPES) in combination with support in planning, decision making and action (Cameron, Manske, Brown, Jolin, Murnaghan, Lovato, 2007). Having access to SHAPES/YHS data was a core theme throughout this study in terms of its positive contribution to evidence-informed practice. Providing the participating health units with access to the SHAPES data was an integral component of the KE Extension and the support

for action to address youth physical activity. The definition of KE Extension for this study essentially eliminated that contribution, as it was not an interactive process. Therefore, the influence of the KE Extension on evidence-informed practice related to youth physical activity may be stronger than what the data presented.

7 Conclusion

The study was designed to explore the influence of the interactive support of the SHAPES-Ontario Knowledge Exchange Extension on evidence-informed knowledge use related to youth physical activity in public health. To date, the literature had not examined the collective influence of the interactive support of the KE Extension (e.g., Collaborative Partnership, Community of Practice, and Knowledge Broker) within a public health context. The qualitative analysis indicated that having access to local youth physical activity surveillance data (e.g., SHAPES data) was one of the most important facilitators of evidence-informed practice. Interactive processes, specifically working groups, partnerships, and knowledge brokers, were found to be an important factor across the four Sites. These interactive processes were also found to have a reciprocal relationship with the Information (e.g., SHAPES data) and the Characteristics of the Context, further facilitating evidence-informed knowledge use (Manske, 2001). The specific interactive mechanisms of the KE Extension did not emerge from the data, as the intervention was not intensive enough compared to the other activities within the Intervention Sites (e.g., Sites A and B). Overall, the findings of this thesis study indicate that providing public health practitioners with access to local and relevant research coupled with intensive, sustained, and consistent interactive support for planning and decision-making may be effective at encouraging evidence-informed practice related to youth physical activity. Further research is needed to understand the necessary considerations and strategies for developing an appropriate intervention that utilises interactive processes as a means to encourage evidence-informed practice within public health.

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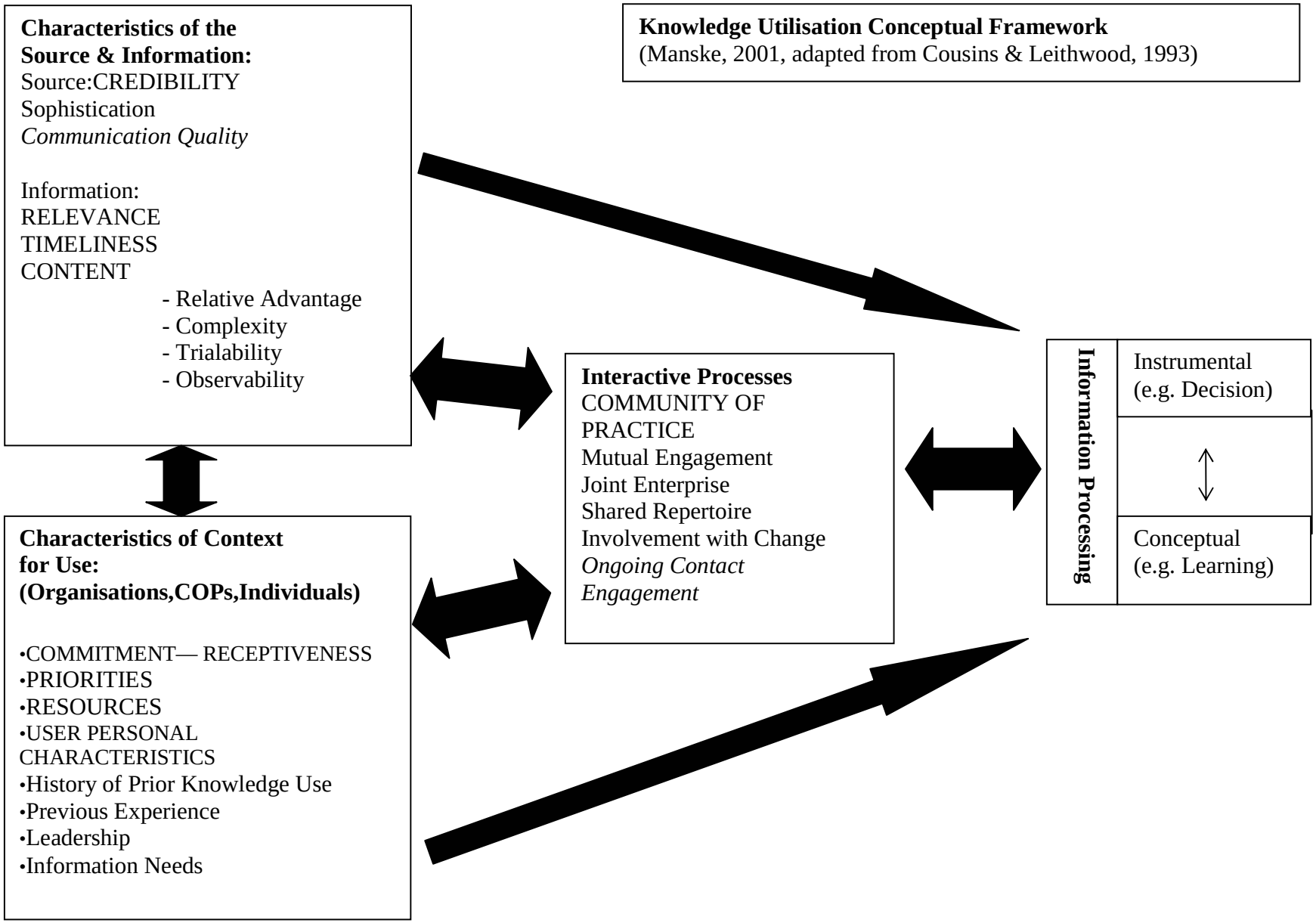
Wild, E.L., Richmond, P.A., de Merode, L., & Smith, J.D. (2004). All kids count connections: a community of practice on integrating child health information systems. *Journal of Public Health Management and Practice, Nov,* S61-S65.

APPENDIX A: Knowledge Utilisation Conceptual Framework


Knowledge Utilisation Conceptual Framework
(Manske, 2001, adapted from Cousins & Leithwood, 1993)
Characteristics of the Source & Information:
Source:CREDIBILITY
Sophistication
Communication Quality
Information:
RELEVANCE
TIMELINESS
CONTENT
- Relative Advantage
- Complexity
- Trialability
- Observability
Characteristics of Context for Use:
(Organisations,COPs,Individuals)
•COMMITMENT— RECEPTIVENESS
•PRIORITIES
•RESOURCES
•USER PERSONAL CHARACTERISTICS
•History of Prior Knowledge Use
•Previous Experience
•Leadership
•Information Needs
Interactive Processes
COMMUNITY OF PRACTICE
Mutual Engagement
Joint Enterprise
Shared Repertoire
Involvement with Change
Ongoing Contact
Engagement
Information Processing
Instrumental (e.g. Decision)
Conceptual (e.g. Learning)

APPENDIX B: SHAPES-Ontario and KE Extension Background and Project Materials

SHAPES-Ontario: Background

The School Health Action, Planning and Evaluation System (SHAPES) is a local data collection and feedback system for monitoring health-related behaviours among youth. The SHAPES system involves: 1) administration of school-based student questionnaires to assess youth smoking and physical activity, 2) a school-level administrator survey on school policies and programs for tobacco and physical activity, and 3) generation of school-level feedback reports which can be used by schools and local health agencies to plan and evaluate programs and interventions.

The SHAPES-Ontario project used two modules of SHAPES to measure and provide school-level feedback on youth smoking and physical activity in Ontario secondary schools served by eight public health units. Students in grades 9 through 12 at participating secondary schools completed either a tobacco-focused questionnaire or a physical activity-focused questionnaire. In addition, up to two administrators/staff members at each school were asked to complete a survey regarding school policies and programs concerning smoking or physical activity. Within six to eight weeks of survey administration, schools (and with permission, their health units) received a feedback report describing the physical activity levels and smoking rates of students in the school, and linking survey results to implications for activities. Boards and health units also received feedback reports after all schools within their area were surveyed.

With the goal of collecting more meaningful local data, the health units sampled were invited to become partners. Health units were involved in various aspects of the project implementation. With school's permission, they were given access to school survey data to enable them to make evidence-based decisions about their programming.

The data from SHAPES-Ontario serves at least two purposes:

- Target and plan school-based tobacco control and physical activity promotion activities; and
- Help evaluate new or ongoing activities at schools.

SHAPES may be repeated to measure the outcomes of provincial tobacco control and physical activity strategies. This study has the ability to provide stakeholders and the research community with a better understanding of how school environments can influence student behaviour, and may guide the development of new prevention initiatives to improve the health of the Ontario student population.

SHAPES-Ontario was funded by the Ontario Ministry of Health and Long-Term Care under the Smoke-Free Ontario Strategy, and Cancer Care Ontario.

**Citation: Report on the SHAPES-Ontario Project, July 2006 (updated September 2006)*

* Bonin, E. (2007). How context influences knowledge use in public health units. Unpublished master's thesis, University of Waterloo, Waterloo, Ontario, Canada.

SHAPES-Ontario Knowledge Exchange Extension: Background

The Knowledge Exchange Extension (*KE Extension*) builds on the SHAPES-Ontario project by facilitating and studying knowledge exchange processes intended to enhance evidence-based practice in public health. The original SHAPES-Ontario project presented two key knowledge exchange opportunities: (1) it provided school-level feedback reports to participating high schools (for planning and evaluating school-based activities), and (2) it combined school data at the public health district level (making it useful for health units in planning, targeting and evaluating their programs - i.e., facilitating evidence-based practice. SHAPES-Ontario funds allowed the collection of school data, but did not provide technical support to assist the health units to translate the research findings into practice. The KE Extension attempts to fill this void and aims to establish relationships to capitalize on the knowledge exchange opportunities provided by the SHAPES-Ontario Project.

The KE Extension has three core objectives including the following;

- To build public health unit capacity for evidence-informed practice (i.e., make the best use of the SHAPES-Ontario findings, both at the school level, and the health unit level.)
- To facilitate the development of Communities of Practice consisting of decision-makers (public health unit staff) and knowledge producers (research unit-UW) that leads to sustainable knowledge exchange.
- To study the process of formation of a Community of Practice as a model for knowledge exchange.

From the eight health units participating in the SHAPES-Ontario project, six agreed to participates in the KE Extension. The two other health units chose not to participate in the KE Extension due to their much smaller volume of SHAPES data, which was a result of recruitment issues.

As part of the relationship process, public health units and University of Waterloo researchers jointly determine the best application of the local SHAPES data, facilitated by interaction with a knowledge broker who has experience in both research and public health. The Knowledge Broker (also Project Manager) is responsible for supporting health units with the exchange and use of the SHAPES-Ontario results in program planning and evaluation. Other responsibilities include development of tools and resources, data collection and day-to-day management of the KE Extension project. Participating health units dedicate in-kind staff time for the *KE Extension* to the SHAPES-Ontario project, including activities such as reflective practice groups, working with schools to determine suitable responses to the school-feedback report, incorporating SHAPES data into their planning cycle, and other knowledge exchange activities.

Moreover, designated health unit staff members participate in interviews with the Knowledge Broker. Each health unit had to identify staff who were involved in the SHAPES-Ontario project, or at least familiar with the project, to participate in the KE Extension. With assistance from the KE Extension knowledge broker, the MoH assigned staff to be either a primary or secondary contact. Each primary contact agreed to be interviewed four times over 18 months and secondary contacts agreed to be interviewed two times over 18 months. The goal of

conducting multiple interviews with individual participants over an extended period of time was to capture and examine any changes in the uptake and use of the SHAPES-Ontario data. The purpose of the interviews is to collect data on the knowledge exchange processes occurring within health units.

The SHAPES-Ontario Knowledge Exchange Extension is funded by the Canadian Institute of Health Research and the National Cancer Institute of Canada's Sociobehavioural Cancer Research Network, with in-kind contributions from participating health units.

**Citation: Adapted from the Knowledge Exchange Extension Project Summary 2006-2007.*

* Bonin, E. (2007). How context influences knowledge use in public health units. Unpublished master's thesis, University of Waterloo, Waterloo, Ontario, Canada.

Medical Officer of Health Consent Form

[date]

[address]

[Name]

SHAPES-Ontario Knowledge Exchange Project

Your health unit is participating in the SHAPES-Ontario Project, which measures youth smoking and physical activity. [name],[title],[department], has been our main contact for this project. Data collection in high schools in your area occurred in [date]. These surveillance data are being fed back to individual schools and we are seeking permission to release the raw data to your health unit.

As an extension to the current project, we have received funding to conduct the *SHAPES-Ontario Knowledge Exchange Project.* The research project will facilitate and study the knowledge exchange processes intended to enhance evidence-based practice in public health and to study the process of formation of a community of practice as a model for knowledge exchange. We would like to invite your health unit to participate in the project.

Over the next two years, we hope to continue working with your health unit to facilitate and support the use of SHAPES-Ontario data. The *Knowledge Exchange Project* will allow us to provide participating health units with support to analyze and interpret the data. Health units will have access to a Ph.D. Statistician familiar with the SHAPES data system, access to a Knowledge Broker, who is a MHSc prepared with ten years of health unit experience, and ongoing contact with project activities throughout Ontario through the reflective practice group and electronic communication. In addition, each health unit will receive $4000 to help support additional activities associated with knowledge exchange. Potential expenses include training staff, hosting meetings/presentations, as well as travel expenses for conferences or meetings. By participating in this project, we hope to extend our understanding of the processes and structures within and between organizations that contribute to evidence based practice.

Attached is a detailed list of both the knowledge exchange and research components of the project. Participation is voluntary and your organization can choose to participate in as many or as few components as you wish. We respect your wishes. Your participation in this aspect of the project will not influence the support given to use the SHAPES-Ontario data.

We will hold all information provided in strict confidence. Information collected via paper and tapes during this study will be retained for seven years in a secure area at the University of Waterloo to which only researchers associated with the project have access. Electronic data will be retained on a secure server for seven years and then destroyed. If you choose to participate in any aspect of the research, you/your organization can withdraw at any point by contacting me at the number below.

We expect that participation in this knowledge exchange research will involve only minimal organizational and individual risk. Due to the small number of health units participating and the variability in size and capacity, special consideration will be put in place to protect organizations and individual participants. Safeguards to protect anonymity will include locked storage of all data (including password protected electronic files) and replacement of identifying information with code numbers to protect participant identification in all interviews, observations and reports produced. Furthermore, investigators and staff will not share or discuss information they obtain during interviews and observation, beyond the research team. Prior to making any results public, we will consult with each participating health unit. Health units will be given the opportunity to review the findings for their own health units and grant written permission to UW/PHR to release. In any case, where individual health units or staff could be identified, the health unit or staff will have the option of removing those data.

This project has been reviewed by, and has received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have any concerns about the study, you can call Dr, Susan Sykes, Director of Research Ethics at the University of Waterloo at (519) 888-4567 ext. 6005.

We will follow this letter up by telephone to clarify any outstanding issues within two weeks.

We thank you for taking the time to consider this project. If you have any questions about this study, you may contact Elissa Bonin, Project Manager, at (519) 888-4567 ext 3354 or enbonin@healthy.uwaterloo.ca.

Sincerely,

Dr. Steve Manske
Scientist
University of Waterloo

Elissa Bonin
Project Manager
Population Health Research Group

Attachments: Knowledge Exchange Project Components, Consent Form for Health Unit Participation

Study Investigators

Dr. Steve Manske CBRPE University of Waterloo	Dr. Scott Leatherdale Cancer Care Ontario	Dr. Roy Cameron CBRPE University of Waterloo

Study Collaborators

City of Hamilton Department of Public Health and Community Services
Kingston, Frontenac, Lennox and Addington Public Health
Ottawa Public Health
Simcoe-Muskoka District Health Unit

Knowledge Exchange Project Components

The Knowledge Exchange Project consists of separate components: Knowledge Exchange component and the Research component. You may agree for your organization to participate in any of the following ways over the next two years.

Knowledge Exchange Project

- Various staff to participate in joint UW/health unit meeting to identify planning and evaluation questions and appropriate analysis (up to 3 hours for meeting with identified HU personnel – this could be Chronic Disease Manager, Tobacco and Physical Activity Staff, Epidemiologist, or others)
- Various staff to make use of the data through planning and action with schools (internal meetings or school meetings)
- Primary contact to attend a central meeting on SHAPES-Ontario Project
- Primary contact to participate in a small reflective practice group which meets every 2 months by audio or web conference.
- Health unit will receive $4000 to support knowledge exchange. Potential expenses may include training staff, hosting meetings/presentations, as well as travel expenses for conferences or meetings.

Research Component

- Primary health unit contact would be asked to participate in four 60 minute audio-taped interviews (in 1,6,12 and 18 months) that describe knowledge use with respect to the SHAPES-data within the health unit (meetings, plans, activities, evaluations)
- Up to 5 health unit staff would be asked to participate in two 60 minute audio-taped interviews (in 1 and 18 months) that describe knowledge use with respect to the SHAPES-data within the health unit (meetings, plans, activities, evaluations)
- Collect and review internal organizational documents and correspondence relevant to understanding the use of SHAPES-data; for example Public Health Unit organizational charts, strategic plans, minutes, meeting agendas, related correspondence.
- Permit a request of the primary contact to be observed during participation in the reflective practice group. The reflective practice group will consist of staff from participating health units, such as epidemiologists, public health nurses, public health promoters, and program evaluation officers as well as UW research staff & project investigators.

The primary health unit contact would help identify the key health unit staff to interview and the pertinent organizational documents pertaining to the SHAPES-Ontario data use. Each staff member would be provided with an information letter and their consent would be sought prior to participation. These staff could include Director, Program Managers, Epidemiologists, Public Health Nurses or others.

Consent Form for Health Unit Participation

I have read the information presented in the information letter about the SHAPES-Ontario Knowledge Exchange Project being conducted by Steve Manske of the Centre for Behavioural Research and Program Evaluation at the University of Waterloo, Scott Leatherdale of Cancer Care Ontario and Roy Cameron of the Centre for Behavioural Research and Program Evaluation at the University of Waterloo. I have had the opportunity to ask any question related to this study, to receive satisfactory answers to my questions, and any additional details I wanted. I am aware that our organization may withdraw from the study without penalty at any time by advising the researchers of this decision.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from our participation in this study, I may contact Dr. Susan Sykes, Director of Research Ethics at the University of Waterloo at (519) 888-4567 ext. 6005.

With full knowledge of all forgoing, I agree, of my own free will, for our organization to participate in this study in the following ways (check each item to which you agree):

Knowledge Exchange Component:

__ I agree to permit various staff to participate in the knowledge exchange component of the project as determined appropriate by our health unit.

Research Component:

__ I agree to allow researchers to approach health unit staff to participate in the following components:

- __ 4 audiotape interviews with the primary health unit contact (at 1, 6, 12 and 18 months);
- __ 2 audiotape interviews with <u>up to 5</u> health unit staff (at 1 and 18 months); and
- __ observation of the reflective practice group in which the primary contact would be invited to participate on behalf of our organization.

__ I agree to permit researchers to collect and analyze health unit documents and correspondence.

_____ _____

Print Name Medical Officer of Health's Signature

_____

Dated at (insert location)

Primary Contact Consent Form

[date]

[address]

[insert name]:

SHAPES-Ontario Knowledge Exchange Project

Your health unit is participating in the SHAPES-Ontario Project and data collections occurred in [insert date]. These surveillance data are being fed back to individual schools and we are seeking permission to release the raw data to your health unit. As an extension to the current project, we have received funding to conduct the *SHAPES-Ontario Knowledge Exchange Project.* The research project will facilitate and study the knowledge exchange processes intended to enhance evidence-based practice in public health and to study the process of formation of a community of practice as a model for knowledge exchange. We have received the permission of your Medical Officer of Health to conduct this project within your health unit. This letter invites you, as our primary contact, to participate in the research project.

Over the next two years, we hope to continue working with your health unit to facilitate and support the use of SHAPES-Ontario data. The *Knowledge Exchange Project* will allow us to provide participating health units with the support in using and interpreting the data. Health units will have access to a Ph.D. Statistician familiar with the SHAPES data system, access to a Knowledge Broker, who is a MHSc prepared with ten years of health unit experience, and ongoing contact with project activities throughout Ontario through the reflective practice group and electronic communication. In addition, each health unit will receive $4000 to help support additional activities associated with knowledge exchange. Potential expenses include training staff, hosting meetings/presentations, as well as travel expenses for conferences or meetings. By participating in this project, we hope to extend our understanding of the processes and structures within and between organizations that contribute to evidence based practice.

Attached is a detailed list of both the knowledge exchange and research components of the project. Participation is voluntary and you can choose to participate in as many or as few components as you wish. We respect your wishes. Your participation in this aspect of the project will not influence the support given to use the SHAPES-Ontario data.

We will hold all information provided in strict confidence. Information collected via paper and tapes during this study will be retained for seven years in a secure area at the University of Waterloo to which only researchers associated with the project have access. Electronic data will be retained on a secure server for seven years and then destroyed. If you choose to participate in any aspect of the research, you can withdraw at any point by contacting me at the number below.

We expect that participation in this knowledge exchange research will involve only minimal organizational and individual risk. Due to the small number of health units participating and the variability in size and capacity, special consideration will be put in place to protect organizations

and individual participants. Safeguards to protect anonymity will include locked storage of all data (including password protected electronic files) and replacement of identifying information with code numbers to protect participant identification in all interviews, observations and reports produced. Furthermore, investigators and staff will not share or discuss information they obtain during interviews and observation, beyond the research team. Prior to making any results public, we will consult with each participating health unit. Health units will be given the opportunity to review the findings for their own health units and grant written permission to UW/PHR to release. In any case, where individual health units or staff could be identified, the health unit or staff will have the option of removing those data.

This project has been reviewed by, and has received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have any concerns about the study, you can call Dr, Susan Sykes, Director of Research Ethics at the University of Waterloo at (519) 888-4567 ext. 6005.

We will follow-up this letter by telephone to clarify any outstanding issues within two weeks.

We thank you for taking the time to consider this project. If you have any questions about this study, you may contact Elissa Bonin, Project Manager, at (519) 888-4567 ext 3354 or enbonin@healthy.uwaterloo.ca.

Sincerely,

Dr. Steve Manske
Scientist
University of Waterloo

Elissa Bonin
Project Manager
Population Health Research Group

Attachments: Knowledge Exchange Project Components, Consent Form for Health Unit Primary Participants

Study Investigators

Dr. Steve Manske University of Waterloo	Dr. Scott Leatherdale Cancer Care Ontario	Dr. Roy Cameron University of Waterloo

Study Collaborators

City of Hamilton Department of Public Health and Community Services
Kingston, Frontenac, Lennox and Addington Public Health
Ottawa Public Health
Simcoe-Muskoka District Health Unit

Knowledge Exchange Project Components

The Knowledge Exchange Project consists of separate components: Knowledge Exchange component and the Research component. You may agree to participate in any of the following ways over the next two years.

Knowledge Exchange Project

- Participate, along with other health unit staff, in joint UW/health unit meeting to identify planning and evaluation questions and appropriate analysis (up to 3 hours for meeting with identified HU personnel – this could be Chronic Disease Manager, Tobacco and Physical Activity Staff, Epidemiologist, or others)
- Make use of the data, if appropriate, through planning and action with schools (internal meetings or school meetings)
- Attend a central meeting on SHAPES-Ontario Project or designate another health unit representative
- Participate in a small reflective practice group which meets every 2 months by audio or web conference.
- Health unit will receive $4000 to support knowledge exchange. Potential expenses may include training staff, hosting meetings/presentations, as well as travel expenses for conferences or meetings.

Research Component

- Participate in four 60 minute audio-taped interviews (in 1,6,12 and 18 months) that describe knowledge use with respect to the SHAPES-data within the health unit (meetings, plans, activities, evaluations)
- Identify up to 5 health unit staff that would be asked to participate in two 60 minute audio-taped interviews (in 1 and 18 months) that describe knowledge use with respect to the SHAPES-data within the health unit (meetings, plans, activities, evaluations) Each staff member would be provided with an information letter and their consent would be sought prior to participation. These staff could include Director, Program Managers, Epidemiologists, Public Health Nurses or others.
- Identify and collect internal organizational documents and correspondence relevant to understanding the use of SHAPES-data; for example Public Health Unit organizational charts, strategic plans, minutes, meeting agendas, related correspondence.
- Permit us to observe you in the reflective practice group (if you choose to participate in that group). The reflective practice group will consist of staff from participating health units, such as epidemiologists, public health nurses, public health promoters, and program evaluation officers as well as UW research staff & project investigators.

Consent Form for Interviews and Correspondence for Health Unit Primary Participants

I have read the information presented in the information letter about the SHAPES-Ontario Knowledge Exchange Project being conducted by Steve Manske of the Centre for Behavioural Research and Program Evaluation at the University of Waterloo, Scott Leatherdale of Cancer Care Ontario and Roy Cameron of the Centre for Behavioural Research and Program Evaluation at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted. I am aware that I may withdraw from the study without penalty at any time by advising the researchers of this decision.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from our participation in this study, I may contact Dr. Susan Sykes, Director of Research Ethics at the University of Waterloo at (519) 888-4567 ext. 6005.

With full knowledge of all forgoing, I agree, of my own free will, to participate in this study in the following ways (check each item to which you agree):

Knowledge Exchange Component:

__ I agree to participate in the knowledge exchange component of the project to the level I deem appropriate

Research Component:

__ I agree to participate in up to four audiotape interviews (in the next 1,6,12 and 18 months).

__ I agree to identify up to 5 health unit staff for consideration of two audiotape interviews (in the next 1 and 18 months).

__ I agree to identify and collect pertinent health unit documents and correspondence for the researchers to analyze.

__ I agree to permit researchers to audiotape my phone conversations with research team staff (i.e. knowledge broker).

__ I agree to permit researchers to observe and audiotape me during the reflective practice group

_____ _____

Print Name Signature

_____

Dated at (insert location)

Secondary Contact Consent Form

[date]

[address]

Dear [insert other health unit contact name]:

SHAPES-Ontario Knowledge Exchange Project

Your health unit is participating in the SHAPES-Ontario Project, which measures youth smoking and physical activity. [name], [title, dept], has been our main contact for this project. Data collection in high schools in your area occurred in [insert time period]. These surveillance data are being fed back to individual schools and we are seeking permission to release the raw data to your health unit.

As an extension to the SHAPES-Ontario project, we have received funding to conduct the *SHAPES-Ontario Knowledge Exchange Project*. The research project will facilitate and study the knowledge exchange processes intended to enhance evidence-based practice in public health and to study the process of formation of a community of practice as a model for knowledge exchange. We have received the permission of your Medical Officer of Health to conduct this project within your health unit. This letter invites you to participate in the research project.

Over the next two years, we hope to continue working with your health unit to facilitate and support the use of SHAPES-Ontario data. The *Knowledge Exchange Project* will allow us to provide participating health units with the support in using and interpreting the data. Health units will have access to a PH.D. Statistician familiar with the SHAPES data system, access to a Knowledge Broker, who is a MHSc prepared with ten years of health unit experience, and ongoing contact with project activities throughout Ontario through the reflective practice group and electronic communication. In addition, each health unit will receive $4000 to help support additional activities associated with knowledge exchange. Potential expenses include training staff, hosting meetings/presentations, as well as travel expenses for conferences or meetings. By participating in this project, we hope to extend our understanding of the processes and structures within and between organizations that contribute to evidence based practice.

Attached is a detailed list of both the knowledge exchange and research components of the project. Participation is voluntary and you can choose to participate in as many or as few components as you wish. We respect your wishes. Your participation in this aspect of the project will not influence the support given to use the SHAPES-Ontario data.

We will hold all information provided in strict confidence. Information collected via paper and tapes during this study will be retained for seven years in a secure area at the University of Waterloo to which only researchers associated with the project have access. Electronic data will be retained on a secure server for seven years and then destroyed. If you choose to participate in any aspect of the research, you can withdraw at any point by contacting me at the number below.

We expect that participation in this knowledge exchange research will involve only minimal organizational and individual risk. Due to the small number of health units participating and the variability in size and capacity, special consideration will be put in place to protect organizations and individual participants. Safeguards to protect anonymity will include locked storage of all data (including password protected electronic files) and replacement of identifying information with code numbers to protect participant identification in all interviews, observations and reports produced. Furthermore, investigators and staff will not share or discuss information they obtain during interviews and observation, beyond the research team. Prior to making any results public, we will consult with each participating health unit. Health units will be given the opportunity to review the findings for their own health units and grant written permission to UW/PHR to release. In any case, where individual health units or staff could be identified, the health unit or staff will have the option of removing those data.

This project has been reviewed by, and has received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have any concerns about the study, you can call Dr, Susan Sykes, Director of Research Ethics at the University of Waterloo at (519) 888-4567 ext. 6005.

We will follow-up this letter by telephone to clarify any outstanding issues within two weeks.

We thank you for taking the time to consider this project. If you have any questions about this study, you may contact Elissa Bonin, Project Manager, at (519) 888-4567 ext 3354 or enbonin@healthy.uwaterloo.ca.

Sincerely,

Dr. Steve Manske
Scientist
University of Waterloo

Elissa Bonin
Project Manager
Population Health Research Group

Attachments: Knowledge Exchange Project Components, Consent Form for Other Health Unit Participants

Study Investigators

Dr. Steve Manske University of Waterloo	Dr. Scott Leatherdale Cancer Care Ontario	Dr. Roy Cameron University of Waterloo
Study Collaborators		
City of Hamilton Department of Public Health and Community Services Kingston, Frontenac, Lennox and Addington Public Health Ottawa Public Health Simcoe-Muskoka District Health Unit		

Knowledge Exchange Project Components

The Knowledge Exchange Project consists of separate components: Knowledge Exchange component and the Research component. You may agree to participate in any of the following ways over the next two years.

Knowledge Exchange Project

- Participate, along with other health unit staff, in a joint UW/health unit meeting to identify planning and evaluation questions and appropriate analysis (up to 3 hours for meeting with identified HU personnel – this could be Chronic Disease Manager, Tobacco and Physical Activity Staff, Epidemiologist, or others)
- Make use of the data, if appropriate, through planning and action with schools (internal meetings or school meetings)
- Health unit will receive $4000 to support knowledge exchange. Potential expenses may include training staff, hosting meetings/presentations, as well as travel expenses for conferences or meetings.

Research Component

- Participate in two 60 minute audio-taped interviews (in 1 and 18 months) that describe knowledge use with respect to the SHAPES-data within the health unit (meetings, plans, activities, evaluations)
- Identify and collect internal organizational documents and correspondence relevant to understanding the use of SHAPES-data; for example Public Health Unit organizational charts, strategic plans, minutes, meeting agendas, related correspondence.

Consent Form for Interviews and Correspondence for Other Health Unit Participants

I have read the information presented in the information letter about the SHAPES-Ontario Knowledge Exchange Project being conducted by Steve Manske of the Centre for Behavioural Research and Program Evaluation at the University of Waterloo, Scott Leatherdale of Cancer Care Ontario and Roy Cameron of the Centre for Behavioural Research and Program Evaluation at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted. I am aware that I may withdraw from the study without penalty at any time by advising the researchers of this decision.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from our participation in this study, I may contact Dr. Susan Sykes, Director of Research Ethics at the University of Waterloo at (519) 888-4567 ext. 6005.

With full knowledge of all forgoing, I agree, of my own free will, to participate in this study in the following ways (check each item to which you agree):

__ I agree to participate in up to two audiotape interviews (in the next 1 and 18 months).

__ I agree to permit researchers to audiotape my phone conversations with research team staff (i.e. knowledge broker).

__ I agree to identify and collect pertinent health unit documents for the researchers to analyze.

__ I agree to permit researchers to save and analyze email correspondence with the researcher.

_____ _____

Print Name Signature

_____

Dated at (insert location)

Knowledge Exchange Extension Ethics Approval

From: ORE Ethics Application System [OHRAC@uwaterloo.ca]
Sent: Monday, March 06, 2006 10:48 AM
To: manske@healthy.uwaterloo.ca; scott.leatherdale@cancercare.on.ca; dsteinma@healthy.uwaterloo.ca
Subject: Full Ethics Clearance after provisional, no comments (ORE # 12781)

Dear Researcher:
The recommended revisions/additional information requested in the initial ethics review of your ORE application:
Title: Encouraging Evidence-based Practice by Creating and Assessing a Public Health Community of Practice in School-based Chronic Disease Prevention ORE #: 12781
Principal/Co-Investigator: MANSKE, Steve (manske@healthy.uwaterloo.ca)
Principal/Co-Investigator: LEATHERDALE, Scott (scott.leatherdale@cancercare.on.ca)
Principal/Co-Investigator: STEINMANN, Darla (dsteinma@healthy.uwaterloo.ca)
Principal/Co-Investigator: MURPHY, Maureen ()
Collaborator: Joyce Fox ()
Collaborator: Darlene Mecredy ()
Collaborator: Kevin McDonald ()
Have been reviewed and are considered acceptable. As a result, your application now has received full ethics clearance.

A signed copy of the Notification of Full Ethics Clearance will be sent to the Principal Investigator or Faculty Supervisor in the case of student research.

ADDITIONAL REVISIONS OR RESPONSES TO COMMENTS: N/A
****
Note 1: This clearance is valid for four years from the date shown on the certificate and a new application must be submitted for on-going projects continuing beyond four years.
Note 2: This project must be conducted according to the application description and revised materials for which ethics clearance have been granted. All subsequent modifications to the protocol must receive prior ethics clearance through our office and must not begin until notification has been received.
Note 3: Researchers must submit a Progress Report on Continuing Human Research Projects (ORE Form 105) annually for all ongoing research projects. In addition, researchers must submit a Form 105 at the conclusion of the project if it continues for less than a year.
Note 4: Any events related to the procedures used that adversely affect participants must be reported immediately to the ORE using ORE Form 106.

Best wishes for success with this study.
Susanne Santi, M. Math.,
Manager, Research Ethics
Office of Research Ethics
NH 1027
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APPENDIX C: KUU Scale Outcomes

KUU Scale Outcomes and Levels of Use

Levels of Use and Uptake	KUU Scale Responses (Determines LoU)
NON-USE Limited or no knowledge of SHAPES, no involvement with SHAPES, no action to move toward use of SHAPES.	End here if No to Q 2, 5, or 8
ORIENTATION Has acquired/is acquiring information about SHAPES and/or explored/is exploring its value and demands upon user.	Yes or Maybe or Sometimes/Often or Fully or Partially to Q 5, 6, 7, 8, 9, 10 End here if No to Q 8
PREPARATION Preparing for first use of the SHAPES.	Fully/Partially to Q 22 Yes to Q 23 End here if Not at all/Not sure to Q 21 and 22
MECHANICAL USE User focuses most efforts on the short-term/day-to-day use of SHAPES, little reflection. Changes made to meet user needs vs. client needs. User primarily engaged in stepwise attempt to master tasks required to use SHAPES, often disjointed and superficial use.	Yes to any of Q 21, 26, 27 End here if No to all of Q 26, 27, 30
ROUTINE Use of SHAPES is stabilized. Few if any changes are being made in ongoing use. Little prep/thought to improving SHAPES use or its consequences.	Yes to Q 30 End here if No to Q 32
REFINEMENT User varies the use of SHAPES to increase impact on clients. Variations based on knowledge of both short-term & long-term consequences for clients.	Yes to Q 31, 32 End here is No to Q 33
INTEGRATION User is combining own efforts to use SHAPES with related activities of colleagues to achieve collective impact on clients within common sphere of influence.	Yes to Q 33 End here if No to Q 34
RENEWAL User reevaluates quality of use of SHAPES, seeks modifications/alternatives to SHAPES to increase impact on clients, examines new developments in the field, explores new goals for self & system.	Yes to Q 34

Source: Definitions of Levels of Use adapted by Skinner (2007) from Hall et al. (1975).

KNOWLEDGE UTILIZATION UPTAKE SCALE (SITE C)

Awareness

1 Are you aware of the youth physical activity data collected through the SHAPES Survey?
- ☐ YES (go to question 3)
- ☐ NO

2 Would you like to learn more about the youth physical activity data collected through the SHAPES Survey?
- ☐ YES (discontinue questions)
- ☐ NO (discontinue questions)

Reception

NOTE: "SHAPES Feedback Report/SHAPES result" refers to the youth physical activity results from the SHAPES Survey

3 Have you received a copy of the report summarizing the SHAPES results (SHAPES Feedback Report)?
- ☐ YES (go to question 6)
- ☐ NO

4 Did you retrieve a copy of the SHAPES Feedback Report?
- ☐ YES
- ☐ NO (go to question 5)

5 Do you plan to access the SHAPES Feedback Report?
- ☐ YES
- ☐ MAYBE
- ☐ NO (discontinue questions)
- ☐ DON'T KNOW

6 Even before viewing it, did/do you think the SHAPES Feedback Report may be useful?
- ☐ YES
- ☐ MAYBE
- ☐ NO
- ☐ DON'T KNOW

Cognition

7 Have you read the SHAPES Feedback Report/SHAPES results?
- ☐ FULLY (go to question 9)
- ☐ PARTIALLY (go to question 9)
- ☐ NOT AT ALL

8 Do you plan to read the SHAPES Feedback Report/SHAPES results?
- ☐ YES (go to question 13)
- ☐ MAYBE (go to question 13)
- ☐ NO (discontinue)

9 Was the material in the SHAPES Feedback Report presented in a way you could understand?
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

10 Have you thought about the contents of the SHAPES results since you read the Feedback Report?
- ☐ NEVER
- ☐ RARELY
- ☐ SOMETIMES
- ☐ OFTEN

Discussion

11 Have you made other colleague(s) aware of the SHAPES results?
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

12 Have you discussed the SHAPES results with colleagues within your organization?
- ☐ YES (go to question 14)
- ☐ NO

13 Do you plan to discuss the SHAPES results with colleagues within your organization?
- ☐ YES
- ☐ MAYBE
- ☐ NO

14 Have you discussed the SHAPES results with colleague(s) outside of your organization?
- ☐ YES (go to question 16)
- ☐ NO

15 Do you plan to discuss the SHAPES results with colleague(s) outside of your organization?
- ☐ YES
- ☐ MAYBE
- ☐ NO

16 Have you sought the opinion(s) of other(s) who have used the SHAPES results (e.g. through discussions, visits, or workshops)?
- ☐ YES
- ☐ NO

Reference

17 Have you cited the SHAPES results in your own reports or documents?
- ☐ YES (go to question 19)
- ☐ NO
- ☐ N/A

18 Do you plan to cite the SHAPES results in your own reports?
- ☐ YES
- ☐ MAYBE
- ☐ NO
- ☐ DON'T KNOW

19 Have the SHAPES results influenced your decisions/choices in your program planning, development and implementation?
- ☐ YES
- ☐ NO

Effort

20 Have you favoured the SHAPES results over other report(s)/sources of information?
- ☐ YES
- ☐ NO

Adoption

21 Have you made a decision to use the SHAPES results in your public health planning and/or evaluation?
- ☐ FULLY (go to question 24)
- ☐ PARTIALLY (go to question 24)
- ☐ NOT AT ALL

22 Do you plan to make a decision whether to use the SHAPES results in your public health planning and/or evaluation?
- ☐ FULLY
- ☐ PARTIALLY

☐ NOT AT ALL (discontinue questions)-go to section 2
☐ NOT SURE (discontinue questions)-go to section 2

23 Do you know when you will begin to use the SHAPES results in your public health planning and/or evaluation?
☐ YES (discontinue questions)
☐ NO (discontinue questions)

24 Has the use of the SHAPES results contributed to your efforts at evidence-informed planning?
☐ YES
☐ NO

Implementation

25 Overall, in the past 1, (6, 12, 18) month(s), how fully have you used the SHAPES results in your planning and evaluation?
☐ NOT AT ALL
☐ A LITTLE
☐ A LOT
☐ A LOT, BUT ADAPTED FROM THE SHAPES RESULTS

26 Have you employed short term strategies for facilitating the use of the SHAPES results (e.g. workgroups, meetings with school boards, revised operational plans or logic models)?
☐ YES
☐ NO

27 Do you spend your time managing the use of the SHAPES results?
☐ YES
☐ NO (go to question 29)

28 How do you spend your time managing the use of the SHAPES results? Check all that apply.
☐ ENSURING CONSISTENCY
☐ INTERPRETING DATA
☐ ENSURING STAFF ARE USING DATA
☐ OTHER

29 What are the long-term strategies required for using the SHAPES results in planning and evaluation? Check all that apply
☐ SECURING FUNDING
☐ ALLOCATION OF RESOURCES
☐ POLICY DEVELOPMENT
☐ ADVOCACY FOR EVIDENCE-INFORMED PLANNING
☐ OTHER

30 Has using the SHAPES results for planning and evaluation become routine (i.e. practice runs smoothly with minimal management problems)?
☐ YES
☐ NO

31 Has a tailored analysis of the SHAPES results been done?
☐ YES
☐ NO (go to question 33)
☐ N/A (go to question 33)

32 Has the tailored analysis been used in an effort to increase the impact on evidence-informed planning?
☐ YES
☐ NO

33 **Have you collaborated with colleagues and/or other organizations (i.e. schools) targeting the same population to implement using the SHAPES results in your planning and evaluation?**

☐ YES
☐ NO

34 **Have you explored other evidence that could be used in combination with, or in place of the SHAPES results, to improve the effectiveness of your program planning and evaluation?**

☐ YES
☐ NO

Impact

35 **Has the SHAPES results increased evidence-informed planning and evaluation, either in the health unit or with other groups (e.g. schools)?**

☐ YES
☐ MAYBE
☐ NO
☐ DON'T KNOW
☐ N/A

36 **Since working with the SHAPES results, have you encouraged a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO (go to 37)

37 **Since offering encouragement, have you persuaded a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO

38 **Are there any additional comments you would like to make about the SHAPES results or your use of research evidence in planning and evaluation? (Your comments do not need to be related to an adopted and implemented practice)**

SECTION 2: Deliberate Non-use

This section only applies to answers NOT AT ALL or NOT SURE to Question 22.

Please indicate ALL of the following reasons why you chose not to adopt this new source of information (SHAPES results).

Innovation Characteristics

Relative Advantage

- ☐ I have equivalent evidence/information I already use
- ☐ The innovation (SHAPES) was not perceived to be better than the current evidence/information
- ☐ The innovation (SHAPES) did not show any economic advantage from adopting it
- ☐ The innovation (SHAPES) was more time consuming and required more effort than the current evidence/information used

Compatibility

- ☐ The innovation (SHAPES) was not consistent with the current values of my program or organization
- ☐ The innovation (SHAPES) did not meet the needs of my program or organization

Complexity

- ☐ The innovation (SHAPES) was too difficult to understand
- ☐ The innovation (SHAPES) was too difficult to implement or use

Trialability

- ☐ The innovation (SHAPES) could not be implemented on a small scale to determine its advantages or disadvantages
- ☐ I have not heard of any other organization(s) related to mine that have adopted this innovation (SHAPES)

Observability

- ☐ I have not seen this innovation (SHAPES) successfully implemented

Organizational Characteristics

Size and Resources

- ☐ My organization is too small or too large to adopt this innovation (SHAPES)
- ☐ My organization does not have enough personnel resources (staff) to adopt this innovation (SHAPES)
- ☐ My organization does not have enough financial resources to adopt this innovation (SHAPES)

Location

- ☐ My organization was not in an appropriate location to adopt or implement this innovation (SHAPES)

Hierarchy

- ☐ I do not have enough decision-making authority in my position to decide to adopt this innovation (SHAPES)
- ☐ I was not able to prove to my supervisor that this was an important innovation (SHAPES) to adopt

Formalization

- ☐ This innovation (SHAPES) did not follow the rules and procedures of my organization
- ☐ There was not enough evidence that this innovation (SHAPES) would be effective or successful

Environmental Characteristics

- ☐ There is not enough collaboration or potential for networking with other organizations to be able to adopt and implement this innovation (SHAPES)

Individual Characteristics

- ☐ This innovation (SHAPES) did not seem relevant to my practice
- ☐ It is not an appropriate time to be adopting this innovation (SHAPES)
- ☐ This innovation (SHAPES) does not coincide with my values or beliefs about what is effective
- ☐ I have insufficient time to adopt and implement a new innovation (SHAPES)

Other

- Other reasons not mentioned above have resulted in non-adoption of this innovation (SHAPES)
- These other reasons are:

APPENDIX D: KE Extension Interview Guide & Knowledge Utilisation Uptake Scale

KE EXTENSION INTERVIEW GUIDE REVISED

1. **How have you used the SHAPES results?** (referring to internal use)
   - Could you give some examples of how you or the organisation has used the results (e.g. data, feedback report etc)?
   - What have been the tangible / intangible supports you have valued in being involved in this SHAPES project? (provide examples—this can include KB/CoP etc.)
     1. (If not mentioned) how has the CoP facilitated your use of SHAPES evidence? (probe regarding learning from other CoP members)
     2. What have been the benefits/pitfalls of the CoP?
   - How has the KE Extension/CoP contributed to evidence-informed practice in the health unit?

2. **You mentioned _____, could you expand on the interaction of/among this group, committee?**
   - How is this response typical or different from previous experiences? Influential contexts?

3. **How do you get things done in your health unit (or is it how do things get done?). Refer back to examples or ask for examples.**
   - Formal processes & policies?
   - Informal processes? Ex. how are decisions made
   - How do both help or hinder the use of evidence/data in the health unit
   - Are there any formal and/or informal processes or structures in place specific to the use of SHAPES/evidence?
   - What do you or the organisation consider as evidence?
   - Other personal or organisational factors influencing how things get done
   - Factors at HU or beyond that might influence how organisation deals with new information?

4. **How does your health unit get things done in schools? Examples?**
   - What are the valid uses of the SHAPES data in schools?
   - How have you shared the SHAPES results with schools? In what format? (e.g., Ppt presentation, meeting, email etc.)? with what intensity? Over what period of time?
   - What processes / structures do you have in place to engage schools and communities to take action on a particular topic, e.g., tobacco use or physical activity? How is SHAPES included as part of this processes (if at all)?
   - *What SHAPES specific resources have you developed and/or distributed to schools or the community at large? (If none, do you plan to do so and what type of resources, please describe)*
   - To your knowledge, how have schools used the SHAPES results? What are some of the future plans schools have developed to address tobacco and PA as a result of the SHAPES results? As a health unit, do you have mechanisms in place to capture things like schools' use of SHAPES?
   - *What do you perceive as the factors helping or hindering schools from using the SHAPES results?*
   - *Where would you go for teacher resources that would pertain to SHAPES? Are you aware of the teacher resources available on the SHAPES website? If so, how have*

you used them or shared them with schools? Have the schools used the teacher resources, if so how?

Additional Questions (if time):

- *Have schools or community members provided you with feedback on SHAPES and what was this feedback, please describe/explain?*

KNOWLEDGE EXCHANGE EXTENSION: UPTAKE SURVEY

Awareness

1 Are you aware of the SHAPES feedback report?
- ☐ YES (go to question 3)
- ☐ NO

2 Would you like to learn more about the SHAPES feedback report?
- ☐ YES (discontinue questions)
- ☐ NO (discontinue questions)

Reception

3 Have you received a copy of the SHAPES feedback report?
- ☐ YES (go to question 6)
- ☐ NO

4 Did you retrieve a copy of the SHAPES feedback report?
- ☐ YES
- ☐ NO (go to question 5)

5 Do you plan to access the SHAPES feedback report?
- ☐ YES
- ☐ MAYBE
- ☐ NO (discontinue questions)
- ☐ DON'T KNOW

6 Even before viewing it, did/do you think the SHAPES feedback report may be useful?
- ☐ YES
- ☐ MAYBE
- ☐ NO
- ☐ DON'T KNOW

Cognition

7 Have you read the SHAPES feedback report?
- ☐ FULLY (go to question 9)
- ☐ PARTIALLY (go to question 9)
- ☐ NOT AT ALL

8 Do you plan to read the SHAPES feedback report?
- ☐ YES (go to question 13)
- ☐ MAYBE (go to question 13)
- ☐ NO (discontinue)

9 Was the material in the SHAPES feedback report presented in a way you could understand?
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

10 Have you thought about the contents of the SHAPES feedback report since you read it?
- ☐ NEVER
- ☐ RARELY
- ☐ SOMETIMES
- ☐ OFTEN

Discussion

11 Have you made other colleague(s) aware of the SHAPES feedback report?
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

12 Have you discussed the SHAPES feedback report with colleagues within your organization?
- ☐ YES (go to question 14)

☐ NO

13 **Do you plan to discuss the SHAPES feedback report with colleagues within your organization?**
☐ YES
☐ MAYBE
☐ NO

14 **Have you discussed the SHAPES feedback report with colleague(s) outside of your organization?**
☐ YES (go to question 16)
☐ NO

15 **Do you plan to discuss the SHAPES feedback report with colleague(s) outside of your organization?**
☐ YES
☐ MAYBE
☐ NO

16 **Have you sought the opinion(s) of other(s) who have used the SHAPES feedback report (e.g. through discussions, visits, or workshops)?**
☐ YES
☐ NO

Reference

NOTE: "SHAPES Results"refers to the collective information and results from SHAPES feedback report and/or SHAPES data

17 **Have you cited the SHAPES results in your own reports or documents?**
☐ YES (go to question 19)
☐ NO
☐ N/A

18 **Do you plan to cite the SHAPES results in your own reports?**
☐ YES
☐ MAYBE
☐ NO
☐ DON'T KNOW

19 **Have the SHAPES results influenced your decisions/choices in your program planning, development and implementation?**
☐ YES
☐ NO

Effort

20 **Have you favoured SHAPES results over other report(s)/sources of information?**
☐ YES
☐ NO

Adoption

21 **Have you made a decision to use the SHAPES results in your public health planning and/or evaluation?**
☐ FULLY (go to question 24)
☐ PARTIALLY (go to question 24)
☐ NOT AT ALL

22 **Do you plan to make a decision whether to use the SHAPES results in your public health planning and/or evaluation?**
☐ FULLY
☐ PARTIALLY
☐ NOT AT ALL (discontinue questions)-go to section 2
☐ NOT SURE (discontinue questions)-go to section 2

23 **Do you know when you will begin to use the SHAPES results in your public health planning and/or evaluation?**

☐ YES (discontinue questions)
☐ NO (discontinue questions)

24 **Has the use of the SHAPES results contributed to your efforts at evidence-informed planning?**

☐ YES
☐ NO

Implementation

25 **Overall, in the past 1, (6, 12, 18) month(s), how fully have you used the SHAPES results in your planning and evaluation?**

☐ NOT AT ALL
☐ A LITTLE
☐ A LOT
☐ A LOT, BUT ADAPTED FROM THE SHAPES RESULTS

26 **Have you employed short term strategies for facilitating the use of the SHAPES results (e.g. workgroups, meetings with school boards, revised operational plans or logic models)?**

☐ YES
☐ NO

27 **Do you spend your time managing the use of the SHAPES results?**

☐ YES
☐ NO (go to question 29)

28 **How do you spend your time managing the use of the SHAPES results? Check all that apply.**

☐ ENSURING CONSISTENCY
☐ INTERPRETING RESULTS
☐ ENSURING STAFF ARE USING RESULTS
☐ OTHER

29 **What are the long-term strategies required for using SHAPES results in planning and evaluation? Check all that apply**

☐ SECURING FUNDING
☐ ALLOCATION OF RESOURCES
☐ POLICY DEVELOPMENT
☐ ADVOCACY FOR EVIDENCE-INFORMED PLANNING
☐ OTHER

30 **Has using the SHAPES results for planning and evaluation become routine (i.e. practice runs smoothly with minimal management problems)?**

☐ YES
☐ NO

31 **Has a tailored analysis of the SHAPES results been done?**

☐ YES
☐ NO (go to question 33)
☐ N/A (go to question 33)

32 **Has the tailored analysis been used in an effort to increase the impact on evidence-informed planning?**

☐ YES
☐ NO

33 **Have you collaborated with colleagues and/or other organizations (i.e. schools) targeting the same population to implement using SHAPES results in your planning and evaluation?**

☐ YES
☐ NO

34 **Have you explored other evidence that could be used in combination with, or in place of SHAPES results, to improve the effectiveness of your program planning and evaluation?**

☐ YES
☐ NO

Impact

35 **Has SHAPES increased evidence-informed planning and evaluation, either in the health unit or with other groups (e.g. schools)?**

☐ YES
☐ MAYBE
☐ NO
☐ DON'T KNOW
☐ N/A

36 **Since working with the SHAPES results, have you encouraged a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO (go to 37)

37 **Since offering encouragement, have you persuaded a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO

38 **Are there any additional comments you would like to make about the SHAPES feedback report or your use of research evidence in planning and evaluation? (Your comments do not need to be related to an adopted and implemented practice)**

SECTION 2: Deliberate Non-use

This section only applies to answers NOT AT ALL or NOT SURE to Question 22.

Please indicate ALL of the following reasons why you chose not to adopt this new source of information (SHAPES report/data).

Innovation Characteristics

Relative Advantage

- ☐ I have equivalent evidence/information I already use
- ☐ The innovation (SHAPES) was not perceived to be better than the current evidence/information
- ☐ The innovation (SHAPES) did not show any economic advantage from adopting it
- ☐ The innovation (SHAPES) was more time consuming and required more effort than the current evidence/information used

Compatibility

- ☐ The innovation (SHAPES) was not consistent with the current values of my program or organization
- ☐ The innovation (SHAPES) did not meet the needs of my program or organization

Complexity

- ☐ The innovation (SHAPES) was too difficult to understand
- ☐ The innovation (SHAPES) was too difficult to implement or use

Trialability

- ☐ The innovation (SHAPES) could not be implemented on a small scale to determine its advantages or disadvantages
- ☐ I have not heard of any other organization(s) related to mine that have adopted this innovation (SHAPES)

Observability

- ☐ I have not seen this innovation (SHAPES) successfully implemented

Organizational Characteristics

Size and Resources

- ☐ My organization is too small or too large to adopt this innovation (SHAPES)
- ☐ My organization does not have enough personnel resources (staff) to adopt this innovation (SHAPES)
- ☐ My organization does not have enough financial resources to adopt this innovation (SHAPES)

Location

- ☐ My organization was not in an appropriate location to adopt or implement this innovation (SHAPES)

Hierarchy

- ☐ I do not have enough decision-making authority in my position to decide to adopt this innovation (SHAPES)
- ☐ I was not able to prove to my supervisor that this was an important innovation (SHAPES) to adopt

Formalization

- ☐ This innovation (SHAPES) did not follow the rules and procedures of my organization
- ☐ There was not enough evidence that this innovation (SHAPES) would be effective or successful

Environmental Characteristics

- ☐ There is not enough collaboration or potential for networking with other organizations to be able to adopt and implement this innovation (SHAPES)

Individual Characteristics

- ☐ This innovation (SHAPES) did not seem relevant to my practice
- ☐ It is not an appropriate time to be adopting this innovation (SHAPES)
- ☐ This innovation (SHAPES) does not coincide with my values or beliefs about what is effective
- ☐ I have insufficient time to adopt and implement a new innovation (SHAPES)

Other

- Other reasons not mentioned above have resulted in non-adoption of this innovation (SHAPES)
- These other reasons are:

APPENDIX E: Adapted Interview Guide & Adapted Knowledge Utilization Uptake Scale

Interview Guide (Site C)

Overall Probe: You mentioned _____, could you expand in the interaction of/ among this group committee? What is the nature of this relationship?

- How is this response similar or different from previous experiences within your organisation?

1. **Are you familiar with the data collected through the SHAPES Survey, specifically local evidence concerning youth physical activity?**
    - **YES: get an impression of what the data set is like**
        a) Can you tell me about the data set?
            - From whom were the data collected?
            - On what topic(s)?
            - What size of sample?
        b) When were the data collected?
        c) Who collected the data? What group collected the data? (e.g., public health, government agency, university)
        d) How did you become aware of these data?
        e) How were the data disseminated and presented to you?
    - **No: get an impression of whether or not they are aware of any local surveillance data**
        a) Are you familiar with any local evidence concerning physical activity of the general population?
        b) Are you familiar with any local data surveillance?
        c) Are you aware of any sources of evidence regarding youth physical activity data (not local)?
        d) Your Health Unit participated with University of Waterloo to collect secondary school data on physical activity in 2004-05. Were you aware?
    - If yes to any of these, use the probes from above

Additional Probes:

- What is your personal impression of **the SHAPES Survey**?
    a) What's your impression of the credibility – how trustworthy is the data?
- What do you perceive is the organisations impression of **the SHAPES Survey**?
    - Easy to comprehend?
    - Timely? Can you help me to understand whom you are referring to when you say it is timely?
    - Relevant to your needs?
    - Did you learn anything from the data?
    - What do you see as the limitations of this evidence?
- I'm interested in what qualifies evidence for you in planning and decision-making? What do you personally consider as evidence? What does your Health Unit consider as evidence?

2. **How have you used the SHAPES Survey results?**
    - Could you give some examples of how you or the organisation has used the results?
    - *So you mentioned you used the results _____ did this result from a more formal or informal process?* Are there any formal and/or informal processes or structure in place that are specific to the use of the **SHAPES** evidence? Or evidence in general?

3. **How do you get things done in your Health Unit (or how do things get done?). What are some examples?**
    - For example, many organizations form small, temporary teams, or work groups to get things done. When a task requires such team work**, how do people come together in your Health Unit**?
        a) Does this coming together typically occur spontaneously, or is there some more formal mechanism within the Health Unit? How are they formed? Who typically sits on these work groups (e.g. is it multi-disciplinary and collaborative)?
            - Can you give me an examples of this regarding work that was done with the youth physical activity data?
        b) How easy is it to **develop shared goals** in these groups? Give me an example of how these work teams arrive at their goals and objectives, and how they will function as a team? To what extent is this a process of **mutual negotiation**?
            - Are decisions made ultimately by one individual, or is it through group consensus?
        c) Does working in a group tend to **increase or decrease the use** of evidence in planning and decision-making? Can you provide a concrete example related to **the SHAPES results**?
            - Can you explain to me, why this may be?
4. ***(I'd like to get a sense of how decisions are made within your Health Unit or department).***
        a) How are **decisions made** in your **Health Unit**? Is it a formal or informal process? Who makes the decisions?
            - Can you give me an example with respect to **the SHAPES results?**
        b) How do **ideas typically spread** through your organisation (e.g. top-down vs. bottom-up)? Are there processes/**structures in place to facilitate** the spread of ideas or information through the organisation (e.g. meetings, inter-organisation announcements)? Are these formal or informal processes?
            - Tell me more about how these operate?
        c) Do similar processes occur with regards to the use of the **SHAPES result**?
            - Can you tell me about an example of how this kind of communication has worked with respect to the use of the **SHAPES results**?
        d) Do these processes extend beyond the Health Unit?
        e) How do these **processes influence the use of SHAPES results** in your organisation? Do they help or hinder?
            - Can you explain to me why this may help or hinder?
5. Tell me about partnerships with groups outside your Health Unit related to the **SHAPES Survey**?
        a) With whom have you formed partnerships? UW? Local Schools?
        b) How did these partnerships form?
        c) Are these partnerships formal (structures in place to facilitate spread of ideas) or informal (certain individuals seem to take it on)?
            - Tell me a little about how these operate?
        d) How do these partnerships influence the use of the **SHAPES** results in your organisation? Do they help or hinder? Can you describe this further?
            - Can you explain to me why this may help or hinder?

- *(I'm interested in knowing what other factors related to **individuals or to the organisation** itself facilitate or hinder the use of* **the SHAPES** *results in your Health Unit?)*
    a) Other **factors beyond your Health Unit** that might influence how your organisation deals with this evidence?

6. (*If the Health Unit has some partnership with schools, probe about the following)* How does your Health Unit get things done in schools? Examples?

- Do you see a valid use for the **SHAPES results** in the schools?
- How have you/or the organisation shared the **SHAPES results** with the schools?
    a) Have you developed any resources to share the **SHAPES results**?
- What processes/structure does your Health Unit have in place to engage schools in youth physical activity initiatives?
    a) Are these formal? Informal? Social processes?
- To your knowledge, how have schools used the **SHAPES results**?
- What is your **interaction with the school** like? What is the nature of the relationship? Is there collaborative, coordinated action? Do the schools take an active role in the process?
    a) Do these interactions with the schools help or hinder the use of the **SHAPES results** in the schools?
        - Can you explain to me why you think they help/hinder?
- In general, what factors facilitate or hinder working with the schools?

KNOWLEDGE UTILIZATION UPTAKE SCALE (SITE C)

Awareness

1 Are you aware of the youth physical activity data collected through the SHAPES Survey?
- ☐ YES (go to question 3)
- ☐ NO

2 Would you like to learn more about the youth physical activity data collected through the SHAPES Survey?
- ☐ YES (discontinue questions)
- ☐ NO (discontinue questions)

Reception

NOTE: "SHAPES Feedback Report/SHAPES result" refers to the youth physical activity results from the SHAPES Survey

3 Have you received a copy of the report summarizing the SHAPES results (SHAPES Feedback Report)?
- ☐ YES (go to question 6)
- ☐ NO

4 Did you retrieve a copy of the SHAPES Feedback Report?
- ☐ YES
- ☐ NO (go to question 5)

5 Do you plan to access the SHAPES Feedback Report?
- ☐ YES
- ☐ MAYBE
- ☐ NO (discontinue questions)
- ☐ DON'T KNOW

6 Even before viewing it, did/do you think the SHAPES Feedback Report may be useful?
- ☐ YES
- ☐ MAYBE
- ☐ NO
- ☐ DON'T KNOW

Cognition

7 Have you read the SHAPES Feedback Report/SHAPES results?
- ☐ FULLY (go to question 9)
- ☐ PARTIALLY (go to question 9)
- ☐ NOT AT ALL

8 Do you plan to read the SHAPES Feedback Report/SHAPES results?
- ☐ YES (go to question 13)
- ☐ MAYBE (go to question 13)
- ☐ NO (discontinue)

9 Was the material in the SHAPES Feedback Report presented in a way you could understand?
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

10 Have you thought about the contents of the SHAPES results since you read the Feedback Report?
- ☐ NEVER
- ☐ RARELY
- ☐ SOMETIMES
- ☐ OFTEN

Discussion

11 **Have you made other colleague(s) aware of the SHAPES results?**
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

12 **Have you discussed the SHAPES results with colleagues within your organization?**
- ☐ YES (go to question 14)
- ☐ NO

13 **Do you plan to discuss the SHAPES results with colleagues within your organization?**
- ☐ YES
- ☐ MAYBE
- ☐ NO

14 **Have you discussed the SHAPES results with colleague(s) outside of your organization?**
- ☐ YES (go to question 16)
- ☐ NO

15 **Do you plan to discuss the SHAPES results with colleague(s) outside of your organization?**
- ☐ YES
- ☐ MAYBE
- ☐ NO

16 **Have you sought the opinion(s) of other(s) who have used the SHAPES results (e.g. through discussions, visits, or workshops)?**
- ☐ YES
- ☐ NO

Reference

17 **Have you cited the SHAPES results in your own reports or documents?**
- ☐ YES (go to question 19)
- ☐ NO
- ☐ N/A

18 **Do you plan to cite the SHAPES results in your own reports?**
- ☐ YES
- ☐ MAYBE
- ☐ NO
- ☐ DON'T KNOW

19 **Have the SHAPES results influenced your decisions/choices in your program planning, development and implementation?**
- ☐ YES
- ☐ NO

Effort

20 **Have you favoured the SHAPES results over other report(s)/sources of information?**
- ☐ YES
- ☐ NO

Adoption

21 **Have you made a decision to use the SHAPES results in your public health planning and/or evaluation?**
- ☐ FULLY (go to question 24)
- ☐ PARTIALLY (go to question 24)
- ☐ NOT AT ALL

22 **Do you plan to make a decision whether to use the SHAPES results in your public health planning and/or evaluation?**
- ☐ FULLY
- ☐ PARTIALLY
- ☐ NOT AT ALL (discontinue questions)-go to section 2
- ☐ NOT SURE (discontinue questions)-go to section 2

23 **Do you know when you will begin to use the SHAPES results in your public health planning and/or evaluation?**

☐ YES (discontinue questions)
☐ NO (discontinue questions)

24 **Has the use of the SHAPES results contributed to your efforts at evidence-informed planning?**

☐ YES
☐ NO

Implementation

25 **Overall, in the past 1, (6, 12, 18) month(s), how fully have you used the SHAPES results in your planning and evaluation?**

☐ NOT AT ALL
☐ A LITTLE
☐ A LOT
☐ A LOT, BUT ADAPTED FROM THE SHAPES RESULTS

26 **Have you employed short term strategies for facilitating the use of the SHAPES results (e.g. workgroups, meetings with school boards, revised operational plans or logic models)?**

☐ YES
☐ NO

27 **Do you spend your time managing the use of the SHAPES results?**

☐ YES
☐ NO (go to question 29)

28 **How do you spend your time managing the use of the SHAPES results? Check all that apply.**

☐ ENSURING CONSISTENCY
☐ INTERPRETING DATA
☐ ENSURING STAFF ARE USING DATA
☐ OTHER

29 **What are the long-term strategies required for using the SHAPES results in planning and evaluation? Check all that apply**

☐ SECURING FUNDING
☐ ALLOCATION OF RESOURCES
☐ POLICY DEVELOPMENT
☐ ADVOCACY FOR EVIDENCE-INFORMED PLANNING
☐ OTHER

30 **Has using the SHAPES results for planning and evaluation become routine (i.e. practice runs smoothly with minimal management problems)?**

☐ YES
☐ NO

31 **Has a tailored analysis of the SHAPES results been done?**

☐ YES
☐ NO (go to question 33)
☐ N/A (go to question 33)

32 **Has the tailored analysis been used in an effort to increase the impact on evidence-informed planning?**

☐ YES
☐ NO

33 **Have you collaborated with colleagues and/or other organizations (i.e. schools) targeting the same population to implement using the SHAPES results in your planning and evaluation?**

☐ YES
☐ NO

34 **Have you explored other evidence that could be used in combination with, or in place of the SHAPES results, to improve the effectiveness of your program planning and evaluation?**

☐ YES
☐ NO

Impact

35 **Has the SHAPES results increased evidence-informed planning and evaluation, either in the health unit or with other groups (e.g. schools)?**

☐ YES
☐ MAYBE
☐ NO
☐ DON'T KNOW
☐ N/A

36 **Since working with the SHAPES results, have you encouraged a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO (go to 37)

37 **Since offering encouragement, have you persuaded a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO

38 **Are there any additional comments you would like to make about the SHAPES results or your use of research evidence in planning and evaluation? (Your comments do not need to be related to an adopted and implemented practice)**

SECTION 2: Deliberate Non-use

This section only applies to answers NOT AT ALL or NOT SURE to Question 22.

Please indicate ALL of the following reasons why you chose not to adopt this new source of information (SHAPES results).

Innovation Characteristics

Relative Advantage

- ☐ I have equivalent evidence/information I already use
- ☐ The innovation (SHAPES) was not perceived to be better than the current evidence/information
- ☐ The innovation (SHAPES) did not show any economic advantage from adopting it
- ☐ The innovation (SHAPES) was more time consuming and required more effort than the current evidence/information used

Compatibility

- ☐ The innovation (SHAPES) was not consistent with the current values of my program or organization
- ☐ The innovation (SHAPES) did not meet the needs of my program or organization

Complexity

- ☐ The innovation (SHAPES) was too difficult to understand
- ☐ The innovation (SHAPES) was too difficult to implement or use

Trialability

- ☐ The innovation (SHAPES) could not be implemented on a small scale to determine its advantages or disadvantages
- ☐ I have not heard of any other organization(s) related to mine that have adopted this innovation (SHAPES)

Observability

- ☐ I have not seen this innovation (SHAPES) successfully implemented

Organizational Characteristics

Size and Resources

- ☐ My organization is too small or too large to adopt this innovation (SHAPES)
- ☐ My organization does not have enough personnel resources (staff) to adopt this innovation (SHAPES)
- ☐ My organization does not have enough financial resources to adopt this innovation (SHAPES)

Location

- ☐ My organization was not in an appropriate location to adopt or implement this innovation (SHAPES)

Hierarchy

- ☐ I do not have enough decision-making authority in my position to decide to adopt this innovation (SHAPES)
- ☐ I was not able to prove to my supervisor that this was an important innovation (SHAPES) to adopt

Formalization

- ☐ This innovation (SHAPES) did not follow the rules and procedures of my organization
- ☐ There was not enough evidence that this innovation (SHAPES) would be effective or successful

Environmental Characteristics

- ☐ There is not enough collaboration or potential for networking with other organizations to be able to adopt and implement this innovation (SHAPES)

Individual Characteristics

- ☐ This innovation (SHAPES) did not seem relevant to my practice
- ☐ It is not an appropriate time to be adopting this innovation (SHAPES)
- ☐ This innovation (SHAPES) does not coincide with my values or beliefs about what is effective
- ☐ I have insufficient time to adopt and implement a new innovation (SHAPES)

Other

Other reasons not mentioned above have resulted in non-adoption of this innovation (SHAPES)

These other reasons are:

Interview Guide (Site D)

Overall Probe: You mentioned _____, could you expand in the interaction of/ among this group committee? What is the nature of this relationship?

- How is this response similar or different from previous experiences within your organisation?

7. Are you familiar with the data collected through the Youth Health Survey, specifically local evidence concerning youth physical activity?

- **YES: get an impression of what the data set is like**
  a) Can you tell me about the data set?
    - From whom were the data collected?
    - On what topic(s)?
    - What size of sample?
  b) When were the data collected?
  c) Who collected the data? What group collected the data? (e.g., public health, government agency, university)
  d) How did you become aware of these data?
  e) How were the data disseminated and presented to you?
- **No: get an impression of whether or not they are aware of any local surveillance data**
  a) Are you familiar with any local evidence concerning physical activity of the general population?
  b) Are you familiar with any local data surveillance?
  c) Are you aware of any sources of evidence regarding youth physical activity data (not local)?
  d) Your RHA participated with University of Waterloo to collect secondary school data on physical activity in 2004-05. Were you aware?
- If yes to any of these, use the probes from above

Additional Probes:

- What is your personal impression of **the Youth Health Survey**?
  a) What's your impression of the credibility – how trustworthy is the data?
- What do you perceive is the organisations impression of **the Youth Health Survey**?
    - Easy to comprehend?
    - Timely? Can you help me to understand whom you are referring to when you say it is timely?
    - Relevant to your needs?
    - Did you learn anything from the data?
    - What do you see as the limitations of this evidence?
- I'm interested in what qualifies evidence for you in planning and decision-making? What do you personally consider as evidence? What does your RHA consider as evidence?

8. How have you used the Youth Health Survey results?

- Could you give some examples of how you or the organisation has used the results?
- *So you mentioned you used the results _____ did this result from a more formal or informal process?* Are there any formal and/or informal processes or structure in

place that are specific to the use of the **SHAPES/the Youth Health Survey and Community Survey** evidence? Or evidence in general?

9. **(*I'm going to switch gears a little bit with the next questions*). How do you get things done in your RHA (or how do things get done?). What are some examples?**
    - For example, many organizations form small, temporary teams, or work groups to get things done. When a task requires such team work**, how do people come together in your RHA**?
        a) Does this coming together typically occur spontaneously, or is there some more formal mechanism within the RHA? How are they formed? Who typically sits on these work groups (e.g. is it multi-disciplinary and collaborative)?
            - Can you give me an examples of this regarding work that was done with the youth physical activity data?
        b) How easy is it to **develop shared goals** in these groups? Give me an example of how these work teams arrive at their goals and objectives, and how they will function as a team? To what extent is this a process of **mutual negotiation**?
            - Are decisions made ultimately by one individual, or is it through group consensus?
        c) Does working in a group tend to **increase or decrease the use** of evidence in planning and decision-making? Can you provide a concrete example related to **the Youth Health Survey**?
            - Can you explain to me, why this may be?

10. ***(I'd like to get a sense of how decisions are made within your RHA or department)*.**
    a) How are **decisions made** in your RHA? Is it a formal or informal process? Who makes the decisions?
        - Can you give me an example with respect to **the Youth Health Survey**
    b) How do **ideas typically spread** through your organisation (e.g. top-down vs. bottom-up)? Are there processes/**structures in place to facilitate** the spread of ideas or information through the organisation (e.g. meetings, inter-organisation announcements)? Are these formal or informal processes?
        - Tell me more about how these operate.
        - Is there a title you give to people with this role?
    c) Do similar processes occur with regards to the use of **the Youth Health Survey**?
        - Can you tell me about an example of how this kind of communication has worked with respect to the use of the **Youth Health Survey results**?
    d) Do these processes extend beyond the RHA?
    e) How do these **processes influence the use of Youth Health Survey results** in your organisation? Do they help or hinder?
        - Can you explain to me why this may help or hinder?

11. Tell me about partnerships with groups outside your RHA related to the **Youth Health Survey** evidence?
    a) With whom have you formed partnerships? UW? Local Schools?
    b) How did these partnerships form?
    c) Are these partnerships formal (structures in place to facilitate spread of ideas) or informal (certain individuals seem to take it on)?

        - Tell me a little about how these operate?
    d) How do these partnerships influence the use of the **Youth Health Survey** results in your organisation? Do they help or hinder? Can you describe this further?
        - Can you explain to me why this may help or hinder?
- *(I'm interested in knowing what other factors related to **individuals or to the organisation** itself facilitate or hinder the use of* **the Youth Health Survey** *results in the RHA?)*
    a) Other **factors beyond your RHA** that might influence how your organisation deals with this evidence?

12. (*If the RHA has some partnership with schools, probe about the following)* How does your RHA get things done in schools? Examples?

- Do you see a valid use for the **Youth Health Survey results** in the schools?
- How have you shared the **Youth Health Survey results** with the schools?
    a) Have you developed any related resources to share the **Youth Health Survey results**?
- What processes/structure does your organisation have in place to engage schools in youth physical activity initiatives?
    a) Are these formal? Informal? Social processes?
- To your knowledge, how have schools used the **Youth Health Survey results**?
- What is your **interaction with the school** like? What is the nature of the relationship? Is there collaborative, coordinated action? Do the schools take an active role in the process?
    a) Do these interactions with the schools help or hinder the use of the **Youth Health Survey results** in the schools?
        - Can you explain to me why you think they help/hinder?
- What factors facilitate or hinder working with the schools?

KNOWLEDGE UTILIZATION UPTAKE SCALE (SITE D)

Awareness

1 Are you aware of the youth physical activity data collected through the Youth Health Survey?
- ☐ YES (go to question 3)
- ☐ NO

2 Would you like to learn more about the youth physical activity data collected through the Youth Health Survey?
- ☐ YES (discontinue questions)
- ☐ NO (discontinue questions)

Reception

NOTE: "Youth Health Survey data" refers to the youth physical activity results from the Youth Health Survey and the Youth Health Survey Report

3 Have you received a copy of the report summarizing the Youth Health Survey data?
- ☐ YES (go to question 6)
- ☐ NO

4 Did you retrieve a copy of the Youth Health Survey data?
- ☐ YES
- ☐ NO (go to question 5)

5 Do you plan to access the Youth Health Survey data?
- ☐ YES
- ☐ MAYBE
- ☐ NO (discontinue questions)
- ☐ DON'T KNOW

6 Even before viewing it, did/do you think the Youth Health Survey data may be useful?
- ☐ YES
- ☐ MAYBE
- ☐ NO
- ☐ DON'T KNOW

Cognition

7 Have you read the Youth Health Survey data?
- ☐ FULLY (go to question 9)
- ☐ PARTIALLY (go to question 9)
- ☐ NOT AT ALL

8 Do you plan to read the Youth Health Survey data?
- ☐ YES (go to question 13)
- ☐ MAYBE (go to question 13)
- ☐ NO (discontinue)

9 Was the material in the Youth Health Survey report presented in a way you could understand?
- ☐ YES
- ☐ NO
- ☐ DON'T KNOW

10 Have you thought about the contents of the Youth Health Survey data since you read it?
- ☐ NEVER
- ☐ RARELY
- ☐ SOMETIMES
- ☐ OFTEN

Discussion

11 Have you made other colleague(s) aware of the Youth Health Survey data?

☐ YES
☐ NO
☐ DON'T KNOW

12 **Have you discussed the Youth Health Survey data with colleagues within your organization?**
☐ YES (go to question 14)
☐ NO

13 **Do you plan to discuss the Youth Health Survey data with colleagues within your organization?**
☐ YES
☐ MAYBE
☐ NO

14 **Have you discussed the Youth Health Survey data with colleague(s) outside of your organization?**
☐ YES (go to question 16)
☐ NO

15 **Do you plan to discuss the Youth Health Survey data with colleague(s) outside of your organization?**
☐ YES
☐ MAYBE
☐ NO

16 **Have you sought the opinion(s) of other(s) who have used the Youth Health Survey data (e.g. through discussions, visits, or workshops)?**
☐ YES
☐ NO

Reference

17 **Have you cited the Youth Health Survey data in your own reports or documents?**
☐ YES (go to question 19)
☐ NO
☐ N/A

18 **Do you plan to cite the Youth Health Survey data in your own reports?**
☐ YES
☐ MAYBE
☐ NO
☐ DON'T KNOW

19 **Have the Youth Health Survey data influenced your decisions/choices in your program planning, development and implementation?**
☐ YES
☐ NO

Effort

20 **Have you favoured the Youth Health Survey data over other report(s)/sources of information?**
☐ YES
☐ NO

Adoption

21 **Have you made a decision to use the Youth Health Survey data in your public health planning and/or evaluation?**
☐ FULLY (go to question 24)
☐ PARTIALLY (go to question 24)
☐ NOT AT ALL

22 **Do you plan to make a decision whether to use the Youth Health Survey data in your public health planning and/or evaluation?**
☐ FULLY

☐ PARTIALLY
☐ NOT AT ALL (discontinue questions)-go to section 2
☐ NOT SURE (discontinue questions)-go to section 2

23 Do you know when you will begin to use the Youth Health Survey data in your public health planning and/or evaluation?
☐ YES (discontinue questions)
☐ NO (discontinue questions)

24 Has the use of the Youth Health Survey data contributed to your efforts at evidence-informed planning?
☐ YES
☐ NO

Implementation

25 Overall, in the past 1, (6, 12, 18) month(s), how fully have you used the Youth Health Survey data in your planning and evaluation?
☐ NOT AT ALL
☐ A LITTLE
☐ A LOT
☐ A LOT, BUT ADAPTED FROM THE YOUTH HEALTH SURVEY DATA

26 Have you employed short term strategies for facilitating the use of the Youth Health Survey data (e.g. workgroups, meetings with school boards, revised operational plans or logic models)?
☐ YES
☐ NO

27 Do you spend your time managing the use of the Youth Health Survey data?
☐ YES
☐ NO (go to question 29)

28 How do you spend your time managing the use of the Youth Health Survey data? Check all that apply.
☐ ENSURING CONSISTENCY
☐ INTERPRETING DATA
☐ ENSURING STAFF ARE USING DATA
☐ OTHER

29 What are the long-term strategies required for using the Youth Health Survey data in planning and evaluation? Check all that apply
☐ SECURING FUNDING
☐ ALLOCATION OF RESOURCES
☐ POLICY DEVELOPMENT
☐ ADVOCACY FOR EVIDENCE-INFORMED PLANNING
☐ OTHER

30 Has using the Youth Health Survey data for planning and evaluation become routine (i.e. practice runs smoothly with minimal management problems)?
☐ YES
☐ NO

31 Has a tailored analysis of the Youth Health Survey data been done?
☐ YES
☐ NO (go to question 33)
☐ N/A (go to question 33)

32 Has the tailored analysis been used in an effort to increase the impact on evidence-informed planning?
☐ YES
☐ NO

33 **Have you collaborated with colleagues and/or other organizations (i.e. schools) targeting the same population to implement using the Youth Health Survey data in your planning and evaluation?**

☐ YES
☐ NO

34 **Have you explored other evidence that could be used in combination with, or in place of the Youth Health Survey data, to improve the effectiveness of your program planning and evaluation?**

☐ YES
☐ NO

Impact

35 **Has the Youth Health Survey data increased evidence-informed planning and evaluation, either in the health unit or with other groups (e.g. schools)?**

☐ YES
☐ MAYBE
☐ NO
☐ DON'T KNOW
☐ N/A

36 **Since working with the Youth Health Survey data, have you encouraged a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO (go to 37)

37 **Since offering encouragement, have you persuaded a colleague(s) to adopt the practice of using research evidence in their planning and evaluation?**

☐ YES
☐ NO

38 **Are there any additional comments you would like to make about the Youth Health Survey data or your use of research evidence in planning and evaluation? (Your comments do not need to be related to an adopted and implemented practice)**

SECTION 2: Deliberate Non-use

This section only applies to answers NOT AT ALL or NOT SURE to Question 22.

Please indicate ALL of the following reasons why you chose not to adopt this new source of information (Youth Health Survey data).

Innovation Characteristics

Relative Advantage

- ☐ I have equivalent evidence/information I already use
- ☐ The innovation (Youth Health Survey) was not perceived to be better than the current evidence/information
- ☐ The innovation (Youth Health Survey) did not show any economic advantage from adopting it
- ☐ The innovation (Youth Health Survey) was more time consuming and required more effort than the current evidence/information used

Compatibility

- ☐ The innovation (Youth Health Survey) was not consistent with the current values of my program or organization
- ☐ The innovation (Youth Health Survey) did not meet the needs of my program or organization

Complexity

- ☐ The innovation (Youth Health Survey) was too difficult to understand
- ☐ The innovation (Youth Health Survey) was too difficult to implement or use

Trialability

- ☐ The innovation (Youth Health Survey) could not be implemented on a small scale to determine its advantages or disadvantages
- ☐ I have not heard of any other organization(s) related to mine that have adopted this innovation (Youth Health Survey)

Observability

- ☐ I have not seen this innovation (Youth Health Survey) successfully implemented

Organizational Characteristics

Size and Resources

- ☐ My organization is too small or too large to adopt this innovation (Youth Health Survey)
- ☐ My organization does not have enough personnel resources (staff) to adopt this innovation (Youth Health Survey)
- ☐ My organization does not have enough financial resources to adopt this innovation (Youth Health Survey)

Location

- ☐ My organization was not in an appropriate location to adopt or implement this innovation (Youth Health Survey)

Hierarchy

- ☐ I do not have enough decision-making authority in my position to decide to adopt this innovation (Youth Health Survey)
- ☐ I was not able to prove to my supervisor that this was an important innovation (Youth Health Survey) to adopt

Formalization

- ☐ This innovation (Youth Health Survey) did not follow the rules and procedures of my organization
- ☐ There was not enough evidence that this innovation (Youth Health Survey) would be effective or successful

Environmental Characteristics

- ☐ There is not enough collaboration or potential for networking with other organizations to be able to adopt and implement this innovation (Youth Health Survey)

Individual Characteristics

- ☐ This innovation (Youth Health Survey) did not seem relevant to my practice
- ☐ It is not an appropriate time to be adopting this innovation (Youth Health Survey)

☐ This innovation (Youth Health Survey) does not coincide with my values or beliefs about what is effective
☐ I have insufficient time to adopt and implement a new innovation (Youth Health Survey)
Other
Other reasons not mentioned above have resulted in non-adoption of this innovation (Youth Health Survey)
These other reasons are:

APPENDIX F: Office of Research Ethics Approval

Office of Research Ethics Approval

From: ORE Ethics Application System [OHRAC@uwaterloo.ca]
Sent: Friday, April 04, 2008 14:58
To: manske@healthy.uwaterloo.ca
Cc: mroth@ahsmail.uwaterloo.ca
Subject: Full Ethics Clearance after provisional, no comments (ORE # 14603)

Dear Researcher:
The recommended revisions/additional information requested in the initial ethics review of your ORE application:
Title: Interactive Processes and Evidence-Informed Knowledge Use in Public Health: The example of Youth Physical Activity in the SHAPES-Ontario KE Extension
ORE #: 14603
Faculty Supervisor: Steve Manske (manske@healthy.uwaterloo.ca)
Student Investigator: Melissa Roth (mroth@ahsmail.uwaterloo.ca)
have been reviewed and are considered acceptable. As a result, your application now has received full ethics clearance.
A signed copy of the Notification of Full Ethics Clearance will be sent to the Principal Investigator or Faculty Supervisor in the case of student research.
ADDITIONAL REVISIONS OR RESPONSES TO COMMENTS: N/A
****
Note 1: This clearance is valid for four years from the date shown on the certificate and a new application must be submitted for on-going projects continuing beyond four years.
Note 2: This project must be conducted according to the application description and revised materials for which ethics clearance have been granted. All subsequent modifications to the protocol must receive prior ethics clearance through our office and must not begin until notification has been received.
Note 3: Researchers must submit a Progress Report on Continuing Human Research Projects (ORE Form 105) annually for all ongoing research projects. In addition, researchers must submit a Form 105 at the conclusion of the project if it continues for less than a year.
Note 4: Any events related to the procedures used that adversely affect participants must be reported immediately to the ORE using ORE Form 106.

Best wishes for success with this study.
Susanne Santi, M. Math.,
Manager
Office of Research Ethics
NH 1027
519.888.4567 x 37163
ssanti@uwaterloo.ca

APPENDIX G: Coding Index

Information Source		
Code	**Code Description**	**Supporting Quotes**
Information Source	General references to or characteristics of the information source and innovation	"The data was collected from all of the grade 6 to 12 in the XXX Regional Health Authority in all of the school districts here except for the First Nations schools." [Site D, Participant 1, 11]
Credibility	Whether the the information source and those responsible for the dissemination are perceived as trustworthy (Cousins & Leithwood, 1993)	"I think that the survey tool itself, we reviewed what had been done around the country and really just used some of the validated questions already." [Site D, Participant 1, 95]
Relevance	Indication or perception that the information source is practical and pertinent to the needs of the user (Cousins & Leithwood, 1993)	"...so this actually gave people that local information and it spurred them to action." [Site D, Participant 1, 95]
Timeliness	Degree to which the information source is being or is perceived as being disseminated at a suitable time (e.g. data is not more than 5 years old) and in an ongoing manner (Cousins & Leithwood, 1993)	"We collected the data in 2006...so it's still fairly new data…" [Site D, Participant 1, 27-29]
Relative Advantage	The degree to which the user refers to the information source under consideration over other competing sources of information (Cousins & Leithwood, 1993)	"…for the most part we ask programs to use local evidence when it's available and if not, you know, of course we'd have to use provincial data…" [Site A, 1, 107]
Access to SHAPES data	Being able to obtain and take advantage of the the SHAPES/YHS for their daily work	"I mean obviously without SHAPES we wouldn't have as much detailed data and information on youth smoking...the SHAPES survey has been the evidence to support the tobacco programs…" [Site A, Participant 1, 83]

SHAPES data Support Partnerships	Sharing and using the SHAPES/YHS data when engaging stakeholders or potential partners. Instances when SHAPES/YHS data provides support and rationale for partnerships and joint initiatives	"…the first thing that comes to mind when I can share [SHAPES] data...People like hearing those types of numbers, it gets their interest." [Site A, Participant 2, 30]
Organisational Context		
Code	**Code Description**	**Supporting Quotes**
Capacity for Evidence-Informed Practice	The organisation's abilities to support a work environment that is conducive to evidence-informed practice. This can include resources, history of prior knowledge use, previous experience and leadership	"In a region our size you know we don't have a department that looks at just research and pulling together that information…" [Site D, Participant 1, 151]
Resources	Capacity of the organisation in terms of time, money and staff (Manske, 2001)	"I think for us it's manpower. There's not enough of us..." [Site C, Participant 1, 496]
History of Prior Knowledge Use	Considers the individuals within the organisation and their previous opportunities with using evidence (Cousins & Leithwood, 1993)	
Previous Experience	Considers the individuals within the organisation and their previous opportunities with using evidence (Cousins & Leithwood, 1993)	
Leadership	Extent to which leaders within the organisation support and encourage knowledge use (Manske, 2001). An individual or group within the organisation that really moves initiatives forward and serves as an inspiration/exemplar/champion that other staff can go to for guidance	"Well we have a health information analysis manager which is XXX and all of that information, I mean she is the one who really saw that process from beginning to end and she is kind of the collector of all information and analysis within our region…" [Site D, Participant 1, 211]
Organisation Support for Evidence-Informed Practice	The organisation's impression of research, organisational mandates, requirements, and resources (e.g. dedication of time, money, or staff) that encourage the use of research evidence in their staff's work (e.g. making evidence-informed practice a priority of the organisation)	"…my job has kind of focused on providing evidence so basically when managers are are planning or reacting to things they will both use quantitative and qualitative information. But my job is to have enough data there so that at least its on the table when they're making decisions." [Site D, Participant 5, 231]

Priorities	Weight given to the information source within the organisation (Manske, 2001)	
Commitment/Receptiveness	Extent to which the attitudes of individuals within the organisation are in favour of utilising the information (Cousins & Leithwood, 1993)	
Formal Processes	Established processes and requirements within the organisation that either facilitate or hinder knowledge exchange and use (e.g. operational planning, ethics approval, etc.).	"we've tried in the last few years to formalize information exchange between the school boards and XXX Public Health because we get the superintendants, a, a superintendant rep from each of the four boards to meet with the medical officer of health. And we try and do that twice a year. And at board meetings a Public Health nurse is at the table." [Site A, Participant 2, 258]
Staff Workload	The amount and type of work that is placed on an individual by the organisation. A heavy workload may cause individuals to prioritize and overlook certain tasks or duties.	"are there challenges, sometimes of course. You know if you hit too high on the administration like say the superintendent it's not that they don't care, it's just that they're so swamped that they're too busy." [Site D, Participant 2, 1150]
Capacity Building	Efforts to further develop the skills of individuals and the resources available to individuals, groups, or organisations that are necessary for carrying out specifice initiatives.	"And I know what happened the last time there were some sessions on evidence based workshops that all the partners were invited to and we had people come out and explain this is the information and this is what you can do with it, this is how you use it. Those kind of -- the tools were brought to the partners." [Site D, Participant 3, 391]

Interactive Processes		
Code	**Code Description**	**Supporting Quotes**
Consistent Contact	Regularly occuring and dependable interaction between individuals, groups, or organisations (e.g. Having PHN assignments to schools). There is a sense of familiarity and an element of trust as a result of this consistent contact and interaction.	"And when it comes to the individual school levels, like for elementary we have a Public Health nurse assigned to each school, so there's their go to person for Public Health. And once again, we've moved back to school assignments for nurses so that they get that same face and they build that relationship." [Site A, Participant 2, 458]
Ongoing Contact	The level of contact and interaction the user engages in with initiators of change (Cousins & Leithwood, 1993)	"the same people are showing up each month, so this is the group and we're finally into the action phase." [Site C, Participant 3, 360]
Engagement	Extent to which individuals are involved in activities such as dissemination and implementation (Cousins & Leithwood, 1993)	
Consult Expertise	Having access to individuals, groups, or organisations that staff can approach for professional advise, directions, or additional information relating to SHAPES/YHS data (e.g. having epidemiologists within the organisation to help interpret the data or a PHRED unit)	"Oh no it's based on feedback from people we linked with University of Waterloo; we've had the public health agency look at it." [Site D, Participant 1, 115]
Formal Partnership	An established cooperative relationship between two or more individuals, groups, or organisations to work together. Can involve mutually established processes for: knowledge exchange; meeting times and agendas; goals and priorities; and roles in the partnership.	"One of them [school board] we have a formal partnership with and the reason that we have that is so that we can have more, more interaction to influence policy at the board level…" [Site A, Participant 4, 316]
Integration and Coordination	Systematic efforts within the organisation to encourage interaction/communication to achieve the brining together and greater concentration of initiatives and projects (e.g. bringing staff together through working groups to better share information with all the key people). Systematic efforts to achieve greater efficiency and effective use of available resources.	"...that program is dealing with youth and we're dealing with youth as well only, you know, in a different way…having crossed the different programs within the health unit, sharing and working together to make things more fluid " [Site C, Participant 1, 294]

Working Groups	Teams or committees within or across organisations that come together to contribute to a joint initiative. Working groups can involve various individuals from different organisations and backgrounds. Working groups differentiate from communities of practice, as they do not have to demonstrate the defining characteristics of a community of practice (e.g. mutual engagement, joint enterprise, shared repetoire).	"It [Secondary Strategy Group] came out of the SHAPES [project]. So after we had the SHAPES studies done…then we had $4,000 for Knowledge Exchange Extension. So then what we did was we got a group together…So we said, you know, we'd like to do something, you know, directly benefiting the high schools from the high schools' perspective and from the teachers' perspective…So what they did was they had representation for every high school and different types. There was like a V-P [vice-principal] and science and phys-ed…" [Site B, Participant 1, 157-161]
Collaborative Partnership	Deliberate set of interactions and processes that bring together all of the relevant individuals, groups, or organisations to work towards a joint initiative. These individuals, groups, or organisations involved, contribute to the joint initiative, but do not necessarily do so with the same goals or investments.	"So the Canadian Cancer Society has a knowledge exchange network and we've partnered with them to help our communities develop those plans so that it's based on evidence and also based on best practice." [Site D, Participant 1, 167]
Community of Practice	A group of individuals that comes together according to a common goal or purpose that is mutually determine through negotiation. Communities of Practice are differentiated by other working groups according to the presence of three defining characteristics, mutual engagement, joint enterprise, shared repetoire (Wenger, 1998).	"...there is a long history to it and there were very good people who started that group and it's a cooperative group and so it really does work very well. It's a consensus model and people are, there has not been a problem getting people to work together in that group." [Site D, Participant 1, 259]

Mutual Engagement	Negotiation among community members toward common goals and objectives (Wenger, 1998)	"…So out of that [Secondary Strategy] group it continues to meet and continues to look at school capacity. Things that are missing, good things that are happening, just brainstorming sessions. So that was a good thing." [Site B, Participant 4, 11]
Joint Enterprise	Process in which people are engaged and work toward common goals (Wenger, 1998)	"…There's been a lot of interaction between, like XXX and I have worked closely together and then this person from physical activity, when she was involved...But a lot of it was just sort of constant… interaction between us." [Site A, Participant 3, 118]
Shared Reptoire	Joint practices, resources and jargons that members develop and use (Wenger, 1998)	"...especially when they trying to get the pamphlet [SHAPES resource] out, there was a lot of, you know, discussions about the implementation phase and for a while we [SHAPES working group] were meeting weekly." [Site A, Participant 3, 118]
Knowledge Broker	Formalized position that provides a link between individuals, working groups, or organisations, to facilitate: interaction and relationship building; mutual understanding; joint efforts; and the use of research evidence (e.g. SHAPES/YHS data) (CHSRF, 2004)	"It was one individual....was our health promotion coordinator who just retired. And she um has um a big background in social capital and really was promoting that. So for a lot of the time she actually spent working outside of the region as much as within the region because she was our link to all the other jurisdictions." [Site D, Participant 5, 453]

Knowledge Use		
Code	**Code Description**	**Supporting Quotes**
Evidence-Informed Knowledge Use	Instances of evidence-informed knowledge use that lacks information indicating the specific type of knowledge use (e.g. instrumental, conceptual, etc.).	
Conceptual	More general application of knowledge to provide basic enlightenment while creating a change in users' awareness and bringing attention to new ideas (Beyer & Trice, 1997)	“it’s positive…I think everyone agrees that it [SHAPES] helped the schools sort of move in the direction of at least awareness” [Site C, Participant 4, 286].
Instrumental	Involves the direct application of research evidence in specific ways, such as developing a policy as a product of a research finding	"the information collected there has helped form the plan for our chronic disease prevention communities which is a pilot project. We’re in year four now of that project where communities have a bit of funding, a very small bit, but they need to develop plans of what they’re actually going to do in their local community based on the risk factors." [Site D, Participant 1, 163]
Symbolic	The use of research evidence to "justify a position or action that has already been taken for other reasons" (Lavis et al., 2003)	""The lead teacher doesn’t always understand the concept of what we’re [Site A] trying to promote. We’re trying to get the least active students active. We’re not trying to offer more sports to the people who already are members of, of sporting teams. And so the, the stats [SHAPES data] for that help to, we have to sometimes bring them back to that." [Site A, Participant 5, 363]
Non-use	Not making use of knowledge or intentions to use the knowledge (KB Manual)	

KE Extension Support		
Code	**Code Description**	**Supporting Quotes**
KE Ext CoP	The KE Ext Community of Practice includes members from the six Ontario Public Health Units participating in the KE Extension and the University of Waterloo	"The other part is, you know, bringing people together, the groups around the province. And then, you know, the other thing is it gets -- it has people talking about the important issues, you know, that were identified through SHAPES." [Site B, Participant 1, 449]
Knowledge Broker	Access to a staff member form the University of Waterloo individual who has experience working with the SHAPES data, data analysis, familiarity working with Ontario Public Health Units, and extensive project management experience. This individual serves as the primary contact for the individual health units to approach with questions or concerns about the data or the project.	
Partnership with UW	The relationship established between researchers and staff at the University of Waterloo and each individual Ontario Public Health Unit involved in the KE Ext to collect and use the SHAPES data. These individual relationships were developed to work together in collecting the SHAPES data and disseminating the findings to encourage the uptake and use of the SHAPES data.	"And the coordinating efforts that you guys [University of Waterloo] have done has been amazing because the, you know like it'd be impossible to do just with the resources we have." [Site B, Participant 4, 63] "Well basically the interactions with Waterloo. I think Waterloo was extremely supportive all the way through. I think we worked very collaboratively." [Site A, Participant 3, 26]
KE Ext Honararium	The additional funding given to the six participating Ontario Public Health units to support initiatives that use the SHAPES data and future opportunities to collect additional local school-level surveillance data	"The other thing with SHAPES is that it's helped us because there has been some funding available as well." [Site B, Participant 3, 167]

External Factors		
Code	**Code Description**	**Supporting Quotes**
External Factors	Factors beyond the individual and the organisation that influences the processes, priorities, and abilities of individuals, groups, or organisations to identify and use evidence (e.g. provincial guidelines, media, community needs, external funding/resources, etc.)	"So you know through all of our health plan submissions to the government and everything we have to provide evidence of what it is we're requesting so everything is based around that." [Site D, Participant 1, 155]
Partnership Buy-In	Gaining the attention and support of target stakeholder groups (e.g. local schools) to work towards joint initiative.	"…when you have support at top level at the school boards…and the schools get that from, from the top end, you have better buy in…" [Site A, Participant 2, 234]
Champion/Gatekeeper of School	Individuals from the target stakeholder group (e.g. schools) that are open and receptive to joint initiatives and take the lead in identifying the necessary support and resources to move forward	"you just have to find a champion within the school. So you'd find the phys ed teacher, whoever was willing to take this on and they were the coordinator. And as long as you provide them with the packaging and the, the basic information, they're more than willing to participate in things." [Site C, Participant 1, 448]