

**Tacit Knowledge Transfer:  
Planners Learning from One Another  
about Climate Change Adaptation**

by

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**Abstract**

This practicum examines how planners can exchange tacit knowledge about climate change adaptation, in order to create better communities and to further the profession. Two regions of British Columbia - the Lower Mainland and the Kootenay's - provided case studies to determine if and how tacit knowledge was exchanged. These two regions are provincial leaders in climate change adaptation, yet their constituent communities are at different stages of adaptation. Through a literature review and case study analysis - featuring key informant interviews, the practicum demonstrates that tacit knowledge is indeed being exchanged within the regions, yet not as strongly between them. Recommendations are offered aiming to improve tacit knowledge exchange within the profession of planning – among planners and through their professional planning Institutes, and for such exchange to be better supported by planning education.

Key Words: Tacit Knowledge, Professional Planner, Climate Change Adaptation,  
Professional Knowledge Exchange

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## 1. Introduction /Significance

“Knowledge can be essentially personal, effectively located on the inside of one’s ‘person’, with a private, subjective, ‘felt’ quality... or knowledge can be construed as essentially communal, residing beyond individuals - on their ‘outside’ so-to-speak, with a more public, objective ‘reasoned’ quality. Knowledge in a professional context tends to privilege the latter; it is literally associated with being ‘professional’, while the other basic form of knowledge is often diminished as merely ‘personal’. Exterior knowledge often seems to trump interior knowledge, limiting the consideration given to such knowledge societally, and by the knowing individuals themselves. But this essentially ‘felt’ internalised knowledge can still effectively ‘inform’ and underpin ‘understanding’, on the inside, for such ‘subjectively knowledgeable’ individuals; it is their tacit interior knowledge - that comes to condition their engagement with the general exterior knowledge most associated with their professing. Such tacit knowledge merits more explicit consideration, in a more integrated valuing of what constitutes ‘knowledge’ in today’s post-post-modern world” (Wight, 2012, Personal Communication).

Knowledge-sharing, being the mesh of interior and exterior knowledge (Rydin, Amjad, & Whitaker, 2007), exchanged inter-personally or more publicly (Schön, 1983), is conventionally viewed - in a planning context - as a form of engagement between professional planning practitioners and a client, community group, or municipality (Rydin, Amjad, & Whitaker, 2007). However, it can also be viewed as part of a learning process within and between planning practitioners themselves. Within the profession, planning theory and learning theory have been effectively merged, in order to improve knowledge-sharing with the public. For example, the practice of public consultation, and a general accessibility to the public, has enabled planners to almost naturally exchange exterior knowledge with the public, or publics. By contrast, practicing planners are just beginning to formally share their interior practical knowledge – what they have come to know and understand from personal experience, on the inside – with one another. As with other professions, there is an opportunity for more widespread practical tacit

knowledge-sharing in the context of professional planning practice, at scales ranging from the professional institutes to individual members.

In everyday planning practice, much of the planner-to-planner learning that takes place happens in a loosely-structured, ad hoc way. Formal strategies for comprehensive or integrated knowledge-sharing are not widely used. By looking at the history and core concepts of knowledge-sharing, and analyzing what knowledge is in planning, this practicum examines how existing and emerging planning theories might better inform a discussion of how planning practitioners could better learn from one another, translating personal knowledge within themselves into more enlightened professional practice. The examination provides an analysis of the inter-relationship of three bodies of literature: tacit knowledge in action; learning in theory and practice; and the theory of professionalism from a practice movement perspective. The work is grounded in a consideration of the context of planning for climate change adaptation.

## **1.1 The Research Problem**

This project stems from an interest in understanding how planning practitioners could learn from each other's tacit knowledge, a type of knowledge that a person often has without consciously knowing it<sup>1</sup> (McGregor, 2006). This research is expected to contribute to a better understanding of whether planning practitioners can benefit from adopting formal methods to better surface, and share, their tacit knowledge. To focus this work, the practicum used the example of how planners working in climate change adaptation might gain from this type of knowledge surfacing and sharing. The practicum

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<sup>1</sup> Tacit comes from the latin word Tacitum meaning "that which is secret, hidden or mysterious" (Boiral, 2002). For some the more modern use of the term may have additional layers of meaning, such as felt knowledge associated with embodied experiences (Stephenson, 1998).

evaluated whether and how planning practitioners working in two BC settings – one in the Interior region, and one in the Lower Mainland region – surface and share their tacit knowledge of climate change adaptation.

Tacit knowledge is a type of knowledge that is not well represented in current planning literature, yet it could result in important learning opportunities for practicing professionals seeking to make a difference in an almost classic, increasingly topical, wicked problem context. The Canadian Institute of Planners (CIP) is actively collecting new knowledge about climate change adaptation. In addition, Canada's planning institutes (with exception of OUQ) are now requiring mentorship activities. This research may help ensure that such knowledge – both explicit (exterior) and tacit (interior) – is shared and used to its greatest potential. A federal government department, Natural Resources Canada (NRCan), has been delivering the Regional Adaptation Collaborative (RAC) program throughout the country. The goal of the program was to create a network of organizations that can support each other with adaptation decision-making within their communities. The program began in 2008 and ended in late 2012 (Fraser Basin Council, 2010). NRCan, the CIP and participating organizations could gain from a better understanding of how practicing planners' tacit knowledge in this area could be made more explicit. Effective use of tacit knowledge will potentially allow communities or municipalities to make a significant long-standing proactive contribution to Canadian climate change resilience.

## **1.2 Research Questions**

Tacit knowledge is a potential resource that planning practitioners and researchers have not, to date, examined in great detail (McGregor, 2006; Schön, 1992). This gap in

the knowledge development process for planning practitioners, if remedied, could greatly increase the efficiency, effectiveness and overall success of planning processes. By looking at recent experience in two BC priority-action settings, this practicum contributes to the identification of areas where tacit knowledge transfer is occurring, or might be fostered, and has helped identify recommendations that could be implemented to improve the transfer of useful tacit knowledge. This practicum hypothesizes that by seeking to implement more formal strategies for sharing such practical tacit knowledge within the profession, planners could increase the efficiency and effectiveness of existing constrained knowledge-sharing activities and improve shared knowledge, potentially in the direction of collective wisdom. The research questions are:

- a) To what extent are planning practitioners, in British Columbia (BC), engaged in various types of general knowledge transfer? What about tacit knowledge in particular?
- b) How might better tacit knowledge transfer between practicing planners, from different communities in shared settings, better inform strategies and tactics for adapting to climate change?
- c) What interventions merit consideration, by – for example - CIP (and/or its affiliates) or the RACs, to optimise the sharing of tacit knowledge in the current ‘climate’?

### **1.3 Scope of work**

The primary focus of the proposed practicum is to understand the extent to which tacit knowledge is being shared by practicing planners working on the ground on climate change adaptation activities in two particular BC settings – i) the Lower Mainland, and ii)

Central Kootenay in the Interior. Of particular interest were the similarities and differences between these contrasting regional settings and the identification of measures that could be implemented to improve tacit knowledge transfer between practitioners in each setting.

The communities studied in this practicum are participants in larger-scale climate change initiatives including the federal Regional Adaptation Collaborative (RAC) (Canada, 2010) program, the provincial Live Smart program (Province of British Columbia, 2010) as well as area-specific initiatives, namely, the Communities Adapting to Climate Change initiative (Columbia Basin Trust, 2010) and the Fraser Basin Council's RAC initiatives (Fraser Basin Council, 2010). These settings are at different stages of climate change adaptation planning.

For practical purposes, the practicum focused on climate change adaptation knowledge-gathering, including activities undertaken in each municipality in the last five years - in order to evaluate the extent to which tacit knowledge transfer has taken place. Climate change adaptation activities in each community will be discussed only briefly, as background context. The main focus of the practicum will be the associated tapping, and transfer, of tacit knowledge in operational terms.

Going beyond tacit knowledge into more emotion-laden terrain was beyond the scope and time-frame of this project. Some lines of inquiry were truncated. For example, participants were not re-interviewed, and there was not sufficient time during the project to form a more personal connection with participants. These approaches have been shown – in more in-depth work - to provide greater insight into tacit knowledge



generation (Murnane, 2008 and Brown, 2011).

## **1.4 Biases and Limitations**

I acknowledge several sources of personal bias in this project. First, I believe in the fact of extraordinary climate change, and humans' role in it. I also believe that no matter what we as humans do to prevent climate change, we are currently feeling the effects of climate change and will continue to do so for many decades. Furthermore, I come to this project with a pre-existing value of more comprehensive knowledge transfer and view it as being important to all people, not just professional planners.

## **1.5 Outline of Chapters**

Chapter 1 outlines the project and lays the ground for the rest of the study.

Chapter 2 provides a review of relevant literature in four bodies of knowledge: i) tacit knowledge in action; ii) learning in theory and practice; iii) the planning profession and the practice movement; and iv) an overview of climate change adaptation.

Chapter 3 explains the research and data analysis methods used in the project. The three types of methods used were literature review, case study analysis, and in-depth semi structured key informant interviews. Data gained from the key informant interviews are analyzed using an analytic induction approach.

Chapter 4 provides a description and analysis of the two case study regions and the organizations undertaking climate change adaptation planning. The two case study regions are the Fraser Basin Council and the Columbia Basin Trust.

Chapter 5 is a presentation of the findings, in seven themes: i) climate change adaptation, ii) the role of the Canadian planning institutes in tacit knowledge transfer, iii) planning as an experiential profession, iv) case study region differences and similarities,

v) knowledge management and transfer, vi) individual tacit knowledge in action/ah ha moments, and vii) value systems and internal knowledge.

Chapter 6 assesses the implications of the research on: professional planners, planning education and the professional planning Institutes. It also considers the findings in terms of the two case study regions, with an interest in understanding if tacit knowledge was transferred between the two. Furthermore, this section attempts to draw out what learning might be transferable beyond the case study regions.

Chapter 7 concludes the study with a list of recommendations for the profession, the Institutes and planning education. It also revisits the research questions, and offers directions for future research. The final section, Coda, is a personal reflection on the entire study, and on what I have personally surfaced in conducting this MDP. It is my sense of my own tacit knowledge development, gleaned over the last 3 years while working on this MDP.

## **2. Theory of Tacit Knowledge Transfer and Continual Learning in Professional Planning Practice**

Literature review was used to establish the necessary theoretical frameworks, especially in regards to: i) tacit knowledge in action; ii) learning in theory and practice; iii) the planning profession and the practice movement; and iv) climate change adaptation. It draws on peer-reviewed journal articles and books, as well as grey literature such as government and professional publications. Theoretical frameworks were reviewed and summarized to support further exploration of how professional planning practitioners transfer tacit knowledge and learn from one another.

### **2.1 Tacit Knowledge in Action**

This section presents discussion of the definition of tacit knowledge, its linkage to professional planning, and the potential to draw tacit knowledge into professional practice. Tacit knowledge can be variously defined. Eraut (2000) suggests that researchers of such knowledge need to define their terminology narrowly, in order to make a major contribution in scientific terms. Since tacit knowledge can have so many different definitions, focusing on the operative definition of tacit knowledge is important.

Eraut challenges researchers to ask themselves:

“... does [tacit knowledge] refer to knowledge which is not communicated, or knowledge which cannot be communicated? Is it an attribute of the knower, which some can communicate and some cannot; or is it an attribute of the knowledge itself? Could it be an element of both?” (Eraut, 2000, p.118).

For this practicum, tacit knowledge is defined as knowledge that is not formally communicated at present but, upon reflection, can be made explicit, allowing other planning professionals – in this case - to learn from one another. The type of tacit

knowledge explored in this practicum has attributes of both the knowledge itself, and the knower. Hypothetically, the knowledge examined was explicit for some professionals and tacit for others, depending on motivation, and capacity to reflect fully on their work experience, to elicit all forms of their knowing – subjective and objective, and inter-subjective as well as inter-objective. At the same time there could be specific knowledge that is inherently tacit that would apply to everyone interviewed, but which is not necessarily of professional importance. Such assumptions around tacit knowledge are expected to inform the research at this time.

For professionals, tacit knowledge is typically unexplored terrain and thus potentially an unexploited resource. Marshalling tacit knowledge can be challenging technically, and require many years of concentrated effort to solidify. In order for planning practitioners to begin unearthing their tacit knowledge, individual members must be willing and able to reflect on their everyday actions. They have to be prepared, and able, to ask ‘how do I/we do things and why?’ (Schön, 1999; McGregor, 2006). By asking this question on an individual basis, and as a profession, a consciousness of - and the ability to exchange - tacit knowledge, can become more of a reality. Ideally, this involves practitioners having a sense of praxis and ethos - more than just routine un-reflected ‘practice’, and more than a bundle of procedural codified ethics (Friesen and Wight, 2009; Wight 2011b).

Another necessary prerequisite for the exchange of tacit knowledge is a willingness to learn and regularly share personal information with others that are a trusted part of their organization (McGregor, 2006). McGregor refers to this step as ‘collecting and connecting’: (collecting is) “linking people with information and connecting involves linking people with other people” (McGregor, 2006, p.342). When professional

communities engage in the process of asking questions, and collecting and connecting the answers to these questions, tacit knowledge is mapped and becomes explicit.

### **2.1.1 Professional Planning and the Need to Mine Tacit Knowledge**

What is it about tacit knowledge that makes it worth the considerable effort to make it explicit? From the perspective of a professional Institute, it is an asset that could ensure continuity and ongoing improvement in practice (Schön, 1999; McGregor, 2006; Eraut, 2000). When a profession changes its focus, such as when planning moved from being a top-down profession, focused on objectivity, towards being more concerned with communication and facilitation, the profession distanced itself from many of its previous (rationality-based) defining characteristics. Planners maintained their distinct role by bringing perspective and understanding of the political, economic and cultural context that exists in relation to each issue. This contextual understanding is a key part of the context for tacit knowledge; it has a strong experiential quality (Grant, 2009). Now, as the practice of planning becomes increasingly complex, and as new professionals - from different generations - enter the field, it is increasingly important to nurture a practice that can surface tacit knowledge. Canada's planning institutes' new requirement for a mentorship program is one step in the right direction (CIP, 2009). Identifying and understanding tacit knowledge could help the profession to maintain a distinct voice, and be of distinct service to their work (Sanyal, 2005).

In addition, incorporation of knowledge management practices, including tacit knowledge mapping, could help to ensure that the knowledge of retiring members can be retained within the profession and be used where applicable by future generations of planners. To map knowledge, an organization or individuals continually reflect on their

work and map this in a visual way, such as ‘casual mapping’ - which will be discussed in the methods (Section 3.4.3). This practice would extend well beyond conventional learning establishments such as universities and colleges. The following discussion introduces the defining characteristics of the numerous sub-types of tacit knowledge, describes challenges associated with gathering tacit knowledge, and discusses ways that tacit knowledge may be used to the benefit of the planning profession.

Despite the challenges associated with exchanging tacit knowledge, it has tremendous value in improving the exchange of the learning from experiences, including the ideas generated, and an enhanced awareness of the culture and context of an organization or community. Improving the exchange of implicit, experiential and essentially tacit knowledge can affect how professionals do most things in a workplace (Eraut, 2000). It can also help planners create a specific role for themselves as members of an integrated-knowledge-based profession, potentially affecting and influencing how professionals do most things in a workplace (Eraut, 2000). Similarly, in the context of their profession, such an improved exchange may potentially result in the creation of better communities for all.

### **2.1.2 An Evolving View of Knowledge in Planning**

Within planning, knowledge and learning have evolved. Friedmann has outlined that, prior to the 1960s, planning rested on four pillars: planning was performed only at a city and regional scale; comprehensive planning was most effective; planning was both an art and a science; and planning was value-sensitive. In this definition, planning was still expected to adhere to, and serve, the idea of a unitary public interest or public good (Friedmann, 1998, p. 55). During this time, knowledge was seen as a relatively static

grouping of facts, objects, land use relationships and anything else that could be rendered in simplified terms, for the purpose of serving one or more of the four pillars. This was a very “clinical” view that assumed that objectivity was key to the validity of knowledge (Feldman, 1994).

The communicative aspect of planning began emerging in the 1970s. In the 1960s and 1970s, grass roots movements were increasingly successful in persuading organizations to focus on process rather than end-product. This shift from a technical to human focus meant that human interaction and resultant experience - along with dialogue among planners, other professionals and the public - became an important source of social learning and associated inter-objective knowledge. This resulted in a period of innovation, skill development, and – at the same time - turmoil. As Lash (1976) states, in “times of changing values, human relations are difficult” (p.89). By adapting their practice in response to this turmoil, planners of the 1970s laid the groundwork for a new consideration of how knowledge is created and shared in contemporary planning, paving the way for a greater valuing of inter-subjective knowledge (a form of collective wisdom), and the possibility of planning as a form of collective wisdom in action (Wight, 2005).

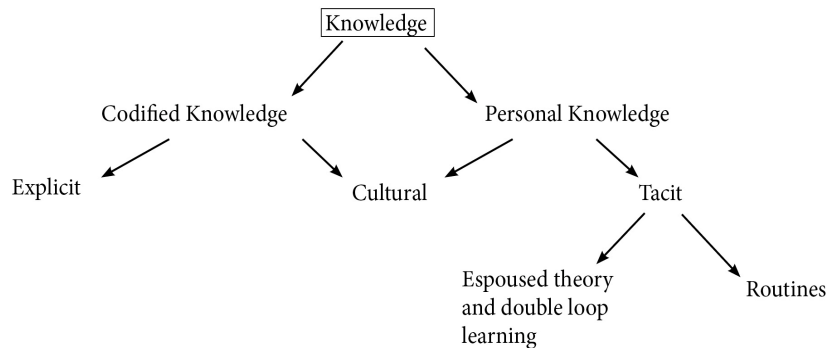
Today, planners view knowledge as socially constructed and liable to continual change from one person, or situation, to another. It can be created or recorded within both the hard and soft structures of an organization, residing in people on account of their experiences, often expressed as stories, as well as formal expressions in hard documents and official records (Rydin, Amjad, & Whitaker, 2007). This broad definition of knowledge has created a situation whereby the volume of knowledge that planners (in

common with all professionals these days) have to master, particularly about policies and procedures, challenges them and the profession. To date, professional planners have made some effort to try to ensure that the public has access to, and awareness of, this knowledge. This helps ensure that planners are not in a position of power over those that they are planning for (Rydin *et al.*, 2007); in fact the operative preposition is now more planning *with*, rather than planning *for* (Wight 2011a)

### **2.1.3 Bringing Tacit Knowledge Discourse into Professional Practice**

Sub-types of tacit knowledge that apply in the professional context include espoused theory and routines (Figure 1). Espoused theory, also known as double-loop learning, is a dimension of tacit knowledge where implicit practice theories are made explicit through continual reflection (Eraut, 2000). This is when a professional “describes the world as they would like it to be, but which does not accurately describe their own actions” (Eraut, 2000, p.123). Active reflective practice underlies this theory, resulting in a deeper knowing, which is not simply someone’s view or views on a particular situation. Using double-loop learning, professionals can correct errors in their approaches by asking themselves questions, by interrogating parts of themselves. Instead of simply changing actions/behaviours or tasks/jobs, double-loop learning is oriented to enabling changes in systems and processes. By analyzing the underlying nature of the systems that professionals work within, “ripples of change ... fan out over one’s whole system” (Argyris & Schön, 1974, p.19).





**Figure 1: Flow Chart of Knowledge Types, based on: Eraut, M. (2000). Non-formal learning and tacit knowledge in professional work. *British Journal of Educational Psychology*, 70, 113-136.**

Schön contends that reflection is one of the main ways that tacit knowledge is understood and teased out of a practitioner’s experience. For professional planners, learning ‘loops’ are another way that we generate knowledge, especially tacit knowledge, all of which can help to improve their profession. It should also be noted here that learning loops actually come in three different forms: single, double, and triple. All of these forms, and the relatively recent emergence of interest in triple-loop learning (Figure 2) (Torbert et al, 2004), are discussed later in this document.

The tacit knowledge of professionals can probably be most easily detected through routines (Eraut, 2000). These routines become tacit when they are repeated enough times; they become so habitual that the actor no longer realizes that they are thinking about doing it. For example, in a workplace a ‘routine’ can be a check-list that has been referenced so often it is no longer a conscious process (Eraut, 2000). When professionals start to question the routines that they perform on a daily basis, discoveries can be made that can streamline their otherwise un-reflected-upon process, i.e. ‘routine’.

Despite differing definitions of tacit knowledge in different settings, Eraut (2000) concludes that tacit knowledge in the workplace is directly related to context. The context of planners' workplaces varies greatly. When planning practitioners are trying to make their tacit knowledge explicit, it is crucial to understand the sub-type of knowledge they are trying to surface, and thereby limit the scope of their consideration. For example, knowledge of ways to work with the public during a hearing would fall more under 'personal' knowledge; whereas the steps in approving a minor variance are part of 'routine' knowledge; an astute professional will seamlessly mesh both, and potentially go further if in triple-loop learning mode. For research such as this practicum, these definitions/distinctions could help clarify findings and thus contribute more significantly to the growth and development of members of the planning profession. Improving awareness of the subtle but important differences between types and sub-types of knowledge could make it easier for planners to extract this valuable inner knowledge, and as a result allow them to apply it in a variety of areas including – as featured here - climate change adaptation.

## **2.2 Learning in Theory**

Learning can occur in many different ways; it is difficult to determine which way will work best for a certain situation. The same can be said for knowledge. However, for this practicum, learning and knowledge will be defined primarily in the context of tacit knowledge, and in turn on the context of knowledge-in-action, in the course of performing professional work.

### **2.2.1 Knowledge Types and Sub-types.**

In the broadest sense, there are two types of basic knowledge: codified and personal knowledge (see Figure 3, pg. 15). Codified knowledge is public, or propositional (Eraut, 2000, p.113). This type of knowledge is documented in such a way that it can come under scrutiny in peer review, public debate, or edited publications. By contrast, personal knowledge is “defined as the cognitive resource which a person brings to a situation that enables them to think and perform” (Eraut, 2000, p.114). Personal knowledge can be considered an overarching knowledge type that includes explicit, experiential, and episodic memory; there are many instances where personal knowledge is not recorded (Eraut, 2000, p. 114-115).

Within codified and personal knowledge there are explicit, tacit, and cultural sub-types (McGregor, 2006; Schön, 1992). Explicit knowledge is documented and easily accessible. Cultural knowledge is incorporated within human habits, and how we accord value to things. Tacit knowledge exists within the mind and heart of an individual. Individuals are usually unaware that they have the knowledge that they have (McGregor, 2006). For example, most people know how to ride a bike, or how to swim, yet they could not tell you how they know it. The identification and exchange of personal tacit knowledge in professional contexts is the focus of this practicum.

### **2.2.2 Learning Loops**

Single-loop learning comprises the bricks and mortar of professional learning. It is a straightforward style of learning, but offers little beyond the bare essential skills and competencies for planners. Argyris and Schön (1974) formulated double-loop learning in order to improve the ability of professionals to create change at the system level. Using

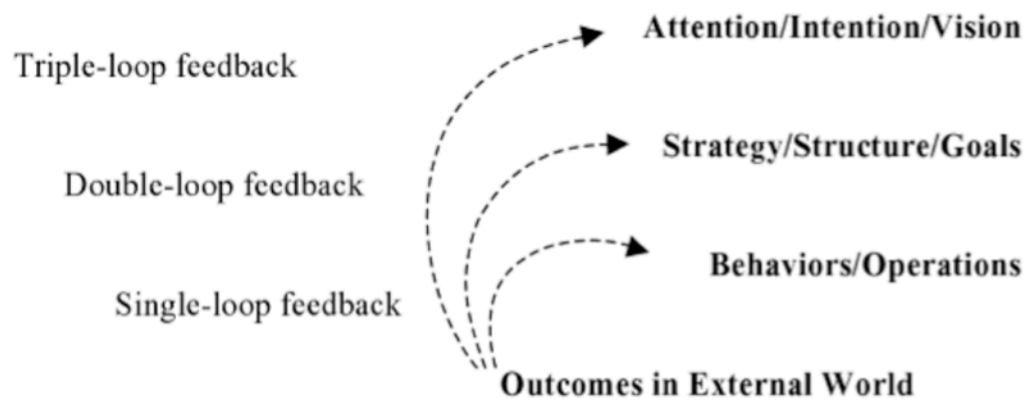
double-loop learning, professionals can correct errors in their approaches by asking questions and evaluating systems and processes. Instead of simply changing actions or tasks, double-loop learning changes systems and processes. By analyzing the underlying nature of the systems that professionals work in, “ripples of change [...] fan out over one’s whole system” (Argyris & Schön, 1974, p.19). Double-loop learning helps create a learning society because it is a way that professionals can create learning within their everyday practice, by questioning the system - not just the actions (see Figure 4).

In describing double-loop learning, Schön (1983) separates reflection-in-practice into two sub-parts: ‘reflection-**in**-action’ and ‘reflection-**on**-action’. ‘Reflection-in-action’ is what happens when a professional ‘thinks on their feet’ by using past knowledge of a situation to enable them to act quickly, decisively, and correctly in a situation. Reflection-on-action is linked to this by talking about, reviewing or analyzing actions after that fact. By reflecting on past experiences, a professional engaged in an action will be able to undertake the work expected of a professional, and be able to learn from the situation. This process adds to a professional’s history of experiences (or repertoire) to draw from in the next comparable or relevant situation they encounter. Discrimination between reflection *on* and *in* action helps to create a learning society where professionals continually evaluate and re-evaluate their own actions in order to keep current (Schön, 1983).

Triple loop learning, like double loop, is a way of asking questions about ourselves - but from an even higher level of self-awareness, with a concern for ‘attention/intention/vision’ (Figure 2).

Single-, Double-, and Triple-Loop Feedback  
Within a Given Person's Awareness

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**Figure 2: Single, Double, and Triple-Loop Feedback (Source: Torbert, W. and Associates (2004) *Action Inquiry: The Secret of Timely and Transforming Leadership*. San Francisco: Berrett-Koehler. Fig 1.1, page 19)**

Triple loop learning is about reflecting on ourselves, and in particular on ‘inside’ our-selves - on our values and assumptions, as part of the enacting. It features the actor being completely ‘in the present’, reflecting – in the moment - on past experiences to better determine their essence, and enacting accordingly. This process obviously brings in the context of a situation, and - in a way - is akin to double loop learning about double loop learning (Torbert et al, 2004). Triple loop learning is a way of better appreciating one’s deeper tacit knowledge – more sensed than felt, more intuitive than easily expressed or communicated. Those able to consciously access triple-loop learning might explicitly ‘know’, in themselves/inside themselves when they are performing this type of learning. However, they may not necessarily ‘know’ how to express it. This form of knowledge, potentially beyond what we currently deem tacit knowledge, could help planners to even better learn from one another, if it can be surfaced and shared. Triple loop learning is along the same lines as presencing, discussed below, in the context of U-Theory and situated cognition.

### 2.2.3 Bringing it all together in U-Theory

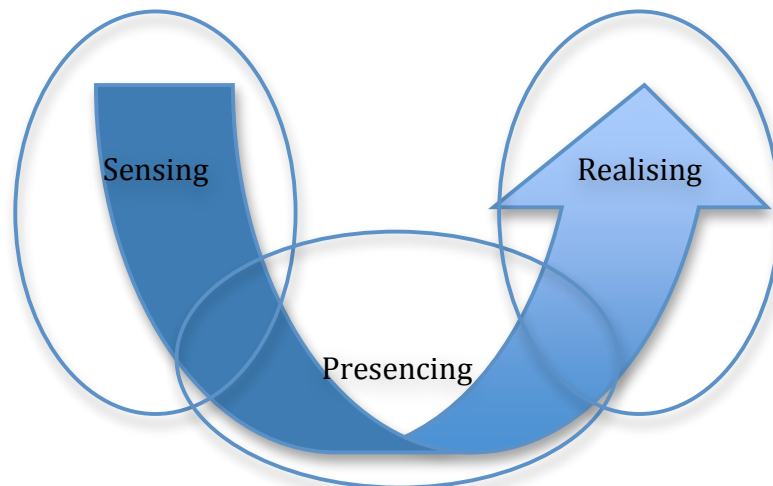
U-Theory, articulated by Scharmer (2000), describes knowledge in a way that brings together many of the themes addressed in this literature review. His main view is that there are three types of knowledge: explicit, tacit and self-transcendent (Eraut, Schön, and McGregor, respectively). Scharmer's analysis, grounded in systems theory, is illustrated in Figure 3. The different types of knowledge can be seen on the horizontal axis. Scharmer states that – in an organizational context - communities of practice and situated cognition have allowed systems theory, and the idea of knowledge management, to shift from a focus on – by his typology – K1 to K2. To date, Scharmer identifies little evidence of organizations achieving K3 type knowledge (2000, p.106-109).

To move to K3, Scharmer introduces the idea of learning using language that is consistent with Schön, in terms of reflection-in-action in an organizational setting. He considers K1 to be reflection **without** action, ie. single loop learning, K2 as being reflection **on** action ie. double loop learning, and K3 as reflection **in** action, ie. Torbert's triple loop learning. The illustration also shows the different dimensions that he identifies, in relation to the three types of knowledge (Figure 3).

		K1 Explicit Knowledge: <b>Independent of Context</b>	K2 Tacit Embodied Knowledge: <b>Situated in Context</b>	SK3 Self-transcending “Primary Knowing”: <b>Not Yet Embodied</b>
S1	Linear systems <b>Simple systems</b>	“Old mainstream”: Conventional systems theory	<b>Situated action:</b> All knowing happens in a context	Blind spot: sources of knowing
S2	Nonlinear, dynamic systems <b>Autopoietic systems</b>	<b>Nonlinear, dynamic systems theory:</b> Accounts for the phenomenon of <i>emergence</i> .	“New mainstream”: Accounts for both emergence and being situated in context.	
S3	Sources of deep emergency <b>Self-transcending systems</b>	Blind spot: sources of emergence		

**Figure 3: Twentieth-Century Systems Theory: Epistemological and Ontological Grounding.** Source: Scharmer, O. (2009). *Theory U: Leading from the Future as it Emerges*. San Francisco, Berrett-Koehler Inc. pg. 107.

Scharmer then bridges these different types of knowledge through what he and others (Senge, Jaworski, & Flowers, 2004) call U-Theory (Figure 4).



**Figure 4: Scharmer’s U-Theory Diagram.** Source:Ho, L. & Kuo, T. (2009) *Alternative Organisational Learning Therapy: An Empirical Case Study Using Behaviour and U theory.* *The Australian Educational Researcher*, 36(30), 107.

U theory describes a person's, or an organization's, different stages of awareness and deeper learning. The initial stage is **Sensing**, where people start to look at the world, and themselves within that world, through observation. Through true in-depth observations of the world, a person can stop, i.e. 'suspend', their old way of thinking or seeing in a situation and 'redirect' their attention in a new way (Ho, & Kuo, 2009, p.107). "It is believed that when people suspend and redirect their attention, perception starts to arise from within the living process of the whole" (Ho, & Kuo, 2009, p.107). The second stage or bottom part of the U is **Presencing**, which is the tacit section of the U where inner thinking and knowledge start to emerge. This process is not so much redirecting one's attention, but "letting go and letting come" (Ho, & Kuo, 2009, p.107), allowing people to connect on a more expansive level to 'the whole' of something. Presencing is discussed in greater detail below. The third and final stage of the U is **Realising**, which is on the same level as K3. It is an action that comes from a deep place within an individual, it goes beyond rational thought. "[T]his is a stage where transformed awareness and emergence of new knowledge are put into actions. The core capacities at this stage are crystallizing, prototyping, and institutionalizing" (Ho, & Kuo, 2009, p.107). The three stages of the U movement comes from 7 main capacities (suspending, redirection, letting go, letting come, crystallizing, prototyping, and institutionalizing) (Ho, & Kuo, 2009, p.108). The seven capacities (Figure 5) help a person engage a deeper level of learning and, in the end, emerge into the farthest realizing level of the U - if all are achieved. Deeper learning can only occur once a person fully understands that they are only a part of the "larger living wholes" (Ho, & Kuo, 2009, p.108).



U theory in practice consists of a sequence of seven highly intentional activities:

1. **Holding the Space of Listening** -The foundational capacity of the U is listening. Listening to others, listening to oneself. And listening to what emerges from the collective. Effective listening requires the creation of open space in which others can contribute to the whole.
2. **Observing** – The capacity to suspend the “voice of judgment” is key to moving from projection to true observation.
3. **Sensing** – The preparation for the experience at the bottom of the U-*persencing*-requires the tuning of three instruments: the open mind, the open heart, and the open will. This opening process is not passive but an active “sensing” together as a group. While an open heart allows us to see a situation from the whole, the open will enables us to begin to act from the emerging whole.
4. **Presencing** – The capacity to connect to the deepest source of self and will allows the future to emerge from the whole rather than from a smaller part or special interest group.
5. **Crystallizing** – When a small group of key persons commit to the purpose and outcomes of a project, the power of their intention creates an energy field that attracts people, opportunities, and resources that make things happen. This core group functions as a vehicle for the whole to manifest.
6. **Prototyping** – Moving down the left side of the U requires the group to open up and deal with the resistance of thought, emotion, and will; moving up the right side requires the integration of thinking, feeling, and will in the context of practical applications and learning by doing.
7. **Performing** – A prominent violinist once said that he couldn’t simply play his violing in Chartres cathedral; he had to “play” the entire space, what he called the “macro violing,” in order to do justice to both the space and the music. Likewise, organizations need to perform at this macro level: they need to convene the right sets of players (frontline people who are connected through the same value chain) and to engage a social technology that allows a multi-stakeholder gathering to sift from debating to co-creating the new.

**Figure 5: Cambridge, MA:Society for Organizational Learning. (2007). *Theory U: Leading from the Future as it Emerges*. Retrieved from <<http://www.ottoscharmer.com/publications/summaries.php>>. (2013, January 09).**

#### **2.2.4 Presencing - Tacit Knowledge and Beyond**

The more tacit realm of the U movement is at the lowest portion of the U, i.e. presencing; yet presencing does seem to go beyond the realm of tacit knowledge, as we have been defining it. Presencing is in the time-frame of the future and the present. It is the “coming into presence of the future” (Scharmer, 2000,Pg.3) Scharmer (2000) refers to

this type of learning as “sensing and embodying emerging futures rather than re-enacting the patterns of the past” (p.3). The actions that would have to take place in this part of the U would be “seeing, sensing, presencing and enacting” (Scharmer, 2000,p.3). *Seeing* is to observe the whole world around you. *Sensing* is when a person “becomes still: recognize[ing] the emptiness of ideas about past or future” (Senge, & Scharmer, 2006, p. 205). *Presencing*, as stated above, “allow[s] inner knowing to emerge” (Senge, & Scharmer, 2006, p. 205). And finally *enacting*, which is to “act in an instant, and observe again” (Senge, & Scharmer, 2006, pg. 205). The key to this temporal learning is the presencing and enacting stages. They are the stages that do not generally figure in mainstream learning processes. These two stages rely on an awareness that sees the world as interlocking wholes, and allows a person to react to the future as it happens - rather than just reflecting on the past. Presencing goes beyond tacit knowledge, and then results into a new form/level of the U - *self-transcending knowledge* - discussed briefly earlier (Senge, & Scharmer, 2006).

### **2.3 Learning in Practice**

Numerous strategies can be implemented to facilitate learning in practice. However, to gain tacit knowledge, the main ways of learning are through personal experiences and through knowledge of the experiences of other people, often in communities of practice. The relative contribution of these learning styles depends on the formal education of incoming professionals, and continual learning by experienced professionals.

### 2.3.1 Experiential Learning and Communities of Practice

Experiential learning “involves the whole person in thinking, feeling, and acting” (Tyson & Low, 1987, p.15). For planners, experiential learning is seen as a way of learning through professional practice - rather than through theory-based rules. In this process, professionals rely heavily on past experience when facing new issues. A professional becomes adept at using innovation, creativity and critical thought to resolve problems in new situations (Watson, 2002). Within the planning field, experiential knowledge comes from years of experience as a practicing professional (Grant, 2009).

Experiential learning is a continuous process. In addition to learning from clients and stakeholders, planners learn from one another through professional networks, publications, and through first-hand experience when working together (Rydin, 2007; Rydin *et al.*, 2007; Newman & Jennings, 2008). Professional networks, or Communities of Practice (CoP) (Wenger, 1998), represent venues where knowledge is gained in practical situations among those with similar interests. Members of a CoP are generally on a similar footing, since they have similar interests (Wenger, 1998). This results in a common language consisting of “routines, words, tools, ways of doing, stories, gestures, symbols, genres, actions, [and] concepts” (Rydin *et al.*, 2007 p.367) - that all in the CoP can relate to. With a common language, knowledge is more easily transferred (Schweitzer, Howard, Doran, 2008). People within a CoP “engage with one another about a specific topic to learn – not make decisions - among the members” (Schweitzer, Howard, Doran, 2008, p.51).

### 2.3.2 Critics of CoP and Experiential Learning in Planning

While experiential learning is rooted in practice, there is criticism that it is hard to implement within the planning profession. In a study of London planners' knowledge of environmentally sustainable construction, Rydin *et al.* (2007) found that there was not enough knowledge existing within the network to support a CoP. It also found that "time pressures, the rule-bound nature of much planning work and departmentalism [ie. 'stove-piping' or 'silo-ing' of tasks] all inhibit [a CoP developing]" (Rydin *et al.*, 2007, p. 377). As well, the emphasis of members on aligning themselves with others in the group tends to reinforce existing ways of doing work, and does not always promote innovation and new additions to a network (Rydin *et al.*, 2007).

Another example of the CoP model not working in practice was reported in a study of 'geographically dispersed project teams' (Sapsed *et al.* 2005). This study used quantitative surveys and qualitative interviews to look at five project teams, dispersed through international offices - in order to understand whether there was a difference in working relationships and communication between the dispersed and co-located team members. It found that the CoP model was not as effective for dispersed teams because the CoP relied on location-specific practice, that did not transfer well to geographically dispersed members of the CoP.

Concerns over the shortcomings of CoPs in actual practice are valid, yet in some circumstances a CoP could still be used within cohesive groups - where a certain amount of common knowledge already exists. Through existing frameworks of knowledge transfer within a planning community - such as publications, conferences, and multi media presentations - the barriers found by Rydin *et al.* (2007) could be overcome. In

addition, technology for video conferencing and internet video calling can help minimize barriers caused by distance. Geographical separation should not be a factor in CoPs with well-defined subject areas. For example in climate change adaptation, communities on the east coast of Canada are implementing policies and processes relating to sea level rise in different ways to those on the west coast of the country (Canada. Natural Resource Canada, 2009), but in a defined subject such as this, practitioners can still learn from one another's experiences.

### **2.3.3 Learning in Planning Education - TAMED Education**

Education in planning is dominated by professional organizations that accredit degree programs. These organizations create a list of skills and techniques that they expect all planners to have in their practice. Many accredited planning schools are similar in their focus on technical knowledge (Sandercock, 1998). Sandercock (1998) argues that this system does not create planners that can deal with today's multicultural cities and suggests a shift from skill development, towards a focus on the values that the profession considers that all planners should have. The values - or literacies - that Sandercock advocates that planners should be taught include: technical, analytical, multi- or cross-cultural, ecological and design, summarized in the acronym TAMED. By focusing on such literacies, she argues that planners can complete their education equipped with a wide breadth of knowledge, that will maximize their ability to perform their work and create better cities (Sandercock, 1998).

**Technical literacy** refers to the traditional skills of a planner such as GIS, data collection, legislation *etc.* These skills should remain part of planning education, but in many schools, they are too strongly emphasized (Sandercock, 1998).

**Analytical literacy** teaches students the ability to ask questions about the world around them and start to gain answers from its analysis. This focus comes in response to the observation that planners are not known for their analytical skills relative to urban theorists. By teaching analytical literacy, planners can continue to learn from urban theorists, and vice versa (Lash, 1976; Sandercock, 1998).

**Multicultural literacy** recognizes that we are not all the same and that planners need to learn to celebrate differences, and not create inequality. By learning to positively deal with cultural diversity, planners become open to new forms of knowledge sharing such as storytelling and art. Multicultural literacy avoids simply fitting all different cultures into planners' conventional knowledge of policy and legislation. By recognizing the requirement for multi-pronged approaches, and openness, planners learn how process is key to inclusiveness, and that all cultures must contribute in/through the process (Lash 1976; Sandercock, 1998).

**Ecological literacy** is necessary for planners to think holistically about exchanges between the physical environment and humans. Rather than only having certain courses that deal with environmentalism and sustainability, this strand of knowledge needs to be more broadly integrated into curricula. This would result in students learning about the potential ecological considerations in communication, ethics, social justice and other disciplines that are not normally associated with environmental planning (Sandercock, 1998).

Finally, there is **Design literacy**. Design was once incorporated into planning, yet after the 1970s the design element of planning declined in importance as social science

disciplines, focusing on community relations, became more of a core consideration for planning schools. By bringing back some design elements into the curriculum, students will be able to look at a plan, identify potential problems, and question the form of the built environment (Sandercock, 1998).

### **2.3.4 Going beyond TAMED Education**

In more recent literature, Sandercock has gone beyond the TAMED formulation around literacies to include five additional attributes – sensibilities - that planners should be aware of, both as practicing professionals and well as in the foundational planning education system. Sandercock (2003) lists five “qualities or sensibilities of a 21<sup>st</sup> century urban imagination: political, therapeutic, audacious, creative, and critical” (p. xiv) which a planner should attempt to embody in their practice.

Sandercock’s (1998, 2003) work is significant as it provides a framework for planners to understand their own tacit knowledge in all its forms and to start becoming reflective practitioners (Schön, 1988).

“Sandercock argues that by attending to their literacies and sensibilities planners can better ‘read’ situations, be more comprehensive, and be better prepared for extracting more from a situation or experience. The sensibilities relate to the quality and scope they bring to their own ‘sensing’, engaging more consciously with their underlying intention” (Wight, 2013, Personal Communication).

In doing this, planners can then transfer their knowledge gained through the action of planning (with all its complexities) to others, and the entire profession would be better equipped to serve the communities they plan for.

**Political sensibility** comes from the myth that planning is a rational profession that is always objective. This myth has been denounced by countless researchers over the years, yet the profession is still affected by this myth. By recognizing that we are all political, and by learning as a profession to embrace the politics of planning and the world we work in, planners can serve their communities better. Sandercock does not see planning as being simply “reduc[ed] ... to political interests... because it does not simply reflect social forces. Rather, as a relative new player, it helps to redefine political debate, producing new sources of power and legitimacy, changing the force field in which we operate” (2004, p.134).

**Audacious sensibility** is all about risk taking and breaking out of the mold. Planning is entrenched in rules, regulation and politics, as mentioned above, yet to deal with a very quickly changing world, planners need to be willing to break through rules and regulations when planning needs demand:

“For planners, the essence of risk taking is learning to surrender the obsession with control and certainty and developing the ability to listen to the voices of multiple publics” (Sandercock, 2004, p.136-137).

**Creative sensibility** goes hand-in-hand with audaciousness; risks are only worth taking on if a new way of doing things is also incorporated. That is how change occurs and society moves forward. Creativity not only needs to be taught in planning education, but also more consciously incorporated into the profession, and in the leadership it strives to offer. Planners also need to work within a space where they feel safe being creative - to voice, and to try out, new ideas (Sandercock, 2004).

**Therapeutic sensibility** is about bringing people together, dealing with relationship-based disputes, and allowing emotions into the planning practice. This



approach helps planners to navigate the many different emotions, and multicultural differences, that they encounter - in order to create conversations which help everyone live and plan in a changing world (Sandercock, 2004).

**Critical sensibility** is the final piece of the imagination puzzle for Sandercock. For her, being a critical planner is more than simply asking questions, or adopting one of the many critical theories within planning; it also involves being critically aware of everything that a planner is coming into contact with (Sandercock, 2003).

Sandercock expressed her feeling that a TAMED planning education, while important, did not go far enough in preparing new and existing planners to take on the new reality of cities - comprised as they are of vastly different parts, many of them multicultural if not intercultural (Sandercock, 2003). Sandercock calls these vastly more complex cities “mongrel cities” (Sandercock, 2004, p.133). Planners need to go beyond the regulatory planning that dominated 20<sup>th</sup> century practice, and move more toward focusing on embracing emotion, vision and imagination - to bridge the many cultural and ethnic divides within modern cities (Sandercock, 2004). By combining TAMED as well as the five sensibilities, planners - and their institutions/Institutes - will be better prepared to learn from each other and the “mongrel cities” (Sandercock, 2004, p.133) that are the focus of their planning.

In terms of tacit knowledge, both Sandercock’s literacies (1998) and to an even greater degree, her sensibilities (2003), attempt to push planners beyond ‘simply going through the motions’ planning, and encourages them to think. At a deeper level, the sensibilities in particular could help planners get in touch with their own motives and

reasons for taking the actions that they do. This understanding of individual motivations helps once again to bring to light tacit knowledge. The step that is not quite so involved in Sandercock's literacies and sensibilities is the transfer of this knowledge to others. However, through combining these theories with those of McGregor (2006) i.e. her 'collecting and connecting' (Section 2.1), professional planners could both better comprehend then better disseminate their tacit knowledge throughout the profession.

## **2.4 Professional Theory**

The basis for Schön's theories, of how professionals learn from one another, rests in his notion of the 'unstable state' as the new operative context. In the past, professional associations, ranging from doctors and engineers to teachers and planners, had specialized knowledge that – they claimed - only they possessed within society. This knowledge and related skills were seen as having societal value. As a result, a contract was formed that regulated the conduct of professionals. Professional organizations provided an ethical standard, and society would let professionals use their knowledge to help society as a whole, thereby giving the profession legitimacy. Schön (1973) argues that this legitimacy is eroding as professionals continually change and adapt in the high-paced interconnected world. The way to regain legitimacy in the view of society-at-large is through development of a 'learning society' perspective, which is one that does not separate education and learning from everyday life, but integrates them into everything we do. This is the only way that professionals can keep pace with a continually changing world in its 'unstable state'. To do this, the system of social learning has to be efficient, and integrated in professional practice, so as not to create disconnects (Schön, 1973).

### **2.4.1 Planning, the Practice Movement and the Importance of Context**

Prior to the 1970s, planning knowledge was viewed in terms of a rational model. Planners were expected to follow an objective, standardized and methodologically robust approach to planning the human/built environment. As a rational professional, a planner would, through rational planning practice, know ‘the public good’ (Watson, 2002; Feldman, 1994). This clinical view assumed that objectivity was key to the validity of planning knowledge.

Since the 1970s, the rational model of planning has broken down. Numerous other theories based in advocacy, communication, political science and economics have been advanced to attempt to define the day-to-day practice of planning. One emerging theory is the practice movement (Watson, 2002). This movement suggests that planning is not for “arm-chair theorists” (Verma, 2006, p.124), but for practitioners that are doing the work in the field (Verma, 2006). This approach to planning theory argues that planning is far too much of a contextual discipline to be categorized into a few main theories. Consequently, the best way of understanding planning is through understanding the context that a planner works in on a daily basis. Due to the focus on context, the practice movement draws on many different established theories, including those mentioned above, to explain planning practice (Watson, 2002).

Within practice movement theory, “movement” of knowledge is the key ‘currency’. Practice movement theorists view knowledge as socially constructed and continually changing from one person, or situation, to another. For practice movement theorists, the context of planning knowledge is very important as it helps to unearth professional knowledge that is not necessarily ‘known’ about in conventional terms

(Watson, 2002). Despite this, few are directly researching professional practitioner knowledge, and its sources, and the need for it to flow better among individuals - and into the wider profession of planning. This practicum may contribute to the further development of such theory, with its focus on tacit knowledge transfer; tacit knowledge references are not prominent in current practice movement theory articulation.

Hoch (2011) has attempted to bring some tacit knowledge into the emerging practice movement debate. In his 2011 article “The Planning Research Agenda: Planning theory for practice” he attempts to find situations where practice and theory converge, and states that this place is found somewhat within the new practice movement. Hoch stresses the importance of practice, and the tacit learning that planners of all kinds experience through practice. In order to make his point about how important practice should be in theory Hoch outlines the 2007 APA survey of its members, which asked members if they learned theory in school; 95% responded ‘yes’. The survey then asked how important this knowledge was in their daily jobs; the response was ranked quite low - about 20% (Hoch, 2011, p.7). Respondents stated that their most valued knowledge was the skills that they learned on the job (Hoch, 2011). This directly relates to tacit knowledge in that these skills learned on the job can be learned tacitly and through experience.

The practice movement uses a wide array of theories, which reveal that no single planning theory or method can fit every situation and planner. As a result, “the practical craft of plan-making requires learning that uses theory and method” (Hoch, 2011, p.11). However, the theory and method are held loosely, in a tacit context, allowing the planner to express – rather than repress - their artistic individualism for example. This convergence is very important, within both education and practice. For education, Hoch

stresses the importance of studio work that allows students to learn from doing, as well as putting their theory to work. For practicing professionals, the importance of conferences and meeting with other planners - both practicing and academics - is very important. The more face-to-face interactions that occur, the more knowledge about both practice and theory can materialise (Hoch, 2011). One such theory - that focuses on practices and combines this with theory - is communicative action.

### **2.4.2 Communicative Action**

The description of knowledge, education and learning interaction is informative when considering the merit of Habermas' theory of communicative action, as an overarching theory for planner-to-planner learning. Habermas' theory describes "how to reconstitute the public realm through open, public debate" (Healey, 2007, p.49). He argues that all of us experience two areas of daily life: the 'abstract system' and 'the lifeworld'. Abstract systems are the markets, bureaucracies, airport security scans and structures or organizations that people deal with every day. These are the structures of society that put a damper on people actually living in 'the everyday'. Habermas argues that these abstract systems inhibit the ability to flourish and live fulfilling lives. By contrast, the lifeworld is the space where we exist every day. It consists of our homes, our experiences, the relationships we have with others and the general going-about-our-own everyday business (Habermas, 1981; Healey, 2007). In order for society to be fully happy, there has to be a reduction in the influence of abstract systems in people's lifeworlds. Society has to align abstract systems with lifeworlds, using communicative action (Habermas, 1981).

Communicative action does not attempt to persuade, but to understand those within a conversation. The actors in a discussion come to the table with mutually-agreed upon terms of discourse, that are taken for granted by all actors. The contrasting component of Habermas' (1981) social theory of communicative action is strategic action. It exists mainly within the abstract system, and contributes to the unhappiness of society. It uses the language of persuasion and jargon to confuse and manipulate a rational opponent (Yuthas *et al.*, 2002).

In communicative action, the terms that are agreed upon by actors are described as validity claims. Four validity claims exist within such discourse: comprehensibility, truth, sincerity, and legitimacy (Habermas, 1981). *Comprehensibility* ensures communicators are understood, *truth* assumes that what the communicator sees is true, *sincerity* assumes that the communicator is sincere in outlining their motives for the conversation, and *legitimacy* ensures that the communicator is “justified in making the utterance” (Yuthas *et al.*, 2002, p.144). Agreeing on these validity claims ensures that the playing field is level and no persuasive, or manipulative, strategic action language is used in the pursuit of an answer (Habermas, 1981). In this way, Habermas is attempting to find and create the perfect discussion - one that ensures all actors are able to listen and be heard equally at all times. The result of communicative action is, by definition, a consensus and - in the end - according to critics, apparent truth.

Critics argue that communicative action cannot exist as Habermas suggests because it is almost rational in itself. It assumes that all actors will come to the table with respect for all four validity claims (Abizadeh, 2007). Hillier (1998) adds further criticism with the observation that by treating everyone equally within a conversation, communicators

risk being disrespectful to those with greater wisdom, experience or knowledge. By not recognizing diversity, conversation in communicative action may introduce new inequalities rather than eliminate them. Others have observed that within a communicative action conversation, actors that have all agreed to the validity claims are too similar to one another causing the results of a conversation to be less productive and innovative (Morgon, 2009; Wheeler, 2004). In practical applications, the validity claims of communicative action are too precise and inflexible. In response to these criticisms, planners have adapted the sentiments of Habermas' communicative action into existing planning theory and practices.

#### **2.4.2.1 Implementing communicative action in planning**

Numerous planning theorists have proposed adaptations of Habermas' theory of communicative action to make it apply more strongly to planning - notably Healey, Forester and Innes. All of these adaptations incorporate a number of common themes. First, they each recognize that discourse in planning includes power processes rooted in social processes that we create (Healey, 2006). These social structures contribute to how we use knowledge and the forms that it takes - such as story, actions within practice, and oral or visual formats (Innes, 1995; Sandercock, 2003; Healey, 2006). These power processes are not just outside processes acting on us, but are social structures manifested within us as well. As a result, "human agency" can both reinforce the social structures that we live in and change them. By acting on power structures, humans can influence their lifeworld, and also change the abstract system of society (Healey, 2006; 2003). Once humans act to change the system, their actions and knowledge can be transferred to others, resulting in non-coercive collaboration and consensus-based action (Healey,

2006). The end goals of Habermas are retained, despite having introduced power structures in communicative action.

According to Healey (2006), transfer of knowledge occurs among people through a web of relationships. Everyone is intertwined in different webs of culture, activity, and personal and professional relationships. These webs bring us into contact with different people of similar interests and worldviews. Within the web there are nodes that help connect one web with others. These different webs that we are a part of are very diverse in modern times. Even among neighbors within a particular space, the number and diversity of webs challenge our ability to relate to one another. As a result, planners have a role to provide a framework for facilitating, and dealing with, encounters between webs (Healey, 2006). By creating a framework for dialogue between webs, planners continually act as a convener and mediator, bringing groups together, but discouraging strategic action-taking amongst them (Forester, 1980; Healey, 2006). One key component of the planner's role in relationship webs is the ability to use language in a way that can be understood by many audiences (Forester, 1980).

Since planners are meant to be involved in conversations about the built and social/cultural environment, they must be able to convene and mediate webs, and counter problematic strategic action (by one group against another group or groups, that are all part of the same web). For Innes (1995), it is through communicating that knowledge is gained, and this is also how planners refine their skills. This can be enhanced through practitioner networks, or webs, which allow learning and knowledge transfer. In order to ensure that practitioner networks are genuinely collaborative Boohar and Innes (2002) advocate for diversity, interdependence, and authentic dialogue (DIAD) (p.227).



Diversity includes all levels of seniority, race, and values. Interdependence ensures that all communicators involved cannot independently complete the action sought, thus creating a motivation for collaborative dialogue. Finally, authentic dialogue stipulates that information flowing through the network/web must be accurate and trusted by all that are involved. DIAD aims to resolve some of the criticisms of Habermas - in regards to only like-minded people communicating. By including diversity within professional process, outcomes are more likely to be different - instead of simply reaffirming existing situations (Booher & Innes, 2002).

The style of discussion also needs to become more inventive. Just as knowledge comes in different forms, i.e. story, sounds etcetera, so should discussion. In communicating, planners should broaden their perspectives as to what constitutes discussion - resulting in reaching more people, and being more inclusive. Healey (2003) gives the example that “nothing is ‘inadmissible’ except the claim that some things are ‘off agenda’ and cannot be discussed” (p.247). In this way the planners’ role is not to say ‘No’ to a persons’ idea or knowledge, but to guide discussion - yet not leave any thought out - at the same time (Healey, 2003).

Implementation of communicative action in planning practice should also include a place, or arena, where communication among stakeholders can occur (Healey, 2003). For this arena to truly enhance discourse and communication, planners need to be reflective of their practice and continually evolve (Booher & Innes, 2002; Healey, 2003). This improves open-ness and common understanding with other stakeholders, and provides opportunities for planners to improve their abilities in mediation and conflict resolution (Healey, 2003).

The intent of Habermas' theory of communicative action has been carried into planning practice, but a final cautionary note is that instead of asking - 'is this person truthful?' - an actor involved in a communicative action planning process could ask 'is the argument they are using truthful?' This can also be done in a reflective way by asking - 'is the argument we are using truthful?' - rather than - 'are we truthful?' The power of communicative action does not exist in the 'better argument', coercion or manipulation - but in nurturing a common understanding of comprehensibility, integrity, legitimacy, and truth. With the adaptations proposed by planning theorists, parties may not always come to consensus, and their individual 'lifeworlds' may not change drastically, but the actors can agree on how to move forward together. By understanding and communicating with others, planners can create change and innovation within the systems that they work in (Healey, 2003).

#### **2.4.2.2 Criticisms of communicative action in planning**

The adapted version of communicative action for planners is recent enough that there are still unresolved criticisms regarding its usefulness. Using a very literal interpretation of the theory, critics have suggested that it disregards politics and institutionalized power relationships that exist within planning, and thus cannot be fully communicative (Hillier, 1998; 2000; Flyvbjerg, 2002). Planning is performed within inherently strategic institutions and, in order for communicative action within planning to succeed, theory must recognize the role that politics plays in planning processes. Critics argue that scholars and professionals need to move away from normative thinking about what theorists want to see happening in practice, and focus on what is actually happening on the ground (Friedmann, 1998).

### 2.4.3 Collaborative Learning/Planning

Collaborative planning is a common theory used in public participation within planning and sustainability management practice (Daniels & Walker, 1996). It focuses on relationship-building, and encourages joint learning and open communication with a focus on learning towards positive change (Lukman, Krajnc & Glavic, 2009). The theory treats all forms of knowledge as equal, which means that all stakeholders can be seen as having equal opportunity to both teach and to learn during the process of planning (Brand & Gafikin, 2007). Mildred Warner (1999) observes that planners need to recognize that every stakeholder comes with different life experiences, which affect their actions in a collaborative process. “[P]lanners need to recognize how the experience, values, and interests of different audiences condition the reception of knowledge, and tailor education programs to fit the cultural values and past experiences of each audience” (p. 201). To deal with the diverse background of stakeholders Warner suggests three roles that planners should consider when involved in a collaborative planning process:

“(a) identifying and involving the stakeholders and perspectives necessary to solve a problem; (b) evaluating the capacity for change (level of trust, skills for collaboration, information needed); and (c) facilitating a credible, open process for broad-based involvement” (Warner, 1999, p. 201).

Planners need to take on the roles that Warner mentions to ensure that both themselves and their counterparts are transparent in the planning process and have optimal opportunity to learn from one another. In most cases, collaborative planning is viewed as a tool for discourse with the public, but it can also support tacit knowledge transfer between professionals and between professionals and their organizational settings. By looking at collaborative

planning from the perspective of professionals disseminating their tacit knowledge to other professionals, the findings of this practicum are expected to contribute to improving our understanding of the effectiveness of collaborative settings such as conferences, workshops and professional networks. Further study on the true nature of collaborative planning was done throughout the course of this research project.

## **2.5 Climate Change Adaptation**

Climate change and its impact on infrastructure, and human health and safety, is a growing concern for municipalities (Bruce, Egener, & Noble, 2006). Increased frequency of extreme weather events such as Hurricane Juan (2003) and the 1998 Ice Storm in Eastern Canada, as well as long-term trends, such as the relative sea level rise in coastal areas, have potentially significant negative impacts on the economic and social structure of communities. Communities are beginning to look at planning processes differently in hopes of better addressing a future of less predictable climate and weather-related events (Canada, Natural Resource Canada, 2009).

Adapting to climate change is crucial to ensuring continued sustainability of Canadian municipalities. There are two main ways that municipalities can begin to adapt to climate change: impact assessment, or policy response (Smit, *et al.*, 1999). Impact assessment evaluates what adaptive measures are likely to be needed in key areas such as flood protection or water treatment. Policy responses recommend adaptations based on overarching assumptions of future conditions. These approaches often work together when creating a climate change strategy for a community (Smit, *et al.*, 1999). In both approaches the goal is to anticipate events and proactively adapt, rather than to adapt in

reaction to a specific event, to help ensure that citizens' quality of life is maintained (Causley, 2008).

There is a rapidly growing body of literature describing adaptation processes and proposing policy and assessment tools to assist in adaptation decision making. To date, planning practitioners have primarily engaged in policy responses, while engineers and other professionals have engaged in impact assessments (Canada, 2008). This underscores the need for research into effective techniques for learning and knowledge transfer, between municipalities and professionals, concerning adaptation. With improved knowledge transfer, municipalities and professionals will be better able to integrate their approaches to climate change adaptation.

## **2.6 Conclusion**

One of the most important synergies between the practice of planning and the documentation of tacit knowledge is the need to understand, record and respect context. In this context, communities of practice, and experiential knowledge, can contribute to the transfer of tacit knowledge between professionals. Each assists in the management of knowledge and improves the potential for transferring tacit knowledge. Every file that crosses a planner's desk has, behind it, a history - people, culture, economics, politics etc. Understanding how planners navigate all these contextual elements is one of the main ways that the profession could gain by mapping tacit knowledge.

Another aspect of a planner's role is to synthesize data, information, and knowledge from numerous professions and perspectives: architecture, engineering, economics, public works, parks, the public, elected officials, etc.... The ways that experienced professionals accomplish this synthesis are not written down, but learned

through experience. Webs of relationships, communities of practice and practical communicative action may be vital tools for the retention of knowledge that is specific to the planning profession. By creating spaces for professionals to reflect on their actions, and taking a formalized approach to knowledge management, professional associations and their members could lead the transfer of knowledge and instill the ability to continually learn and improve.

### **3. Research Methods**

In an effort to explore tacit knowledge transfer among professionals this practicum employed three main methods: targeted literature review, case study analysis, and in-depth semi-structured key informant interviews. These methods were used, in conjunction with the earlier-stated research questions, to attempt to better understand if and what tacit knowledge is being shared between professional planners, in relation to climate change adaptation.

#### **3.1 Literature Review**

Literature review was used to establish the theoretical framework around certain target areas: tacit knowledge in action; learning in theory and practice; planning professionalism; and a related overview of climate change adaptation. This literature review has drawn on peer-reviewed journal articles and books, as well as grey literature such as government and professional publications. The theoretical frameworks for these topics were reviewed and summarized to set the stage for further analysis. This background supported the further exploration of how professional planning practitioners surface and transfer tacit knowledge, and effectively learn from one another. Information presented by professional organizations such as the CIP/PIBC, and the provincial level of government, such as the Province of British Columbia, was reviewed to learn what they are actively doing within their respective mandate to facilitate knowledge transfer between Canadian municipalities and professionals. As well, climate change adaptation theory was summarized to assess alignment with the knowledge that is being transferred.

### **3.2 Case Study Analysis**

Case study research is defined as an in-depth examination of a particular example, or ‘case’ (Flyvbjerg, 2006). A researcher undertakes this method when investigating a “phenomenon in its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident” (Yin, 1981, pg. 98). The current phenomenon being examined in this practicum is tacit knowledge tapping and/or mapping, and transfer techniques in relation to planning for climate change adaptation. By this definition, the case study does not need to be fully representative of the larger phenomenon, but for this practicum the findings were anticipated to have potential application beyond the two main case study settings.

Numerous municipalities within the two BC macro-region settings were analyzed to establish if tacit knowledge has been transferred in relation to climate change adaptation activities. These case studies became the setting for the primary research that was undertaken as part of this practicum.

### **3.3 Key Informant Interviews**

Key informants were interviewed in order to obtain primary data not generally included in the publications being reviewed in the literature review and case studies. These interviews provide the opportunity to access specific knowledge that is regarded as explicitly, or implicitly, in the public/professional realm, but not necessarily documented or published. Interviewing is very useful to gain insight into the context of situations that the researcher may not discover without the key informant (Gilchrist and Williams, 1999).



For this practicum, in-depth semi-structured interview questions were used. Interviews resembled guided conversations that explore topics in a less formal manner than other interview formats (Lindl & Taylor, 2002). The methods and interview guides of Ambrosini, & Bowman (2001), Murnane (2008), and Brown (2011) were a helpful example in creating an interview guide that was tailored for this practicum. Interview responses were summarized in terms of common themes and then analyzed qualitatively for useful patterns (See Interview Guide Appendix A).

In order to select suitable and appropriate interview participants, purposive critical case sampling was used. This sampling method was well-suited to the practicum as it allowed for discovery of generalizations from key populations that later can be applied to other cases (Kuzel, 1999). Key informants were upper-level staff members or consultants with knowledge of climate change adaptation in each of the case study settings. Informants were interviewed regarding their experience in planning for adaptation, and their knowledge transfer experience with other communities and professionals.

A second group of key informant interviews were conducted with an official from the Planning Institute of British Columbia (PIBC) - an affiliate of CIP, and with an individual working for the Government of British Columbia. These interviews focused on the impact of networking events and professional publications in facilitating collaboration and transfer of knowledge. The goal was to interview several key informants representing both the CIP/PIBC and RAC initiatives.

### **3.4 Techniques (used within key informant interviews)**

A combination of ‘strange conversations’ (Pitsis, Clegg, Marosszeky, & Polley, 2003), re-enactment interviews (Carlsson *et al.*, 2002), and causal mapping (Ambrosini,

& Bowman, 2001) were used to gain an understanding of tacit knowledge from the key informants. The full implementation of each of these methods is complex and, in effect, beyond of the scope of an MDP. In consequence, modified versions of the techniques were adopted - to explore the tacit knowledge of key informants.

### **3.4.1 Strange Conversations**

‘Strange Conversations’ are one of the more straightforward tacit knowledge gathering methods. In the late 1960s, Garfinkel initiated an experiment where he would tell his university students to have conversations with people and continually ask probing questions such as “What do you mean by saying...?” in order to understand the tacit knowledge that comes in the form of routines. By breaking the rules of social conversation, this insistent *focusing* line of questioning would make people think more deeply about what they were saying (Garfinkel, 1967).

Another definition of strange conversations came from Weick (1979) who described strange conversations as those where “the agenda, process, and outcomes were unclear” (1979, pg. 200) to any, or all actors (Pitsis, Clegg, Marosszeky, & Polley, 2003, pg 582). Since everything is unclear within a conversation, the opportunity for people to tap into their tacit knowledge - to create solutions to the strangeness - is enabled. This is because, within strange conversations, people try to continually understand the other person’s point of view. This continuous effort to understand was shown in research done by McHugh in 1967. Tacit knowledge is the type of knowledge that is tapped into because, to understand or answer probing questions, one has to continually reflect within themselves for answers, as to what is true in their own experience (Pitsis, et. al., 2003).

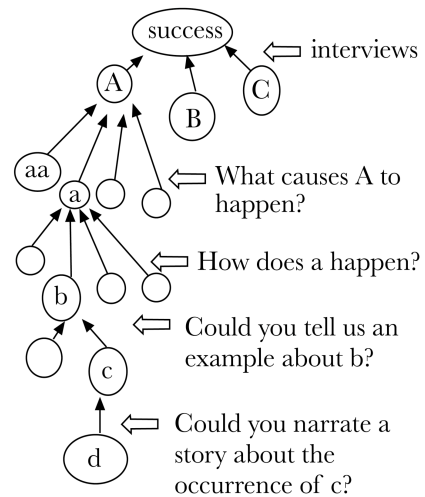
Strange conversations were used by the Alliance Leadership Team during the construction of the large infrastructure for the 2000 Sydney Olympics. The Leadership Team was made up of engineers, whereas the public they had to deal with came from a variety of professional and lay-person backgrounds. Mutual understanding between these groups was usually non-existent, with the Alliance Leadership Team concerned over budget and technical details and the public concerned about aesthetics and disruptions to their lives. Strange conversations revealed the tacit knowledge that both groups brought to the table – one set had technical ability and the other set had knowledge of everyday life in a neighborhood. This approach, coupled with informal meetings such as barbeques, resulted in a sharing of experiences and information that was unexpected. The tacit knowledge of public preferences and the technical knowledge of the engineers were difficult for the other to understand at first, yet by continually clarifying the meaning of statements and using probing questions, the consultation and project concluded on time and under budget (Pitsis, et. al., 2003).

### **3.4.3 Causal/Mind Maps**

Schön (1992) wrote about making tacit knowledge explicit through reflection. One way of accomplishing this is through the use of causal maps (Ambrosini, & Bowman, 2001). As a research method, causal maps were first used in political science as a way of analyzing documents. However, it has evolved to be used to analyze what people say and why they say it (Eden, & Ackermann, 1992). Causal maps are “ways of representing individuals’ views of reality. They are intended to relate to the way in which a person makes sense of, and explains, the world around him” (Ambrosini & Bowman, 2001, p.817).

Causal maps are used to explore tacit knowledge because they can be focused on action, context and practice (Ambrosini & Bowman, 2001; Wassink, Sleeger, & Imants, 2002). They also help to unearth order in a collection of thoughts that are usually fuzzy. They help visually represent cognitive relations, which may not be understood otherwise. The visualization consists of nodes and arrows (Figure 6). Nodes indicate the constructs that a person thinks are important and the arrows represent the linkages between constructs (Ambrosini & Bowman, 2001; Wassink, Sleeger & Imants, 2002).

1. Preliminary interviews about what causes success in the organization to elicit constructs to start the map (A, B and C)
2. Set up the map with the preliminary constructs as starting points
3. Begin the mapping process with questions such as:  
What causes that?  
How does it happen?
4. If the flow of constructs stops, ask questions such as:  
Could you give us an example of how that happened?  
Could you tell us a story?



**Figure 6 : An example of a causal mapping framework. (Source: Ambrosini, V. & Bowman, C. (2001). Tacit knowledge: Some Suggestions for Operationalization. Journal of Management Studies, 38(6), p. 823).**

In causal mapping, researchers begin by asking open-ended questions and progress to structured questions by feeding off responses from participants. The more structured questions probe why the interviewee took a certain course of action. The participants continually reflect on their actions by telling stories and using metaphors to describe actions (Ambrosini & Bowman, 2001). The weakness of using this type of method is that

it is challenging to conduct concrete, unbiased analysis of data (Ambrosini & Bowman, 2001).

During key informant interviews, these techniques were applied to extract the tacit knowledge of participants in relation to climate change adaptation and to determine whether this information/knowledge/wisdom could help other communities. These techniques could help practitioners reflect on their own tacit knowledge and how they as planners could further the profession through further dissemination in a variety of forms - such as blogging, seminars, conferences or simply in 'water-cooler' or 'coffee-table' dialogue with their co-workers.

### **3.5 Ethics**

To gather evidence - generate data - for this practicum, in-depth key-informant interviews with practicing professional planners were conducted. The interview subjects were not from a vulnerable group of individuals. Key informants were identified and contacted using information from publicly available directories on the Internet. Key informants were selected based on the relevance of their professional experience.

Written consent was obtained from all key informants prior to each interview. Since the majority of interviews were conducted in person or by phone, the consent form was sent to participants by email, and emailed back. Participants were briefed on the nature of the practicum before each interview, and they were given an overview of the questions that were asked. Participants were permitted to leave an interview without question at any time, if they wish. Confidentiality was maintained by using a coding system. Also, titles of positions were not used in order to ensure that confidentiality in

smaller organizations would not be breached. Participants have had the opportunity to review all related analysis/interpretation for accuracy. Finally, all written and recorded records were stored in accordance with the University of Manitoba ethics criteria.

### **3.6 Analysis**

The key informant interviews were the main vehicle for investigating the first two research questions - regarding what, if any, tacit knowledge transfer exists between individuals, within organizations, and outside of them. The analysis of these interviews was done through analytic induction whereby qualitative interview data is sifted, and - from there - major themes and patterns and common results are identified (Gray, 2009). These themes and patterns were formed in part in relation to the literature review, as well as the research questions. The themes that emerged are reported in Chapter 5.

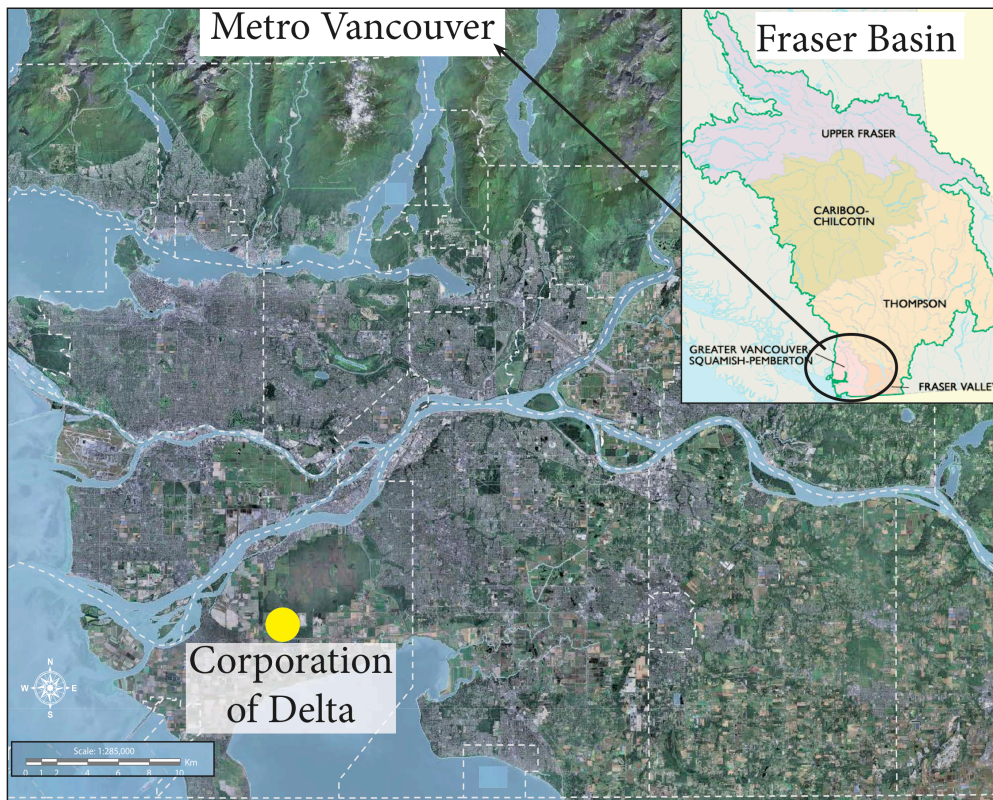
## **4. The Lower Mainland and Kootenay's Case Studies**

The focus of this major degree project is to understand the extent to which tacit knowledge is being shared by practicing planners working on climate change adaptation activities. However, adaptation planning is at vastly different stages in different parts of the country. Planners in some regions have not had sufficient exposure to climate change adaptation planning to be able to begin sharing tacit knowledge. The communities examined in this practicum are far enough along to be participants in larger-scale climate change adaptation initiatives including: the Federal Regional Adaptation Collaborative (RAC) program (Canada, 2010, Columbia Basin Trust, 2010 & Fraser Basin Council, 2010), the provincial Live Smart program (Province of British Columbia, 2010), as well as various area-specific initiatives. In addition, each case study region has demonstrated investment of financial resources in adaptation. Tacit and explicit knowledge exchange practices within these settings are compared and contrasted by reviewing publically available information, mainly in the form of grey literature. The aspect of each case study region being at a different stage of climate change adaptation planning is also discussed.

Two BC settings: i) the Lower Mainland; and ii) Central Kootenay in the Interior have been selected as case study regions for this study. The examination of the Lower Mainland (Figure 7) includes key informant interviews from: the Fraser Basin Council (a sustainable planning and watershed management organization that works with the local governments within the Fraser Basin); the regional district government, Metro Vancouver; and, the Corporation of Delta (Figure 7). In the BC Interior (Figure 8), the Columbia Basin Trust, Central Kootenay regional district, the municipality of

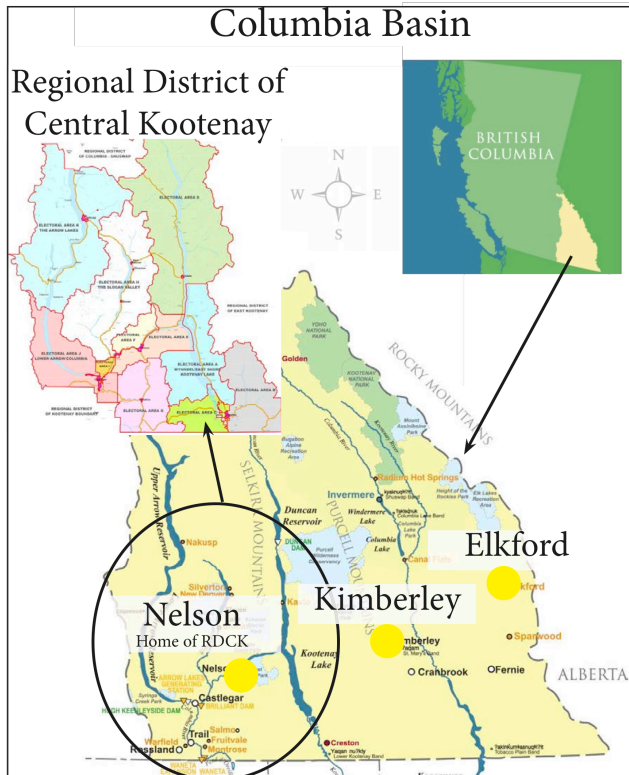
Kimberley, and the District to Elkford are included in the study.

For practical purposes, the practicum focused on climate change adaptation knowledge sharing, and was limited to activities undertaken within the case study areas in the last five years - in order to evaluate the extent to which tacit knowledge transfer has taken place. Climate change adaptation activities in each community will be discussed only briefly, as background context. The main focus of the practicum will be the associated tapping, and transfer of tacit knowledge in operational terms.



**Figure 7 Location of the Fraser Basin Council, Metro Vancouver Region, and the Corporation of Delta. Modified from: Map of the Fraser Basin Council. (2010). Regions. Retrieved from <<http://www.fraserbasin.bc.ca/regions/index.html>> (January 8, 2012). Map of Metro Vancouver. (2011). Municipal boundary map. Retrieved from <<http://www.metrovancouver.org/about/maps/Maps/Municipalities.pdf>> (January 8, 2012).)**





**Figure 8: Location of the Columbia Basin Trust, Regional District of the Central Kootenay, District of Elkford and Kimberley. Modified from: Map of Columbia Basin Trust. (2010). Location. Retrieved from <http://www.cbt.org/assets/img/ColumbiaBasinRegionMap2011c.jpg> (January 8, 2012).**

**Map of Central Kootenay Regional District. (2010). Brochure. Retrieved from [http://www.rdck.bc.ca/corporate/about\\_the\\_rdck.html](http://www.rdck.bc.ca/corporate/about_the_rdck.html) (January 8, 2012).**

#### **4.1 Background on Regional Adaptation Collaborative Programming**

The RAC program is being delivered by Natural Resources Canada (NRCan). The program connects municipalities, provinces and other stakeholders in the context of a ‘community of practice’ that collaborates on climate change adaptation on a region-by-region basis (Canada, Natural Resources Canada, 2011): “The emphasis is on building regionally- relevant tools and information, and on integrating climate change adaptation into planning and decision-making” (Fraser Basin Council, 2010). The BC provincial

government Live Climate Smart program is shaped along the same lines as the RAC but focuses more on policy than partnerships (Province of British Columbia, 2010). Both are presented as venues for (implicit or explicit) tacit knowledge transfer, as well as more conventional technical knowledge-sharing.

## **4.2 Background on CIP's Role?**

The Canadian Institute of Planners (CIP) is made up of provincial affiliates which provide professional certification to its members, as well as other training, conference and networking services. As a result, the services provided, as well as the professional recognitions, are not uniform throughout the country. Some affiliates, such as the Alberta Professional Planners' Institute, are recognized by their Province's government as a registered profession, where-as others, such as Planning Institute of British Columbia (PIBC), are not. As a result, some affiliates can legally claim planning as being a profession, whereas others are still engaged in debate as to whether it is or not. The former structure allows provincial affiliates to take on more of the administrative role and leaves the national body to take on projects, such as climate change adaptation, that they can champion nation-wide. The national body can also reduce the administrative burden in provinces where there is only a small community of planners. In this practicum, regardless of formal recognition of planning as a profession in each jurisdiction, planning is considered a profession in the same manner that the public, or an academic institution would view, for example, law, engineering or architecture (McClendon, 2003; & Hoch, 2011).

#### 4.2.1 Role in Climate Change Adaptation Knowledge Transfer

Knowledge transfer, and the sharing of information and experiences, is a major part of the general role played by CIP, for planners throughout the country. Its objectives include the following priorities:

- champion and lead progress and change in planning practice;
- act as the authoritative voice and the primary information and knowledge sharing network for planners;
- address issues of importance to the planning profession and/or the public interest;
- institute national standards for training, certification and best practices achieved through continued professional development of its membership; and
- deliver relevant and contemporary benefits and services to its members.

(Canadian Institute of Planners, 2012a)

CIP is involved in adaptation through the Tools for Adaptation program, also being delivered by Natural Resources Canada. Its main role initially was to spread the use of what it had identified as best practices used by five communities across the country. This resulted in a speaker series organized by CIP, for educating planners throughout the country. In 2010, the CIP conference in Montréal was directly related to the topic of impacts – from adaptation to, and mitigation of, climate change. The intent was to provide planners with information about how to “evaluate and use scientific information on climate change in the planning process [as well as to]... develop best practices for the incorporation of climate change into the planning process” (Canadian Institute of Planners, 2012c). Also, a Plan Canada issue (Spring 2008, Vol. 48, no.1) was dedicated to climate change adaptation following the conference, and CIP has developed a website devoted to the topic ([Link](#)).

The CIP mandate for assisting in adaptation was vetted through the national conference, and the workshops and meetings held throughout the country. The success of

the CIP events demonstrated ways for professional planners to learn about how to plan for climate change, and what experiences others have had to date. However, it is not clear from the grey literature how much tacit knowledge was surfaced - and made explicit - during these events. The interviews and case studies are in part an attempt to determine how successful CIP has been, or could become, at encouraging - and enabling - tacit knowledge to be exchanged among its membership.

#### **4.2.2 Mentorship program**

The Canadian Planning Institutes comprising of CIP, and the provincial affiliates, decided in 2009 to create a mandatory nation-wide (except for Quebec) mentorship program. This program is being administered and regulated by the local provincial Institutes (CIP, 2009). Since each affiliate has their own requirements, I have focused on PIBC, the affiliate of record that all the interview participants in this practicum. For PIBC, the goal of the mentorship program is:

“giving students and prospective members of the profession insights into how its members function, helping them make career choices, socializing with (and perhaps recruiting) new members, generating mutual learning, and encouraging reflective practice” (Planning Institute of British Columbia, 2013).

This mentorship goal strongly resembles the learning theory of Schön (1983) as it creates conditions for reflective practitioners and could definitely afford the right setting for tacit knowledge to be exchanged between planners. However, since 2010 the program has been under review, and has not been taking any new applicants (Planning Institute of British Columbia, 2013).

By contrast, some affiliates, such as in Manitoba, have had a strong mentorship program, with the University of Manitoba’s MCP students, for many years (Manitoba

Professional Planners Institute, 2013). As a result, the new requirements for a mentorship program may not be difficult to implement in that province. The variation in implementation and buy-in to mentorship programs among affiliates could mean that some provinces have better knowledge transfer mechanisms in place already in comparison to others, resulting in disparities. Whether the nation-wide mandate, with provincial affiliate administration and requirements, will lead to a successful, uniform mentorship approach across the country remains to be seen.

### **4.3 The Lower Mainland**

The Lower Mainland is involved in a variety of provincial and nation-wide programs that assist with both the adaptation work and transfer of knowledge between professionals. In this section the tacit knowledge transfer efforts, as well as the adaptation strategies for the three organizations studied (Fraser Basin Council, Metro Vancouver, and the Corporation of Delta) are evaluated.

#### **4.3.1 Fraser Basin Council**

The main role of the Fraser Basin Council in adapting to climate change has been to spearhead the RAC program in British Columbia. They fund projects, organize workshops, and convene meetings to connect communities and provide resources for communities throughout the Fraser Basin and the Province (Fraser Basin Council, 2010). They have created tools to assist communities that are just beginning to consider how to adapt, and have contributed case studies of the work of different communities in this field.

Knowledge and information transfer are core attributes of the Fraser Basin Council mandate. The Fraser Basin Council helps to deliver:

“collaborative projects across the province that are helping decision-makers consider climate change impacts: particularly on water allocation and use, forest and watershed management, flood protection and floodplain management and community planning. The emphasis is on building regionally-relevant tools and information, and on integrating climate change adaptation into planning and decision-making” (Fraser Basin Council, 2010).

The [Fraser Basin Council case studies](#) are an example of broadly-defined tacit knowledge transfer, in the form of experiential knowledge being made explicit and then transferred (examples of some case studies featured by FBC are; [Cariboo Regional District](#), District of Saanich, and the [City of Prince George](#)).

#### **4.3.2 Metro Vancouver**

The overall role of Metro Vancouver is to increase awareness and support the member communities of Metro Vancouver, over 24 local authorities, in their efforts to adapt to climate change. Among other tools, Metro Vancouver has created a Corporate Climate Action Plan (Metro Vancouver, 2010), and a Climate Change Impact Scenarios Report (Metro Vancouver, 2011a) for the organization. The focus of these guides is to inform member communities, as well as the organization itself, about the impacts of climate change - and to outline both mitigation and adaptation strategies meriting consideration. For example, in the Corporate Climate Action Plan, the suggested adaptation strategies are to:

“Adapt existing infrastructure and operations, increase power reliability at key vulnerable facilities, retrofit existing infrastructure vulnerable to flooding” (Metro Vancouver, 2010, p.15)

The second strategy is to:

“Plan and build resilient new infrastructure and facilities, secure necessary property for future adaptive infrastructure requirements, and increase use of alpine lakes for water supply” (Metro Vancouver, 2010, p.15).

These recommendations are based on studies of possible climate change impacts - rather than on previous experiences.

Due to its collaborative governance model, a key component of the work of Metro Vancouver is what it calls ‘Outreach’. Outreach programs mainly target the public; however, inter-local government outreach also occurs (Metro Vancouver, 2011b). Working relationships and information transfer goes on between member local authorities and Metro Vancouver, but the publicly available information provides limited evidence of tacit knowledge being made explicit. Instead, the available documentation from Metro Vancouver focuses on synthesis, and on translating one form of explicit knowledge - climate change science - into a form that is more easily understood by professional planners.

### **4.3.3 Delta**

The Municipality of Delta, British Columbia began engaging in targeted climate change adaptation work in 2009. With the help of a University of British Columbia research group, a GIS mapping and visualisation tool has been used to illustrate how sea level rise, snow melt and flooding are projected to increase in the community, in response to different climate change scenarios (The Corporation of Delta, 2010 & Sheppard, 2008). In response to this academic research, the electorate and the Council identified climate change adaptation as an important issue. Today, the municipality has created a flood management plan to improve Delta’s sea wall and dike infrastructure, and has passed a

specific bylaw related to protection of flood plain infrastructure (The Corporation of Delta, 2009).

A large number of partners were involved in the preparation of the climate change adaptation strategies. Partners - such as the University of British Columbia, ICLEI Local Governments for Sustainability, Natural Resources Canada, Federation of Canadian Municipalities, Canadian Institute of Planners, and Metro Vancouver - would all have brought and applied tacit knowledge to the problem solving involved in creating an adaptation strategy (Corporation of Delta, 2010). However, as was the case in Metro Vancouver, explicit knowledge transfer appears to have been the focus of these partnerships. Despite having met and exchanged information, evidence of tacit knowledge transfer is absent.

#### **4.4 The Kootenay Case Study Context**

The communities in the Kootenay's are smaller than those in the Lower Mainland, but have much to offer both in terms of their tacit knowledge transfer practices, as well as their measures to adapt to climate change. The organizations studied in this region include the Columbia Basin Trust, the Regional District of Central Kootenay, the City of Kimberley, and the District of Elkford.

##### **4.4.1 Columbia Basin Trust**

The Columbia Basin Trust has created a program, the “Communities Adapting to Climate Change” initiative, in order to support communities in the Basin. The Trust does this along with “advisors from a host of academic, First Nations and government institutions, as well as community development practitioners” (Columbia Basin Trust,



2011). There have been two phases of the initiative completed to date: Phase 1 (2008-2009) Kimberley and District of Elkford; and, Phase 2 (2009-2010) Rossland, Castlegar, and the Regional District of Central Kootenay Area D, and Village of Kaslo. A third phase is currently underway (Columbia Basin Trust, 2011).

In order to build local capacity, part of the role for staff and consultants working for the Basin is to provide specific advice and expertise (Columbia Basin Trust, 2011). In addition, a Learning Network supports basin-wide sharing and learning of local community adaptation experiences (Columbia Basin Trust, 2011). The Learning Network is made up of local government staff and elected officials. It connects communities around the basin with each other, in order to learn from one another's experiences about adapting to Climate Change. The network convened online webinars, meetings and teleconferences. Workshops, study tours and community presentations are just some activities that ensure transfer of knowledge and learning between communities in the Columbia Basin (Columbia Basin Trust, 2011). The number of formal and informal events, existing relationships among the communities, and the focus on sharing experiences, are all indications that tacit knowledge in the form of experience knowledge has been shared throughout this network. The interview portion of this study provides an opportunity to probe the amount and impact of the tacit knowledge transferred.

#### **4.4.2 Regional District of Central Kootenay**

The Regional District of Central Kootenay includes both large and small municipalities (Figure 2). To date, climate change adaptation plans have been centered in the Village of Kaslo, and the surrounding Electoral Area D. The Village of Kaslo has a population of 1,073 and is located in the northern tip of the region. The economy of the

area is primarily agricultural, mineral and forestry based. Meanwhile, increased recreation and an influx of retirees has resulted in a population that is beginning to change character and increase in size. However, it is an isolated location; a strong sustainable economy has been hard to foster in the area (Columbia Basin Trust, 2008b).

The adaptation planning process began in 2009 and involved multiple stakeholders from Area D including councilors, staff and residents of both the Village and the Regional District. Education and learning was a key component to the process (Columbia Basin Trust, 2008b). The role and activities of the Regional District resemble those of Metro Vancouver, making it difficult to identify areas where tacit knowledge has been exchanged through grey literature alone.

#### **4.4.3 Kimberley**

The City of Kimberley has a population of roughly 6,200 people and is located at the eastern edge of the Kootenay region. Formerly a mining community, it is now a resort destination for skiing, fishing, biking and other outdoor recreation pursuits (Columbia Basin Trust, 2009a).

The City outlined three stages to create its plan: learning, sharing, and planning. The learning stage began by talking to citizens and staff, to determine if their observations about changing climate meshed with the scientific data available. This learning stage was done through a variety of open houses and workshops. As well, an advisory committee with city staff and councilors, citizens, local stakeholders was created, all in an attempt to gain some understanding of risks to the community, and to begin forming a position on adaptation (Columbia Basin Trust, 2009a).

The sharing stage was when information from the learning stage was presented to the community and when an analysis was conducted of the risks associated with climate change in every area of the city's operations. Sharing of knowledge between all stakeholders involved was a pivotal part of the Kimberley example, in order to achieve widespread acceptance of the need for adaptation.

The planning stage resulted in organizing all the information in a structured format, which would affect reviews of the City's Official Community Plan and Infrastructure Plan. The goal was to have Climate Change Adaptation integrated into all future planning activities (Columbia Basin Trust, 2009a).

Kimberley used a variety of knowledge sharing events where both tacit and explicit knowledge could have been shared. However, most of the interaction was between professional planners and the public. Sharing with other professional planners - about their experiences - appears to have been done primarily through a [case study](#) [experience guide](#) and [video](#) (Columbia Basin Trust, 2009a), and other CBT activities (Columbia Basin Trust, 2009a).

#### **4.4.4 District of Elkford**

The District of Elkford is located in the southeast corner of British Columbia in the Eastern Kootenay Regional District. Like the other communities of the region, it relies on a natural resources based economy and, increasingly, tourism. The District of Elkford has a population of approximately 2,500 (Columbia Basin Trust, 2009b). In 2008, the District updated its Official Community Plan (OCP) and decided to integrate climate change adaptation into the entire document. As this was a first for BC, many

different partners came together to help Elkford achieve its goal. The Columbia Basin Trust, as well as funding through the RAC program, supported this project. The Columbia Basin Trust played a key role in helping Elkford by linking the community with resources, and experts, as well as with scientific information that assisted in the risk assessment process; all helped the community identify goals, objectives, and actions (Canada, National Resources Canada, 2011b).

The community was widely consulted through many different types of events - ranging from surveys and meetings, to open houses and workshops (Canada, National Resources Canada, 2011b). This communication effort helped the planners, and involved others, to exchange knowledge and share ideas throughout the process. Knowledge sharing between Elkford and other communities was primarily facilitated by the Columbia Basin Trust.

#### **4.5 Analysis**

Overall, because more of the municipal governments in the Kootenay's have implemented climate change adaptation in their Official Community Planning processes, it may appear that the Kootenay's are further ahead. However, population differences and the scales being considered between the two areas make a direct correlation or comparison difficult. At the regional district level, Metro Vancouver appears more advanced in its implementation of adaptation planning into the entirety of its organization. The Regional District of Central Kootenay is still viewing adaptation more on a case-by-case basis. Finally, financial resource limitations for the Fraser Basin Council mean that it is not as advanced as the Columbia Basin Trust in terms of knowledge transfer activities, although they have similar goals. According to some

interviewees, the Columbia Basin Trust has a larger amount of funds available to it, compared to the Fraser Basin Council.

From a review of the different approaches laid out above, it would appear that there are opportunities for improved tacit knowledge sharing both within the case study regions and between them. In terms of knowledge transfer, once again, due to the higher level of funding, the Columbia Basin Trust appears to have a more robust system in place to encourage communities of practice and other activities that support the transfer of knowledge. In terms of the regional governments, Metro Vancouver had more of a mandate to transfer knowledge between member communities, whereas the Regional District of Central Kootenay does not have such a mandate. The individual municipalities seem to be fairly evenly situated when it comes to knowledge transfer, both within and outside of the organizations. The interview findings provide an opportunity to explore possible further distinctions.

## 5. Interview Findings

The backbone of this research included a series of semi-structured interviews conducted throughout the lower mainland and the Kootenay regions of British Columbia in late June, 2012. A number of professionals from the private and public sectors discussed their own - and their communities' - role in climate change adaptation, and what - if any - tacit knowledge they might have surfaced, and transferred to others.

The findings are organized into the following categories:

Participants' Advice on Adapting to Climate Change	Knowledge Management and Transfer
Role of CIP in Tacit Knowledge Transfer	Individual Tacit Knowledge in Action/ 'ah ha!' moments
Planning as an Experiential Profession	Value Systems and Internal Knowledge
Case Study Region Differences and Similarities	The Elephant in the Room?

These categories were determined during open coding of the interview data. Major recurrent themes and patterns have been grouped into these overarching categories.

### 5.1 Participants' Advice on Adapting to Climate Change

All participants appeared to enjoy identifying three pieces of advice for planners regarding climate change adaptation. The question was easy to grasp, but also related directly to tacit knowledge transfer. Each key informant had much advice to offer other communities that are trying to start adapting to climate change. Two main messages that emerged for this question were: 'just start', and prioritize education - of both the community and planners themselves. 'Just start' was a message that was based in the notion that municipalities need to worry less about monitoring, gathering scientific data and creating hard plans.

Another variant on this was to recognize adaptation that is already occurring within the community, but may not be looked at through such a lens. As one interviewee stated:

*You don't need a climate change adaptation plan that just sits on the shelf. I don't think that's useful. I think you should think about how to work adaptation planning into the work you do every day (Participant 2).*

Measuring, and the science of adaptation, were seen as an important part of the process, but as more of a means than an end, more of a means to a more important end. Participants felt that their communities were focusing too much on this initial science and related data-gathering, and less on actual actions. Outside experts, such as scientists and modelers, were seen as a great asset; yet it was felt that too much time was spent on this stage of the adaptation process. The majority of participants wanted to see more concrete actions sooner than later. They also felt that their experiences could help other communities to not make the same mistakes they made. For example:

*[municipalities] spend years and years spending lots of labour hours refining data products that in the end I question how well they've been used to be spent on actions...we are overly focused on doing more and more research where really the time to act is now and those same resources and money and labour could be focused on actions (Participant 4).*

The key was apparently getting the right scientific data quickly that would lead to actions in a timely manner, rather than delay action-taking.

Education about climate change for planners, primarily by experts in the field of climate change adaptation, but also by the public and by other planners, was a major theme that everyone mentioned while responding to this question. Education was an asset, for the community, for the participants, and for staff themselves. Education and engagement with the community was a unanimous response for all participants. They all felt that communities embarking on climate change adaptation needed to educate and

engage the community, from the beginning, in order to gain buy-in and understanding.

One way of doing this was through a well-told story:

*A communications person was asking [the scientist presenting] what is the future going to look like and the scientist just kept saying well it depends, it depends. The audience member said “So... with all due respect it looks like you can’t give a straight answer”. The communications person then ran a video of a farming family in upstate New York, a story which ran on the nightly news. It was a story about a family who ran a farm and grew maple syrup. And basically what these people said was that the climate was changing, it’s not cold enough to make the syrup, and they were not sure if their children are going to have a job so they were afraid of losing their livelihood. So they are looking at buying land in Canada because that is the only place they are going to be able to grow maple syrup. Well that clip was about climate change. Both the scientist’s story and this news one are both right, but the scientist’s was scientifically technically accurate, but the other one is more accessible. What story should local government use? ...so it is how the data is presented in story form that is key to it all (Participant 1).*

Educating the community was vital, to ensure that myths were dispelled and fears were kept in check throughout the entire adaptation process; as one participant pointed out:

*Dispelling myths, like we will be cutoff from civilization and have no access to food is one such myth that paralyzes people before any actions can take place... and always tell the truth (paraphrased to protect identity) (Participant 8).*

Ways of dispelling these myths and fears is through communicating the right facts across to the community, in a way that can be understood by all. Participants focused on making scientific information understandable to the general public. As one participant pointed out, getting a scientist to talk about the science is ‘great’ but you have to make sure that people will be able to understand that scientist:

*...talking to a climate modeler on the phone when we were getting ready for a workshop. One of the presenters was a modeler and so there was a lot of discussion about how to make this understandable by non-modelers but... talking to this person as an expert that had so much more in-depth understanding of Climate Change and modeling in the complexities of it ... I realized that there was so many different levels of knowledge in this field. It was just a good reminder that I am not the expert but the facilitator. We can bring in experts to have a dialogue but my role is to help people that*



*are experts to communicate this information in ways that other people can understand. In the end the presentation by the modeler was still too technical... but I was about to communicate some of his information to the participants. I also learned that... next time... choose experts carefully, and I found one that was better at communicating to the general public (Participant 3).*

This lesson was learned not from a book - but from experience and making mistakes. This is tacit knowledge in action, as well as a good piece of advice for future communities who are considering doing the same thing.

The community was not the only group that many participants felt needed to be educated about climate change adaptation; they themselves - and their staff - needed to be educated in order to understand what needed to be done in their communities. As mentioned earlier, a few participants found that having scientists explain the future reality of climate change impacts was very important, to ensure that the right action was taken.

This education of staff was crucial before any community education could take place:

*You first need to understand about climate change and what the impacts to your community are; until we got that we did not really get an understanding of what we needed to do. (Participant 7)*

*Take the time to learn a little bit about climate change and the impact on the community. (Participant 5)*

Climate change adaptation – specifically - was learned through experience, since no participant mentioned learning about it in a formal setting:

*Through the entire process of creating our adaptation plan... definitely... there was a steep learning curve right from the start. (Participant 6)*

*My position was first focused on mitigation but as climate change adaptation became more of the focus my position started to focus on adaptation, which meant I ended up learning on the job. (Participant 3)*

### **5.1.1 The Stories Behind the Responses**

The responses to this question came from the experiences that the participants had

with trying to plan for climate change. This came across especially in the probing; ‘tell me a story about the origins of these pieces of advice’. The stories varied, but they were all related to an experience on-the-job. The feeling of being frustrated about doing more and more research, or not seeing action taking place - and finding both staff and the community getting anxious about seeing results, were all experiences and emotions that resulted in suggestions. Not all stories were negative learning experiences; however, the majority did come from mistakes made or lessons learned, two such stories were:

*After doing it for a couple of years now I hit a wall [motivation] somewhere... and realized that the only way I was going to get out from behind the wall was to celebrate the small successes. (Participant 5)*

*I learned while working on a project about [wildlife impact] in the past that the best way to engage and educate the public was to tell the truth and dispelling myths about what impact [this animal] had on the ranchers and farmers in the area was the only way to see eye-to-eye and have a real dialogue. (Participant 8)*

Other stories were from positive experiences, realizing that the community had so much knowledge and was doing so much already. It is important to just get started and adapting, or just thinking of the actions that communities are already taking, in a different light. In the words of one participant:

*We asked the community “what do you think the big impacts would be?” and everyone said that the big impacts would be related to water supply, wildfires and flooding. The next part of the workshops was “Well... ‘what do we do about that?’” and it became really apparent that the community was already addressing these impacts; they had a world-class fire reduction program and have water meters. I think for both them - and for myself - it was really like this ‘ah ha’ moment, where we thought “you guys are already doing a lot of stuff and you don’t really need to develop a strategy to sit on the shelf” ... just keep doing what they were doing, just think of it in a different way (Participant 2).*

Overall, the stories that the participants told were excellent sources of information, and explained in greater detail their knowledge about climate change, and accorded their

pieces of advice some credibility.

## 5.2 Role of CIP in Tacit Knowledge Transfer

In a question regarding the potential role that CIP, FCM or another national organization could play in knowledge management - and tacit knowledge in particular- participants demonstrated divergent views. The majority saw a role for a national organization in promoting knowledge management both within municipalities and among participants, but almost all thought that knowledge management should take place in a local setting. Responses included the following:

*I think CIP could take more of a lead on job shadowing and monitoring programs; I think that could help transfer tacit knowledge between professionals. (Participant 3)*

*What CIP and the provincial affiliates should be doing is looking at important topics, like climate change and pulling the information together for people... champion the cause. It's interesting with [PIBC]... now you are required to do learning units ... which is helping people think about 'if I am learning something new'... because things are changing all the time, so I think that this CIP initiative is a great way at making sure knowledge is transferred. (Participant 9)*

A desire for guidance, communication and leadership in mentoring programs were themes that came up for those wanting national organizations to have a role. Almost all felt that local knowledge management would be more effective, but that CIP could play an important role in promoting this initiative.

Some respondents felt that CIP or another national organization was not the place for knowledge management initiatives (for climate change adaptation) to be addressed:

*I would think that there is a value in this but I'm not sure if the national organization is the right outfit to do this. I think it is so specific to the organization or to that specific community... I don't see how it [knowledge management] would work at a national level (Participant 4).*

Only one respondent felt that communities were already doing a good job in the

knowledge management area - at least in BC, but felt that other organizations could be doing more:

*I find the local government world is fantastic at knowledge sharing already, I can pick up the phone and talk to any one of my colleagues in the province and ask how they did this project or another. I can get the report that they did and then I have everything that I need to do a similar project... from what I can see ... we have that collective support system already (Participant 7).*

The theme of municipal governments being good about exchanging explicit information and some tacit knowledge, through communities of practice or just open communication, recurred throughout the interviews:

*I know, informally, everyone just goes and phones other planners and say 'what are you doing about ...'. (Participant 9)*

### **5.3 Planning as an Experiential Profession**

One of the themes of the literature review was the idea that - in professional practice movement theory - 'planning is not an armchair profession' (Verma, 2006). The majority of the responses from the participants were based on their experience while doing their jobs - not lessons learned from school nor taught from a journal or planning magazine. Everything - from how they got into planning for climate change adaptation, to asking colleagues for help, to 'ah ha!' moments of revelation - were all gained through doing the jobs that they do:

*I think my time in the States, I was there for three years and I was a junior planner and the first thing they had me do was revise the team website ... and then from there I was working on projects that were much higher than the junior position I was in. (Participant 4)*

*If you think what is the most fun you have ever had it is when you are doing something...the biggest learning occurs when you are doing. And planning is all about doing. (Participant 9)*

What the participants learned while on the job was quite profound. While on the job they discovered they learned about both climate change and their profession. There was not a single participant that learned about climate change adaptation in a more traditional way, through school or other explicit education. They all learned on the job, by asking questions of colleagues, both within and outside of their organizations. They also learned through experience by making mistakes and having successes:

*I responded to a request for proposals, and I was successful...then it sort of snow-balled from there. I have been working in the field ever since.... I had no prior training in [the climate change adaptation] field at all (Participant 2).*

The learning from other professions, such as modelers and engineers, was not necessarily explicit - but tacit knowledge on how to make other professions' knowledge accessible to others:

*There was an incredible level of knowledge [in this community in terms of its residents] they have the marine station there so the community has some highly educated people and I had not really factored that in to what we were doing. There was someone [in the community] that had a particular interest in the aquatic and environment section and she took the approach that she was sure I was going to oppose her. She had this huge level of knowledge and instead of saying 'no' I said 'why don't we write down your concerns and see if the municipality sees to it'. In the end she wrote that part of the plan. (Participant 9)*

*I fell into this role through some initial discussions with [a colleague from a different profession within the organization] in regards to the climate work they were doing. (Participant 1)*

At least four other participants mentioned communication, as a key tool they have learned through the course of their jobs:

*As a planner you need to think about who you're dealing with who the audience is, what's the level of knowledge out there, and - for goodness sake - I was the person with the least knowledge on anything [so instead of giving a presentation] we had a discussion on what was happening in terms of [climate change adaptation in their community] and what knowledge could I take to [other communities] from [your community]. (Participant 9)*

## 5.4 Case Study Region Differences and Similarities

One of the more interesting aspects about the actual climate change information that was being provided while interviewing participants, at least in the Kootenay area, was the reality that the region was coming out of having its heaviest rain fall on record that spring. Due to this record rainfall, flooding was a major concern. While not supported by scientific evidence, several participants mentioned that they were living the effects of climate change right now, and that the adaptation measures their communities had made were being tested as we spoke. In more than one of the municipalities visited, the interviewee was taking time away from an emergency response meeting. The surprising aspect was that participants still made the effort to meet. The flooding, and the related emergency response, resulted in comments such as these:

*Right now, we are getting flooded to heck here and we are recognizing climate change is happening. This is the most rainfall we've experienced in all recorded history. We have exceeded the amount of rainfall and so everyone is now more aware of climate change. (Participant 8)*

*It's risk management, we do it in everything that we do in our own lives.... regardless of climate change or not we all take risks every day, but I think there are some risks that we shouldn't be doing - but it's hard to push it forward. I talk now about our floodplain and we're trying to say no development in our floodplain. Well there are some areas that we've already developed... so how do we flood-proof those. Well you can flood-proof them for the one in 200 year event technically based on existing engineering standards but what about the 1 in 1000 year event that completely guts the valley. What then?... because we are people that live for less than 100 years normally we don't see those affects, so we are continually develop(ing) and design(ing) based on what we know; and because we don't know that, we are not factoring that into what we do. So for councils and planning staff and engineering staff, there's no reason not to develop in the flood plain. So to be able to take that hard stance and say 'no' we're not allowing any development in the flood plain, we're not going to put anybody at risk ever... we're going to move it up onto the hills... that takes huge gumption to get there, and I just don't see it happening anywhere. (Participant 7)*

Each of the two regions had a wide variety of similar findings when it came to climate change adaptation strategies. Yet one large difference that emerged was the funding amounts given the large basins. The Columbia Basin Trust simply had more resources than the Fraser Basin Council.

*The Columbia Basin Trust is much larger and has more money than the [Fraser Basin Council]... funding-wise they have more money, for sure (Participant 3).*

This disparity in resources resulted in the Columbia Basin Trust having the ability to experiment with knowledge transfer to its members in a wide variety of ways, to explore what worked best. Many Kootenay region participants mentioned the number of CoPs, webinars, case studies and articles - not to mention just dollars, to both transfer information and to undertake the initial projects adapting to climate change. This level of knowledge transfer opportunities was not seen in the Fraser Basin Council region:

*There are all sorts of online tools for communities and the organization to assist people in adapting to climate change. We also have a learning network; it's basically everyone who has done climate change adaptation or is interested in it - we give them a newsletter, and we do learning network webinar. The purpose is to share knowledge with people and among people. We try really hard too. The whole part of our program is to engage communities in climate adaptation planning. We're making every effort to get them involved in the process... We don't have a mandate to share knowledge outside the basin (Participant 2).*

## **5.5 Knowledge Management and Transfer**

Knowledge management was seen to be not very formal within any of the organizations, yet there was a mandate for four of them to disseminate information to the other communities. Knowledge transfer did appear in all participants' responses. How far the knowledge transfer went is unknown; however, participants were well-connected within the province. Only a few organizations had a formalized knowledge transfer

system in place within their organization;

*We have a climate change-working group that is a group of about 6-10 staff from all different departments, so if we go to a conference or something and we learn something we can pass it on to the others in the group. (Participant 5)*

*There are formal polices, the general mandate of the ministry is to support communities, so everything we do is under that umbrella. This means working with other provincial agencies and other communities. So part of my role has been to work behind the scenes to connect people and spread knowledge. (Participant 1)*

All the rest had no formalized knowledge transfer system;

*No... this is funny because the organization is trying to get others to talk, but we are not doing it ourselves. (Participant 3)*

*Nothing formal really. We do sporadically and on an ad-hoc basis, but it is up to the individual. I think there are mentoring programs in engineering but not in planning. (Participant 4)*

However, non-policy connections and transfers of knowledge were occurring - and between many different communities. All participants were involved heavily in 'Communities of Practice' at a variety of different levels. Communities of practices were created either through a basin organization such as the Fraser Basin Council or the Columbia Basin Trust. Both have a mandate to transfer knowledge and create communities of practice. Regional District organizations transferred knowledge less through a mandate, and more through the nature of the organizations - being made up of several different municipalities. Also, Natural Resources Canada's RAC program was a source of communities of practice, as well as the Province's efforts:

*We are getting better at celebrating and promoting those projects and talking with other communities and people in our profession and I think that definitely helps transfer knowledge about adaptation. The more you keep talking about it the better you get at doing it and hopefully be more resilient in the future. (Participant 6)*



*We are involved in lots of CoPs within the area. (Participant 8)*

*Our role is to drive the conversation with other communities, [Engineers Canada] and others.... (Participant 7)*

*Yes, we're sharing with so many different communities through conferences, UBC CLAPPs (??) and other Communities of Practices. (Participant 5)*

The overall trend was that municipalities seem to be quite good at sharing knowledge, about their experiences in dealing with climate change adaptation. Most knowledge shared was initially explicit but then participants would talk about stories or experiences within these communities of practice.

## **5.6 Individual Tacit Knowledge in Action: Ah Ha! Moments**

One pointer to the emergence of tacit knowledge while performing the interviews was through noticing - as one interviewee called it - their *Ah Ha! moment*, and almost every participant had one. These ah-ha moments were bits of individual tacit knowledge that each individual had gained through their experiences of working, and living. The following is a snap-shot of some of the more note-worthy stories of ah-ha moments.

One participant mentioned how a state of mind can change through listening to someone's emotional intelligence, rather than relying on only traditional intellectual knowledge:

*(paraphrased to protect identity) I was talking to one of my colleagues who was mentioning about a group of students that had come to give a presentation on adapting to climate change, but was looking at social indicator. It was really different; they were looking at the people in adaptation, and I thought it was so novel. We were always focused on infrastructure, so it was interesting to think about the people and how that affected adaptation. There is one area of the community that all science and models is telling us to build up a large infrastructure project to protect the community from flooding: however, the residents do not want this adaptation because it blocks their views. The area is one of the most affluent areas in the community. A more senior staff member had been telling us that we should listen to the community. I always thought it was*

*just politics/emotion knowledge not true science. But after this university group came in... their science challenged what I thought. In the end we should do nothing for this neighborhood, because they are more resilient than other parts of our community. They have the ability financially to come back from a large flood event, so why waste money there when there are so many other areas that are not as resilient financially. I learned that I was not listening to this senior staff member because they were focusing on emotional knowledge, and as a result I refused to accept that it was based on real science, and that it could be the right course of action. I think we could listen to emotional knowledge more and not discount it as much as I have. (Participant 5)*

This participant learned that just one way of thinking did not always result in the right course of action; and that, maybe, emotionally or even tacit knowledge was worth listening to, and taking into consideration. The ah ha moment for them was not just in dealing with climate change, but also in how they relate to different forms of knowledge in the work place.

Another example of an ah ha moment was reported by a participant who discovered the importance of asking questions that challenged the way things are done today, to push innovation and further the conversation about creating better communities:

*We have a major river system running right through this valley and our sewer lagoons are adjacent to it. We know that if we had major flooding, we're losing roads... we're losing sewer and water systems. So part of our adaptation project is to construct a dike that will protect this critical infrastructure, so we can at least best plan for the worst-case scenario. We did our engineering studies and we got our plans done and I stepped back and asked the question; now, 'is this going to be resilient to climate change?' And the engineer's response was, 'no, you cannot overbuild a dike because your funding agencies will not give you any money to overbuild a dike', and I am... like, 'well, then what good is this?.. it has not given us what we needed. And that's when I started getting into that whole conversation about forward-looking water projections. And realized that engineers are not yet doing that; they don't have the tools and the models to help them build those flow models... to be able to say this is what you need to protect your community from climate change. So, for me, that's when I got on my band- wagon and started having the conversations with Engineers Canada, with the province of BC, with Natural Resources Canada. Doing all this work to make sure that we are going to be resilient to climate change. Then, at the end of the day (if) we can't get funding to*

*build the dike that we need to protect us is not doing anybody any good... so that was my first ah ha moment. (Participant 7)*

This participant's ah ha moment led them to continue asking questions and beginning conversations, in this case with Engineering Canada, the BC government and the Federal funders agencies, to bridge the gap between funding for studies and funding to actually create action or infrastructure that complements these studies. This participant has gone on to ask questions and push the boundaries of what can be done in their communities. Continually asking questions was a recurring theme throughout the interview, and was a valued piece of tacit knowledge that they were striving to transfer to the other staff in the community. They did this by continually challenging their staff to ask questions, and reminding them of the importance of doing so.

Other ah ha moments occurred when participants were trying to communicate to community members or other staff members: In response to the question, "how do you facilitate meetings?"

*I drew pictures, graphic facilitation, it works really well; I'm not very good at it, but I find it works quite well. Just the ability to do pictures...helps capture what people say... you're putting it on a board in different places, and you're pulling together everyone's opinions and knowledge in a group discussion... it just really brings out more from participants in an open discussion. (Participant 2)*

*I learned during this process [that] being honest and giving the honest information... then I felt that when I left the table I have the respect of the people that were there... in that they listened to what I had to say, because I didn't make stuff up (while other people did make stuff up). (Participant 8)*

These participants learned - through their experiences - ways to communicate better with others. All this is valuable tacit knowledge that was gained, and which may be transferred.

## 5.7 Value Systems and Internal Knowledge

An individual's emotional intelligence, motivation, and value systems came into play when discussing why they did the job, and their favorite part of that job. Many of the participants had an active lifestyle, which meant they enjoyed the outdoors and the natural environment. They mentioned that this was one of the reasons why they were interested in climate change related work:

*I was drawn to climate change because I was always passionate about environmental issues. I grew up in somewhat rural places, and my parents worked for parks so I spent a lot of time in the outdoors. As a result I got involved in environmental conservation. (Participant 3)*

*I was always interested in ecology, I did a degree in ecology. [When I was little] I always liked turning over rocks to see what was underneath. I've always been interested in the relationship between the natural world and living and non-living things. (Participant 5)*

*The natural world was always there when I was growing up as well as outdoor recreation. (Participant 6)*

Other value-based factors were the desire to make real change in their community and/or the planet:

*I don't know if I can ever save the planet, I think people have that wish but what I think they have done is raise awareness and so if I can just raise awareness I'd be happy. (Participant 8)*

*This project I thought would be the turning point... council would ask me to do something about this... I could make a difference. (Participant 5)*

*Did you do something that had an impact? I can churn out reports, zoning bylaws things like that but to do something that creates a community, that's what I felt. Yeah, I had a little part in Creating Community with two capital Cs (Participant 9).*

*In the work that I have done I have always wanted to make a difference and I think one way to do that is to put together a compilation of all the work on the ground... practical work that planners do. (Participant 1)*

The emotional knowledge that the individual participants had about themselves and their motivation begins to move beyond tacit knowledge to the realm of presencing which

“allow[s] inner knowing to emerge” (Senge, & Scharmer, 2006, p. 205).

One or two participants did express emotions that may have allowed them to experience a level of presencing. For example, one such participant spoke of feeling humbled during an individual “ah ha” moment where they discovered that their own assumptions about what they had considered as ‘knowledge’ were not necessarily correct (see quote in section 5.6). This revelation was an example of the participant reaching beyond basic tacit knowledge into the realm of inner knowing and discovering. Another, example of a participant seemingly transitioning into the realm of inner feeling and presencing was found when they spoke about what truly satisfies them about their job;

*I enjoy bringing people together, it's pretty satisfying and energizing, for me in many ways....There was one workshop that was really satisfying. It was just really exciting because I got to bring together a group of people to run the workshop, and there were different people that came together that would not have otherwise worked together. And then actually facilitating the workshop it was really satisfying to see different city staff talk to one another about adaptation and get intrigued. These workshops spun into plans. It is really satisfying for me to go back and realize, and now there is some form of an adaptation plan. And that it all began with the catalyst of the workshop. It made me feel great, in retrospect, I felt satisfied when they happened but looking back I am even more satisfied having seen what came out of it (Participant 3).*

The feeling of satisfaction expressed by this participant seems to have emerged from the realm of inner feeling and awareness, though perhaps not quite as far or deep as Scharmer discusses (2000, 2009). However, the positive emotions the participant associates with the workshop experience will make them more likely to act, and be more confident, when faced with a similar challenge in future. Perhaps with more time, and training, this participant – and perhaps some of the others - could go to the next level of tacit knowledge and then beyond.

Amassing more substantive evidence, of participants using their tacit knowledge

to go beyond their surface values, out of a conscious desire to make a difference, was a challenge. A possible explanation for this could be that tacit knowledge is not well understood within the planning profession. As a result, planners may not be in touch with their own inner-self knowledge and feelings. Also, this study has differed from previous studies (such as Brown, 2011) where more time, and resources, could be devoted to developing deeper trusting close relationships between participants and researcher.

## **5.8 The Elephant in the Room?**

Overall, the majority of questions were well received by participants. One exception was the final question relating to whether participants had any sense of an ‘elephant in the room’; ‘do you have a sense of any ‘elephants in the room’... i.e. major issues in your estimation, that seem to be missed, or dismissed, too easily – yet which you consider ‘huge’?’. This question was not responded to by most participants:

*...no not really, I don't see any elephants (Participant 8).*

Many just ‘glazed over’, and appeared unable to answer this particular (ultimate probe) question. Another problem was that, for several participants who tried to respond, their answers were very specific to their organization - and not broad enough in terms of the profession as a whole:

*...that we are not going to meet our targets... we have very aggressive climate change targets... (Participant 4)*

*That our [upper level manager] does not believe in climate change... (Participant 5)*

Only one participant went beyond their own organization when answering this question, to state:

*This is a really good question, I think firstly it's the cost of climate change adaptation, both money-wise and socially. The second piece is the social*

*component, dealing with vulnerable populations... but everything comes in baby steps (Participant 1)*

Either due to the way the question was posed, or the question itself, it failed to get at the deeper inner sensing of implicit or explicit ‘elephants in the room’. This could have been due to the lack of a sufficiently close/intimate relationship, that was not possible to establish, due to a lack of time and resources. This is discussed in greater detail in Section 7.3.

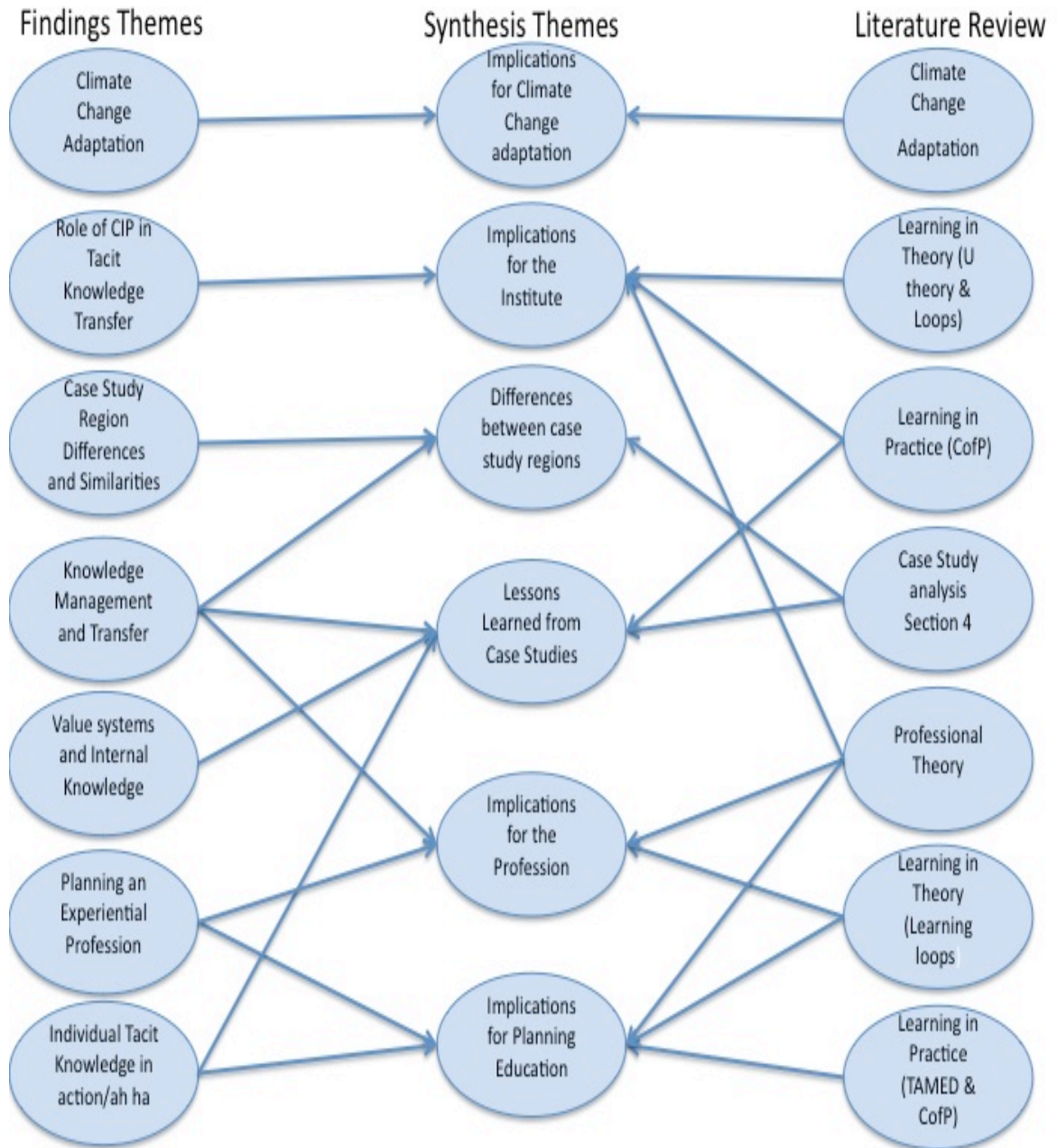
## **6. Analysis and Synthesis**

The following provides an analysis of the findings, including influences from the literature review. The section is organized in three themes: differences between the case study regions, lessons learned from the case studies, and the consequences for the profession, the Institutes, education and climate change.

### **6.1 Findings and Implications**

A catalogue diagram was used to link the findings and literature review with the topics in this synthesis chapter (Figure 9). This effectively provides an overview of the entire research project. A number of the topics described in the literature review were well-supported by the other evidence gathered in this practicum. There were multiple connections that existed between all the themes, which helped inform the synthesis. The only theme that did not have a direct link to more than one other synthesis theme was climate change adaptation. This finding was not unexpected given the specific nature of the topic. Themes relating to tacit knowledge were interwoven with findings that reflected both the literature review and the interview data. This study has also helped identify a gap in the planning-related literature, in regards to tacit knowledge transfer among professionals and climate change adaptation.





**Figure 9:** Catalogue Diagram of Findings and Implications

## 6.2 Differences between the Lower Mainland and the Kootenay case study regions?

Evidence was found of tacit knowledge exchange between planners within the two case study regions, yet it was not found to be taking place between the two regions, even

though this was an objective of the RAC program (Canada, Natural Resources Canada, 2011). The two case study regions were fairly similar in their responses, as shown in section 5.5. The major differences were the resources specifically devoted to climate change adaptation and knowledge transfer activities. The Lower Mainland municipalities had greater resources; this was likely due to their larger size compared to that of the Kootenay municipalities. However, the basin organizations, which have specific mandates to facilitate knowledge transfer, differed greatly in resources, resulting in contrasts in tacit knowledge transfer efforts. The Columbia Basin Trust had a significantly larger budget than the Fraser Basin Council. As a result, the communities in the Columbia Basin provided evidence that they were better connected with one another, compared to the Lower Mainland.

While the Fraser Basin Council was attempting to create an adaptation-themed CoP as part of the RAC program, they were doing this on a provincial scale, which stretched resources. In contrast, the Columbia Basin Trust was doing a similar project, but very locally. This allowed them to target funds for a tailored website, webinars, funding for projects, and greater technical/expert support for both the adaptation work as well as their knowledge transfer mandate.

What did work was the ability for all participants, no matter what the setting, to be able to pick up the phone and contact any planner anywhere to get information and/or knowledge. This process goes beyond the boundaries of this case study yet was seen at a significant scale within the CoP of the basins. The other aspect that the two case studies did to foster tacit knowledge transfer, was to encourage knowledge transfer within the individual organizations. The Columbia Basin Trust did this particularly well; so did some of the organizations within the Lower Mainland, as well as the smaller

organizations. The smaller they were, the easier it seemed to be to have conversations, mainly informally, about experiences and lessons learned on-the-job.

### **6.3 Lessons learned from the case studies**

Looking beyond the case study regions, this research potentially has wider-scale implications on planner-to-planner learning/knowledge transfer. In the case study areas, the evidence of knowledge exchange that did emerge came via CoPs or departmental work groups/informal meetings. There was evidence of tacit knowledge being exchanged through stories of the ‘ah ha!’ moments - mainly within organizations. CoPs were vital to knowledge transfer of all kinds, and participants talked about how they had shared their individual experiences and more internal knowledge when discussing adaptations with colleagues in a CoP. For example, one participant mentioned how they had a hunch that, as a result of all the flooding events that month, local authority councils and the general public would be more receptive to climate change adaptation strategies, and shelling money out for programming. This is possibly a lesson that can apply beyond the two case study regions.

Without using the term specifically, the PIBC interview participant and (even more so) the Province of BC interview participant indicated that basic experiential tacit knowledge transfer merited more of a priority.

*I think the power of the network, their experiences and the passion of the individuals within that has truly moved adaptation in the province, and we are trying to support that... one way to help this network is through conferences and journals, however most bureaucrats don't have time to write journals. (Participant 1)*

*Well, CIP just did a large conference on Climate Change and groups case studies and experiences were a priority. (Participant 9)*

They both hosted events, [PIBC conferences](#), webinars and [documents](#) and [blogs](#) (mainly the [livesmartbc](#) project website and blog) that valued ‘experiential knowledge’. Through this, it is assumed that certain tacit knowledge was made explicit, to planners practicing in BC. The Basin organizations effectively provided venues for tacit knowledge exchange to occur, through websites and webinars for example. Furthermore, as mentioned in the findings section, many participants found it easy, and completely acceptable, to contact other organizations to gather mainly explicit information - but also some anticipated experiential tacit knowledge about another organization’s experiences with a specific project. This allowed the organizations to begin further ahead than their earlier-initiating counterparts, which could have resulted in greater lessons learned - and moving forward more quickly than the early-initiator organizations. CoPs that exchange information through a wide variety of methods can be utilized by any groups, no matter the setting.

As will be discussed in the recommendations and conclusions (Chapter 7) almost all of these recommendations are not geared to the specific case studies. The recommendations target the profession, its Institutes, planning education representatives, and climate change adaptation activities as a whole - indicating that, in the end, the case study findings were fairly replicable (although budget restraints would likely continue to be a limiting/qualifying factor).

#### **6.4 What are the consequences for the Profession, the Institutes, Education and Adaptation to Climate Change?**

Looking at the entire research project some consequences of tacit knowledge transfer were revealed for the profession, the Institute and education programs, as well as adaptation to climate change. The following sections attempt to articulate

these consequences going forward, and to analyze them with respect to the interview findings as well as the literature review.

#### **6.4.1 The Profession**

Schön's (1983) double loop learning was found to be present amongst the participants' responses; however, most mentioned how they had never thought consciously about it before - such as the participant that realized that asking questions and challenging norms was the important part of ensuring their community adapted to climate change effectively, Section 5.6. Or the participants that continually tried to make scientific knowledge more attainable for everyday people, Section 5.1, & 5.6. It was harder to determine if triple loop learning (Torbert et. al. 2004) occurred for any of the participants. However, I believe that this was the case with the participant that realized that emotional knowledge was just as important to listen for, as scientific information, Section 5.6. This person went beyond simply reflecting on action, and reflected within themselves - and on themselves - at a deeper level of understanding. This story showed that the participant questioned their own previously-held beliefs, and in the end emerged a different person, or persona, because of it. In terms of the profession, by encouraging professionals to engage in both double-loop (and possibly some triple-loop) learning, we would be co-creating practitioners that can learn beyond simple trial and error, and be learning from their actions in a major way.

If the profession takes on the challenge of promoting tacit knowledge transfer - either with, specifically, climate change adaptation or beyond this, into other arenas of knowledge - then the impact could be significant. As mentioned in Section 1.2, formal tacit knowledge transfer was not found to be either studied, or knowingly promoted, in

any meaningful way, within the profession today. There have been scholars such as Schön (1973, 1983, & 1992) who have attempted to bring tacit knowledge into the mainstream of the profession, yet no one since then has apparently attempted to champion the cause. Possibly by focusing on the knowledge that individual planners have within themselves, which they gained through practice and reflecting on this practice, then the profession may be able to encourage greater consideration of new literacies and sensibilities (Sandercock, 1998, 2003, 2004) in the ongoing debate of whether planning should be a recognized profession - from a scholarly or public perception perspective (McClendon, 2003; & Hoch, 2011). The findings show that there is a wide variety of knowledge that planners gain from being on the job. This knowledge is in some ways more relevant to their everyday practice, than the explicit knowledge gained at school or through other venues (Hoch, 2011).

The transfer of tacit knowledge fits well within the new theory relating to the practice movement, Section 2.3.1. This movement features the need to focus on what planners do, and how they do it, in their professional lives - rather than what they should or could be doing. In this sense, it is promoting the transfer of knowledge, which is gained from consciously practicing planning. The tacit knowledge within the profession could provide some of the ammunition needed by those advocating greater recognition of the profession (McClendon, 2003).

#### **6.4.2 The Institutions**

One aspect of the Canadian Institute of Planners (CIP) mission statement is to “act as the authoritative voice and the primary information and knowledge sharing network for planners” (CIP, 2012). To accomplish this, CIP hosts conferences and webinars on a

variety of topics, and champions topical concerns such as climate change adaptation (CIP, 2012). Canada's planning institutes do not have an explicit national strategy on the transfer of tacit knowledge. However, due to the new requirements for mentorship through the Professional Standards Board, a committee struck by Canada's planning institutes, a mentorship program is mandatory for all planners to become professional planners. This non-direct route to transferring tacit knowledge could, once fully established, change the realities of planning practice in Canada. However, the mentorship program may not fulfill all the many different avenues by which tacit knowledge can be transferred - such as more informal relationships within individual organizations, between people in different provinces, or among peers at the same level. If the Institute were to have a national strategy specific to tacit knowledge, the implications for the profession could be profound. As interview respondents indicated, it seems to be unrealistic to assume that one organization, such as CIP, or one of the provincial institutes, could perform all the actions necessary to bring tacit knowledge transfer into the mainstream of planning practice. Yet, the planning institutes could continue to be a champion, according to a few of the suggestions given by the participants:

*I can see some value having CIP or a bigger broader national organization involved in some leadership and guidance. (Participant 6)*

In order to be a champion of tacit knowledge transfer, the Institute could increase the profile of this type of knowledge, and assist the profession to find a niche for itself within the professional world, which could go beyond mentorships.

Unfortunately, for Canada's planning institutes to truly champion tacit knowledge, the organization would have to substantially re-invent the type of knowledge transfer it promotes within its membership. To date, the institutes are more focused on information

or explicit knowledge rather than tacit knowledge transfer. It might be speculated that they are more taking into account the TAMED literacies, which are more analytical and explicit. Taking into account the political, audacious, creative, therapeutic, and critical sensibilities (Sandercock, 2003), could revive aspects of earlier reflective practice emphases (Schön, 1983), and could result in more aware and more enlightened practitioners. However, this would require the Institute itself to take risks - and be audacious - in order to generate meaningful change within the profession in Canada, and within (on the 'insides' or 'interiors' of) its constituent professionals. This initiative would also have to come with "visionary leadership" (Sandercock, 2004, p.137), in order to champion tacit knowledge, and allow planners to become better listeners for, and then sharers of, their interior tacit knowledge.

The Institute could even go beyond this and attempt to engage the realm of U theory and presencing (Scharmer, 2009). This would position planning as a leader within the professional world. Unfortunately, these are major challenges and changes for an Institute to take on all at once; it will take time and effort and conviction. For now, the initial steps of informing members about tacit knowledge, and encouraging a basic enabling reflective practice, may be the most important steps that the Institute can take.

### **6.4.3 Planning Education**

A consequence for planning education is that most planners do not appear to be well-equipped to learn from their own experiences. None of the participants that I interviewed had thought about the knowledge that they had learned on the job and all, but one, did not know what tacit knowledge was before the interview. Participants did not learn how to be reflective practitioners during their education, and as a result did not



realize how much knowledge they truly have – or were generating - within themselves, that might be valuable to other planners.

*[looking back on the interview I realized] that I know a lot more than I think I know. (Participant 8)*

In order to encourage practitioners to be more aware of their own internally created knowledge, the TAMED education literacies framework (Sandercock, 1998), and the later sensibilities (Sandercock, 2003), could be more directly incorporated into planning education. Courses could provide opportunities to focus both on analytical skills for the outside world, and also for better engaging the internal world of the individual. As planning education becomes more advanced, this could be evolved to include thinking of planning in terms of imagination in action, and promoting the necessary outlook – or ‘inlook’; in-sightings would become as important as ‘out-sightings’ – inner self-knowledge observation, as well as exterior world observation.

Once students are able to first recognize the tacit knowledge they have, they can then start learning how to make this knowledge explicit through conversation, journaling, and general reflection on actions. This could result in practitioners that are better prepared – that are more present and awake - to deal with the current and future realities of planning.

Also, by bringing the CoP format into the education system in a more formal way, students (in peer-learning groups) could gain from the experience of learning from peers - before they enter the work force. CoPs can be used for transferring knowledge between people, formally and informally.

#### **6.4.4 Climate Change**

Climate change adaptation has focused strongly on infrastructure interventions

and (exterior) science application (chapter 4). The people impacted by climate change sometimes seem like mostly an afterthought (section 5.7):

*It was really different, they were looking at the people in adaptation and I thought it was so novel (Participant 5).*

Since tacit knowledge is all about the people doing the ‘knowing’, based on their ‘feeling’, this more sophisticated type of thinking/feeling could result in climate change adaptation being more people-focused, rather than just about infrastructure and science. The “start somewhere, just start” (Participant 2) advice is all about the people and the action involved, rather than making sure all ‘the science’ is in place. In the end, ‘the science’ and ‘the infrastructure’ must engage the people that live in the community; climate change ultimately affects people. Climate change needs to be viewed more from the human perspective, implying that the profession of planning should have more of a stake in its workings than currently exists.

## **7. Conclusion**

Tacit knowledge was definitely present, and was expressed verbally during interviews with many of the participants. Communities of Practices were prominent venues for tacit knowledge surfacing and sharing. Tacit knowledge could be found within communications within certain departments, albeit in non-formal or informal ways. Formal means of tacit knowledge transfer were not present. The consultants, as well as the provincial government representatives, and PIBC members working with a wide variety of clients, all expressed or alluded to more transfer of tacit knowledge than the employees of single organizations. The greater tacit knowledge transfer experience of people working within a regional government appeared to be mainly due to their governance structure. Almost all participants expressed a wish that they were more aware of their tacit knowledge, and could be more reflective on it; while most had not thought of tacit knowledge prior to the interview, they could see the value in it for their future practice.

### **7.1 Recommendations/Reflections**

All aspects of this study contributed toward the researcher gaining insight into the world of tacit knowledge within certain professional planners in British Columbia, with some potential implications beyond the case study region settings. This study has indicated that tacit knowledge does exist within the work of professional planners related to climate change adaptation, and that it is - in some ways - being transferred between professionals. However, improvements are always possible, especially in a field such as tacit knowledge transfer, where it is not well appreciated, nor well understood when this type of knowledge is - and should be - transferred to others. To help planners in making

the transition to improving their tacit knowledge exchange, the following recommendations are intended to serve the profession, its Institutes, and planning education.

### **7.1.1 Recommendations for professional planners**

Four recommendations help address the main question research question: “How can tacit knowledge be effectively exchanged between professionals?”

#### **1) Promote open communication between professionals inside and outside an organization**

Within organizations, departmental meetings, coffee breaks, general discussions and problem solving there was always some tacit knowledge being shared among colleagues. This practice should continue and could be strengthened by a policy of reflecting on actions/work, and disseminating ‘information’ to others in a formal way.

Knowledge sharing is already a strong focus in the planning world. The key is to bring this communication and sharing to more of a personal level. For this I believe ‘educating the profession’ and placing value on tacit knowledge is the key.

#### **2) Improve planning education in relation to tacit knowledge**

Educating professionals about what tacit knowledge is, and its value is important. Many participants stated that they were unaware of how much they really know and how much they could share. This illustrates the lack of awareness and understanding of this type of knowledge in the planning profession. This type of awareness could come first from the structured planning education system (discussed in Section 7.1.3), and then from the Institutes themselves (discussed in Section 7.1.2), which would all help foster an understanding of tacit knowledge. This education could result in professionals better understanding themselves as planners and better knowing the knowledge that they have

within.

### **3) Foster places & spaces for tacit knowledge to be recognized**

Most of the participants interviewed were unaware of tacit knowledge before this process started. All participants mentioned how – at times - they would reflect on their jobs, what they do, and realized they know more than they thought. Through the course of the interview, as mentioned in the latter part of Section 5.7, some participants have started to go beyond simple reflection and began to reveal inner feelings about their work, their satisfactions and their reflection on initial biases. I believe it is this conscious awareness and valuing of tacit knowledge that is one of the first necessary steps to be able to transfer it. For example, one of the participants learned that to value tacit knowledge, a mindset change - along with realizing your own inner feelings and biases - needs to occur in order for tacit knowledge to be effectively exchanged. Both McGregor and Schön mentioned valuing tacit knowledge and giving it a voice, both within the individual (Schön 1983) and within the organization (McGregor, 2006). Their recommendations were confirmed through the course of this study.

### **4) Establish relationships of trust throughout the profession**

One reason why no participant mentioned sharing their ‘ah ha’ moments or major tacit knowledge to other organizations was apparently due to trust issues. Tacit knowledge is very personal (Scharmer, 2009; & Schön, 1983). Due to our culture of keeping (modern) professional relationships impersonal, it may be hard for people to open up with this type of knowledge – even to close colleagues. A certain level of trust needs to be established, potentially requiring a paradigm shift in how we think about this type of knowledge.

The planner’s role needs to be not just one of gathering data from outside sources

and dispensing information, but also one of creating knowledge themselves. There needs to be a valuing of the knowledge that already exists within themselves, what they have learned from their experiences and reflections, including the feelings that are part of this tacit knowledge. By acting on these recommendations, the profession as a whole could be improved. The task involves ensuring that planners have the support they need to reflect more deeply on their actions, and then dispensing that ‘information’ to a wider audience. To a degree, the responsibility for implementing this recommendation falls partly to any employer of planners, to allow employees to openly discuss the strengths and weaknesses of their actions, in terms of ‘felt’, or tacit, knowledge.

### **7.1.2 Recommendations for the Professional Institute**

The role of the Canadian Institute of Planners in tacit knowledge transfer was a key component of the interview questions posed to all interviewees, but especially to the participant from PIBC. As mentioned in the interview results section, most participants envisioned CIP in a role of promoting and educating planners about tacit knowledge, and how to better implement tacit knowledge transfer within organizations and throughout the profession. I believe the potential implications for the Institutes would be that - if they did implement a tacit knowledge management strategy - the profession could become richer [and more informed of its own identity] and more valuable to its constituencies.

Viewing this practicum project as having CIP as the ‘client’, the following recommendations are offered for CIP consideration:

#### **1) Highlight aspects of professional life at conferences**

Many participants mentioned that some key learning about either a specific topic or a reflection occurred during a conference presentation (in communication/dialogue

mode). It appears that the action of preparing for, and then delivering, a presentation resulted in reflective insights; some tacit knowledge effectively entered their presentation, and was then disseminated to the audience. This is an important first step that should be continued, to further the process of recognizing the importance of tacit knowledge, and its transfer, at the national level.

## **2) Educate the profession about tacit knowledge**

Only one of the interview participants had previous knowledge about tacit knowledge. It is therefore apparent that there is a need to ensure that planners within Canada are better educated about tacit knowledge. The key point would be to recognize its existence, and value it as a knowledge that creates a better profession. Tacit knowledge by its very nature is personal and experiential. Coming from the new wave of the practice movement in city planning literature (Watson, 2002; Hoch, 2011), this should resonate strongly with an organization that is so focused on the profession (Canadian Institute of Planners a, 2012). The practice of planning involves shaping better places for us all to live, by focusing on the type of knowledge that is at its core an enaction – coming from within; the profession and the Institute can help anchor itself in the world of knowledge, broadly construed, especially including tacit forms.

## **3) Champion the cause**

Around one-third of the interview participants felt that CIP should not be involved in this type of campaign, and thought that it should come from the local level, or possibly the provincial affiliate level. However, the majority believed there was a need for a national champion to educate and motivate, and to anchor the actual process of enhanced tacit knowledge transfer within a local area or specific organization. This role is the one that CIP already performs to some extent within its mandate (Canadian Institute of

Planners a, 2012); it champions, educates and creates forums for discussion on topics, such as the most relevant one to this study - climate change adaptation. Its championing efforts have resulted in many communities across the country having adaptation plans. However, the vast majority of these plans are science, infrastructure and policy based - rather than knowledge based. The challenge for CIP would be to champion tacit knowledge transfer in a way that truly brings in knowledge and not explicit information. This type of championing is recommended for CIP in relation to tacit knowledge transfer, if it is to become valued knowledge within professional planning practice.

#### **4) Continue to strengthen the new mentorship programs**

CIP, and the provincial affiliates already require incoming planners - trying to become a full member of the Institute - to find a mentor to review their work log, and verify that the work that is being conducted in the workplace meets the standards set out by CIP (Canadian Institute of Planners a, 2012). As well, with the new nation-wide mentorship mandate (section 4.1.3), planners across the country have an opportunity to exchange tacit knowledge with one another (Professional Standards Board, for the planning profession, 2013).

Mentorships have the potential to be a very effective method of transferring explicit and tacit knowledge between individual planners. Tacit knowledge can be transferred informally, resulting in greater learning for all involved. This practice, and the new program, once refined within individual affiliates, could be another step that the professional institutes could take in championing tacit knowledge transfer within the profession. Mentorship was mentioned by the participants, mainly in terms of something they had in their education, but something they wish they had now - or in their early



careers. Almost none of the participants were aware of the new mentorship requirements for membership with PIBC and CIP. One participant even mentioned how engineering had an excellent mentorship program, and they wished planning did as well:

*“planning does not have a mentorship program but I wish they did. The engineering department and association has a great program that we should copy” (Participant 4).*

Low awareness about the requirements may have been due to the low number of participants that were actually active members within PIBC, or possibly due to the ongoing suspension of the program in British Columbia (see section 4.2.2).

### **7.1.3 Recommendations for planning educators**

For education, the major focus is simply to inform students about the importance of them becoming reflective practitioners, and the distinctions between reflection-on-action, and reflection-in-action (Schön, 1988). They need to be helped to develop not simply a practice, but a praxis, “the personal integration of one’s theory studies, practice experiences and personal values/beliefs” (Wight, 2012, p. 79). And not simply some knowledge of codes of ethics, but a sense of their planning ethos: “Ethos – more than, and prior to, ethics - is interpersonal, now referencing oneself in a community of fellow professionals, ethical agents in ethical communion” (Wight, 2012, p. 79). This would help planners see more of their inner selves and – perhaps ultimately - become better planners.

If planning schools included Sandercock’s TAMED (technical, analytical, multi- or cross-cultural, ecological and design) literacies (1998) and, more importantly, her five sensibilities (political, audacious, creative, therapeutic, and critical) (2003) into curricula, future planners would be better prepared to deal with future practice challenges, as well

as being able to better learn from one another.

From the beginning of their professional lives, planners schooled in the TAMED literacies and the five sensibilities would be better equipped to expand the boundaries of conventional processes/practices, and open up communication and learning among one another - which could include tacit knowledge. Tacit knowledge could be readily referenced in many of the different approaches outlined by Sandercock (1998, 2003). It could be taught through every part of TAMED, by encouraging students to be more aware of their internal analyst, technician, multi-cultural, ecological or design selves. Furthermore, with the five sensibilities by understanding their own political views, being more willing to take risks in a creative way, and getting in better touch with more of their internal therapeutic side, planners could learn about their own tacit knowledge and help transfer it to others. By teaching planners to be more aware of themselves and the knowledge they bring - or could bring - by being more aware of the sensibilities required for negotiating the post-post-modern city, a greater knowledge base could be gained. In addition, the diversity of a combined 'TAMED/Five Sensibilities' knowledge base would be conducive to openness and continual learning, regardless of the source of the knowledge being shared. The literacies and sensibilities could result in new avenues for professional organizations to reflect on 'what planners do', and what knowledge's they can transfer to one another.

Some specific recommendations from this study:

### **1) Encourage communities of practice to allow for sharing of experiences**

Much of the literature review, and findings from the key informant interviews, focused on the importance of CoPs. Participants mentioned numerous times that they were involved in a CoP, and that these were an important part of their job, both in

disseminating knowledge and gathering knowledge from others. These lessons can be transferred from the workplace to the classroom through encouraging students to create CoPs of their own. This could be as simple as forming a group to discuss projects, or major degree project workgroups, within a given peer group. CoPs could give students the ability to learn from one another in a classroom setting, and outside of it, especially where group-work may not be encouraged so much. One such example would be in relation to an individual thesis project or paper, perhaps extending normal advisory/examining committee formats. This could give students a taste of what it would be like to be active in a CoP, once they become professional planners.

### **2) Continue to foster internship credit requirements within planning schools**

Many planning schools require that all students take part in some form of internship in a professional setting during the course of their degree program. This practice helps students obtain an understanding of the professional role of planners, and can help with the transfer of knowledge as well. By focusing on professional practice, the experience gained from this requirement helps students learn how to apply theory to practice, and engage with reflection-in/on-action. This gives students a head-start in the professional world, as well as learning from others' tacit knowledge.

### **3) Cultivating/nurturing reflective practitioners: active learners for life**

Through education, not only can planners be taught about tacit knowledge but also how to access it for themselves and to transfer it for the betterment of the profession. Through teaching students how to be reflective practitioners (Schön, 1983, 1988; Scharmer, 2000, 2009; Torbert et. al. 2004) the next generation of planners can be encouraged to learn from their own mistakes, and reflect on/in action - in order to make their actions more in tune with their inner feelings/inner voice. Reflective practice also

allows students to begin seeing the value of active learning for their entire lives, continually striving to be better planners - for both themselves and for the communities they serve.

#### **4) Encourage interdisciplinary programs/courses to increase learning from more than one profession (more inter-professional education)**

During the course of this study some participants mentioned that they experienced tacit knowledge through interaction with professionals from different professions – such as modelers, engineers, or climate scientists. By encouraging and allowing students in planning to be involved with other professions during their education, this tacit knowledge transfer and learning could begin before they become professionals; it will also possibly result in a smoother transition to working with other professions, to functioning inter-professionally.

#### **7.1.4 Recommendations for ongoing professional learning**

On a more individual level, planners can continue to learn through-out their lives and are encouraged to do so in order to transfer their tacit knowledge to others and gain from others. This idea of life-long learning is entrenched in Schön's (1983) reflective practitioners, in Sandercock's (2003) sensibilities, in Scharmer's (2009) U theory and even in McGregor's (2006) organizational knowledge management. It is through continuing education programming, and the individual professional's responsibility in this, that the profession and the Institute's learning goals/aspirations can be realised. It all comes down to the individual being willing to take the initiative to listen, learn and ask questions of themselves and others - through-out their professional lives. The following are some recommendations for individual professionals - to encourage ongoing professional learning in support of tacit knowledge surfacing and sharing.

## **1) Cultivate an individual reflective practice**

Once again Schon's (1983) reflective practitioner theory is useful, when an individual is continually learning through-out their life. And this reflective practice can come in many forms, from journaling to simply internally reflecting on actions, to speaking openly with a mentor or mentee. Reflecting, and double- if not triple-loop learning (Scharmer, 2000) would all help an individual practitioner understand what knowledge they have, and then be better able to transfer that knowledge to others. Through reflection, as well as multiple-loop learning, an individual questions why and how they performed an action. This continual questioning would help encourage continual learning about one's own practice and the profession of planning itself. This type of practice could be achieved most effectively if students are taught this type of reflection in planning school, as suggested in the section 7.1.3. Then it could continue at an individual level for the rest of their careers. This comes down to what one participant stated as:

*[looking back on the interview I realized] that I know a lot more than I think I know. (Participant 8)*

## **2) Be open to share tacit knowledge**

As an individual, in order to successfully exchange tacit knowledge - that you now know you have - you have to be willing to open up to others and trust them with your subjective knowledge. Much like recommendation 4 of section 7.1.1 for the profession, planners must learn to trust each other due to the very personal and subjective nature of tacit knowledge. Yet, unlike the profession recommendation, this would involve an individual being secure enough within themselves, and with their individual tacit knowledge, to be able to openly share it with others. In order to do this an individual

must be confident in their abilities, and with their knowledge, to openly share. This brings in Scharmer's (Senge, & Scharmer, 2006) U theory, in the realm of presencing, where an individual directly experiences interlocking wholes - which manifests only when a person is confident, and fully aware, of their abilities and surroundings. Not all individual planners may need to access this level in order to be confident enough to trust others with their internal knowledge; yet for a few it could be very rewarding, and help move their own self-learning forward. For others, simply being willing to share what tacit knowledge they have would be a great achievement.

### **3) Be willing to adapt to changing contexts**

It is important for individuals to be secure in, and with, their own tacit knowledge – and in their abilities as a professional - in order to be able to fully 'know' what tacit knowledge they possess. Another important part of learning through-out life is being able to adapt to changing situations. Changing situations can occur in an instant, or more slowly throughout a career with changing jobs over a lifetime. Being able to adapt the tacit knowledge that you already have to new situations would be a major asset and would assist an individual in continually learning from the past, present and future. The changing nature of planning, and the “mongrel cities” ( Sandercock, 2003) that are our reality today, requires an individual planner to be open and willing to adapt to changes. By being flexible - and reflective on that flexibility - tacit knowledge can be utilized no matter what situation pertained when the knowledge was initially garnered.

## **7.2 Responding to the Research Questions**

Responses to the three research questions posed in this practicum are summarized in this section. Where possible the responses are related to the

literature, the interview findings and the analysis, including from the case study settings. These represent an attempt at further conclusions, to ensure that this study has accomplished its initial objectives.

### **7.2.1 Research Question 1**

**To what extent are practicing professional planners in the two basin settings in British Columbia engaged in various types of general knowledge transfer? Is tacit knowledge one of the knowledge types being transferred?**

It was found throughout the course of this study, in the two basins studied, that planners were engaged in knowledge transfer. They were all involved in more than one CoP and also in informal professional groups, such as lunchroom talk, that allowed knowledge transfer to occur. It was also found that tacit knowledge was one of the types of knowledge being transferred, but that it was effectively ‘unknown’ to the participants. This resulted in much of the tacit knowledge being transferred not being rendered explicit in written form, but more orally - through conversation.

### **7.2.2 Research Question 2**

**How might improved tacit knowledge transfer - between practicing planners, from different communities - better inform strategies and tactics for adapting to climate change?**

Tacit knowledge transfer could help communities learn from each other’s mistakes. As mentioned in the findings, Section 5, one community’s good or bad experience could result in a better experience for others, resulting in better climate change adaptation strategies for other communities. It means that no planner needs to begin from scratch when it comes to both explicit and tacit knowledge.

### **7.2.3 Research Question 3**

#### **What interventions merit consideration by CIP, and regional professionals, for example, to optimize the sharing of tacit knowledge in the current 'climate'?**

This research question has been addressed above in the recommendations for the planning institutes (Section 7.1.2), i.e. mainly: continue having experiential aspects of professional life highlighted at conferences, educate the profession about tacit knowledge, champion the cause, and continually foster the mentorship programs within all affiliates.

### **7.3 Directions for future study**

To further the results documented in this practicum, I would recommend conducting follow-up interviews with participants in order to gain a greater understanding of reflections they have on the initial interview, as well as what further insights could be elicited from them about their tacit knowledge. To perform these interviews, a new semi structured interview guide would be required. Some questions could be repeated such as the more probing questions in the latter part of the interview guide (questions 5 or 6 onward). New questions would be added to address the participant's reflections back on the first interview, and to evaluate if any attitudes or habits had changed since that first interview. The questions could help determine whether participants had started to reflect on their own actions more or less than before their initial involvement in this study. The use of strange conversations (Garfinkel, 1967) and causal/mind maps (Ambrosini & Bowman, 2001) as techniques in the key informant interviews was successful and could be used again. These techniques were easy to understand and implement during interviews. However, the introduction to the questionnaire and the description of tacit knowledge was not effective. Participants indicated that they understood the phrase 'ah-



ha moment' better than tacit knowledge (or any other definition I was using in the formal representations of this study). In future work, I would recommend testing this phrase out with other participants initially, and then incorporate it more directly into the interview questions.

An alternative line of further inquiry would be to focus on a more micro level of knowledge exchange within a specific organization following Murnane (2008). This would allow for a different scale of inquiry and may result in a greater ability to identify specific evidence of tacit knowledge exchange. This would also allow deeper exploration of the role of trust in tacit knowledge exchange. However, I would also recommend getting to know this organization in greater detail, perhaps through an internship. As mentioned above, this could result in deeper tacit knowledge being unearthed and exchanged. In this type of study, I would conduct both semi-structured key informant interviews with an interview guide very similar to the one used for this practicum, as well as a focus group session with all participants to see tacit knowledge exchange in action. This type of project could be easier to administer than the one that I chose to conduct for this practicum as all participants would be joining from one location. However, the research questions would need to be altered to reflect the different scale to which tacit knowledge transfer was being exchanged.

Another option would be to conduct a focus group, made up of professionals involved in a single CoP - to find out how/if tacit knowledge is specifically exchanged in this setting. Even though all of the participants in this study were involved in the same CoPs, it would be useful to observe a CoP in action, rather than simply have some individuals talking about their experience afterwards. Focus group research methods

“explicitly use group interaction as part of the method. This means ... people are encouraged to talk to one another: asking questions, exchanging anecdotes and commenting on each others’ experiences...” (Kitzinger, 1995). Since the method can allow to conversation to focus on experiences and the exchange of these types of knowledge, it would allow for tacit knowledge to be observed. Furthermore, through semi-structured interview questions such as the ones already used for this practicum, tacit knowledge on specific subjects of interest, well beyond climate change adaptation, could be gained. The structure and number of questions would have to be altered to ensure that all participants had an opportunity to exchange knowledge while in the focus group setting. This type of research could document the exchange of tacit knowledge in action. Participants could be interviewed afterwards to determine their response to both giving and receiving this type of knowledge. I would also, recommend if possible, a follow up focus group to get an understanding of whether the tacit knowledge that was exchanged (if there was any evidence of it) had been used by participants.

Many of the more significant projects (see section 1.3) examining tacit knowledge were PhD dissertations, each of which involved a greater investment of researcher time getting to know the participants on a personal level. If one wanted to achieve a more in-depth understanding of people’s deeper tacit knowledge additional time/resources commitment would be necessary. This is most likely the reason why the ‘elephants in the room’ ... i.e. major issues in your estimation, that seem to be missed, or dismissed, too easily – yet which you consider ‘huge’? question was so poorly received. This would have caused this project to move beyond the scope of an MDP. However, almost

certainly, it would have provided more in-depth analysis and stronger results. A PhD project level of intensity could I expect bring this study to the next level of inquiry.

For this study I chose to focus on climate change adaptation in planning due to it being an emerging field. I wanted to find out what, if any, knowledge could be transferred early on in the development of this discipline, that could help planners to begin learning from it's brief history. However, this study could be as valuable if a topic such as community consultation or another topic with a long-standing history in planning was chosen. Due to the long history of public consultation, there is most likely a substantial amount of tacit knowledge that resides within the profession that could be made explicit. However, it may be more difficult to specifically identify as it is so deeply engrained in planner's everyday work.

#### **7.4 Coda – My own tacit knowledge on this study**

This document is the final stage of what has been a three-year journey of completing both the course work for a Masters degree in city planning, as well as fulfilling the requirements of the major degree project. This journey has not always been a smooth one, yet it has been a highly valued and thought-provoking personal learning experience. My initial MDP thoughts were to make the project very practical (and not at all very theoretical). The very first day of classes - three years ago - had me sitting in an MDP Prep class, being asked to state a possible MDP topic. My topic then, which at that point focused much moreso on climate change adaptation, morphed substantially over the next year and a half to become the research documented here. The practicum topic - tacit knowledge transfer - has practical implications, but it has definitely been anchored in theory - and has been literally 'mind-bending', at least for myself.

Through the guidance of my supervisor Dr. Ian Wight, this study and my own mind has been pushed well beyond my traditionally very practical, inside- the-box, disposition, into a new realm of thinking. I was forced to think more like a scholar of planning, and less like a practicing planner, than I have ever done before. I hope this document has been able to give my journey, through the study, some credibility. Overall, I would say that the theoretical dimensions, going beyond simple tacit knowledge, have been the hardest parts for me - and where I have learned most. Overall, I feel my own tacit knowledge regarding this study has involved particular ‘self-knowledge’ that will be part of my ongoing learning in action:

- Keep asking questions and be ready for answers that you might not be expecting.
- Tacit knowledge is very difficult and frustrating to gather, and I don’t think I am necessarily the best person for this task at this time – but I am on my way.
- Frustration, and the occasional sense of defeat/overwhelm, at least for me, became simply part of the many downs and ups of undertaking this MDP.
- I still need to learn when to say NO, and accept something for what it is... i.e. not perfect, but good enough; life includes too many different aspects, to focus only on one or two.
- Simple language in research questions helps participants understand you better, much like my three year old. I learned this through the ‘ah ha moment’ realizations.
- I think this process has meant an end to something that I never thought I could ever do. I am learning disabled and was told at a young age, by educators, that

university was not really going to be an option. Well, I proved them wrong - first by completing an undergraduate degree and now a graduate degree.

- And finally, there is my friend Carrie Brenneman's quote: 'it is all about gradual weight gain', or Rae Bridgman's favorite book title (even though it is not one she has read) - 'How to do a Masters thesis in 15 minutes a day'. It is step-by-step, bit-by-bit; in the end you will have your MDP to offer to the world.

Even for myself, reflecting on this study - which is all about tacit knowledge and beyond - I do not feel that I have moved very far in the direction of 'presencing', or even the notions of praxis and ethos articulated by my advisor, Ian Wight. To me, that shows how entrenched rational thinking is within planning, and possibly even our society as a whole; we have a long way to go until presencing, praxis-making and ethos-making are mainstream everyday in our professional worlds. But it does not mean we cannot keep trying. Thank You.

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# Appendix

## Appendix A: Interview Guide

**Preamble:** The knowledge we have and use as professionals can take many forms. This research project is investigating the distinction between **explicit** ('known') knowledge and **tacit** ('felt') knowledge - and possible strategies for improving the linkages between the two. I am particularly interested in interviewing you about your tacit knowledge, in the area of climate change adaptation planning.

By way of elaboration, it is hypothesized that **tacit** knowledge can be viewed as essentially personal, effectively located on the inside of one's 'person', experiential and felt rather than understood in conventional – scientific method certified - terms. By contrast, **explicit** knowledge can be construed as essentially communal, can be readily accessed by many and is more easily communicated and more generally understood. In a professional context, the explicit form of knowledge appears to be more highly valued. Yet it is becoming more and more important for professions and organizations to better appreciate the wider knowledge of people – especially the knowledge *in* people - and try to make this comparatively intuitive tacit knowledge more explicit, for all to learn from.

This research project investigates the premise that **tacit knowledge** merits more targeted consideration, in a more integrated valuing of what constitutes 'knowledge' for practicing professionals (extending conventional objective *under*-standing into the realms of subjective *inner*-standing, with a view to achieving a greater *over*-standing).

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My objective is to learn about **your tacit knowledge** regarding planning and climate change adaptation. The intent of these questions is to explore your own learning from your own experience in climate change adaptation planning. The main focus is to document forms/manifestations of tacit knowledge and explore what you have learned from your own practical experience, by probing deeper into the motivations, feelings, meanings and learnings associated with the accumulation of your tacit knowledge.

*The letter E behind a question indicates that the question is trying to target explicit knowledge. The Letter T indicates that the question is trying to target tacit knowledge.*

- 1) How did you get into Planning for Climate Change Adaptation? (E)
  - i. Probe: Particular motivating factors – personal, professional etc (E/T)
  - ii. Probe: Key contributing factors – family, community, etc (E/T)
  - iii. Probe: What's the story you tell folks about why you are in this work... the story that feels most right for you? (T)

- 2) For climate change adaptation planning, can you provide examples of training or knowledge management activities being undertaken by your organization? (E)
  - i. Probe: Do you have strategies to document and retain knowledge that people learn on the job – even as personnel come and go? (E/T)
  - ii. Probe: Are you sharing your knowledge with other communities? If yes, provide examples. (E)
  - iii. Probe: Why did you start sharing this knowledge/information? (E)
  - iv. Probe: If no, could you see any value in doing so, both for other organizations and your own? (E)
  
- 3) What is your role in the organization relating to climate change adaptation? (E)
  - i. Probe: What is your favourite part of this role? (T)
  - ii. Probe: How do you determine what to do to meet this role? (T)
  - iii. Probe: What do you mean by (seek our action/experience words from previous answers)? (T)
  
- 4) What does your organization do best in planning for adaptation to climate change? (E)
  - i. Probe: What makes this the best work that your organization does? (T)
  - ii. Probe: What, if any, other organizations do this better, and what prevents your organization from doing the same?
  - iii. Probe: What do you mean by (seek out action/experience/meaning words from previous answers)? (T)
  
- 5) Tell me about a time (a story) when you were at your best in planning for climate change adaptation – either with your current organization or in the past? (T)
  - i. Probe: What did it look like? (T)
  - ii. Probe: What did it feel like? (T)
  - iii. Probe: How were you able to share the positive outcomes of this success?
  
- 6) Share what three pieces of strongly-felt advice would you give to communities that are just beginning their work to adapt to climate change? (T)
  - i. Probe: Tell me a story about the origin of that advice? (T)
  - ii. Probe: What do you mean by (seek our action/experience/meaning words from previous answers)? (T)
  
- 7) Tell me about a time where/when you feel you learned the most about adaptation to climate change? This could be either a positive, or negative learning experience. (T)
  - i. Probe: What caused this event to occur? (T)

- ii. Probe: (If negative)...Why do you feel that it was negative? (T)
  - iii. Probe: (If positive)...Why do you feel it was a positive learning experience? (T)
- 8) Have you created anything that helps you do your work? ie. flow-charts, mind-maps, tools, check-lists, etc. (T into E)
  - i. Probe: Have you ever shared this/these with anyone else in your organization? (T into E)
  - ii. Probe: With other organizations/groups? (T into E)
  - iii. Probe: If not, do you think it would be useful to others either within, or outside of your group? (T into E)
  - iv. Probe: May I see it, have a copy of it? (T into E)
- 9) Do you see the value in a national professional organization such as CIP/FCM becoming involved in knowledge management, or the better gathering and documentation of tacit knowledge? (T)
- 9b) (for CIP/FCM) Do you see the value in CIP/FCM becoming involved in knowledge management, of tacit knowledge? (T)
- 10) Why did you agree to take part in this interview? (T)
  - i. Probe: What do you feel you have gained from this experience? (T)
- 11) Do you have anything else you would like to add? Is there anything else you think I should know?
  - i. Final Probe: Reflecting on this interview experience as a whole, and on your felt experience in this topic-area more generally, do you have a sense of any 'elephants in the room' ... i.e. major issues in your estimation, that seem to be missed, or dismissed, too easily – yet which you consider 'huge'? (T)



## **Appendix B: Written and Oral Recruitment Communications**

The following were the general scripts for communicating (either by phone or through email) with prospective participants to request their participation.

**Email:** Hello, My name is Krysti Horton, and I am a City Planning Masters student at the University of Manitoba. For my Major Degree Project I am researching different types of knowledge associated with climate change adaptation planning, with a focus on tacit knowledge transfer. Tacit knowledge is the type of knowledge that people generally learn through experience. It is not usually formally communicated yet - through reflection - can be made explicit, allowing planning professionals to learn more from one another's experiences.

The project investigates what tacit knowledge planning professionals have, and what is being shared in regards to climate change adaptation. I hope to contribute to the identification of areas where tacit knowledge transfer is occurring, or might be fostered, and help identify measures that could be implemented to improve the transfer of useful tacit knowledge.

The primary focus of the practicum is to understand the extent to which tacit knowledge is being shared by practicing planners, working on the ground, on climate change adaptation activities, in two particular BC settings – i) the Lower Mainland, and ii) the Kootenay region, in the Interior.

Part of the project involves talking to people who are or have been involved with climate change adaptation planning in these settings, or in the general Canadian context. I was wondering if you would have time to talk to me about your involvement at [...] regarding your felt experiences in undertaking this work.

This initial communication is primarily to introduce myself and to possibly set up a more formal interview for a future date. If you have any questions, I'd be happy to answer them. Thank you very much, and I hope to hear from you soon.

I look forward to hearing from you,

Regards, Krysti Horton, University of Manitoba, City Planning

### **Telephone:**

Because telephone calls are more conversational, it will not be possible to follow a rigid or verbatim script. However, the following guidelines will be used to inform potential participants about the project and their possible role within it:

1. My name, student background
2. Description of the research project, including interviews
3. Request to talk formally at a later date
4. Allow for any questions they may have



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## Appendix C – Statement of Informed Consent

**Research Project Title:**

*Tacit Knowledge Transfer:  
Planners Learning from One Another  
about Climate Change Adaptation*

**Researcher(s):** Krysti Horton

**Principal Investigator and contact information:** Krysti Horton

Email: krysti.horton@gmail.com  
Phone: (204) 255-3379  
Mail: 71 Weaver Bay, Winnipeg,  
MB, R2M 2G9

**Research Supervisor (if applicable) and contact information:**

Dr. Ian Wight  
jwight@cc.umanitoba.ca

**This consent form, a copy of which will be left with you for your records and reference, is only a part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.**

### **1. Purpose of the Research:**

The purpose of this research is to satisfy the major degree project requirement of the Master of City Planning degree at the University of Manitoba. The final result of this project will be a practicum document: *Tacit Knowledge Transfer: Planners Learning from One Another about Climate Change Adaptation*. The purpose of the research is to explore tacit knowledge transfer relating to climate change adaptation in two BC regional settings (the Lower Mainland, and Kootenay in the Interior).

### **2. Procedures:**

You are being asked to participate in an interview asking questions about the tacit knowledge you have accumulated about climate change adaptation. These interviews are intended to supplement reviews of published materials on theories relating to tacit knowledge. The interview is expected to last no longer than one hour. Interviews will be recorded and notes taken. An email will be sent to you after the interview to present

you with a summary of the analysis of your interview, to ensure your words and ideas are represented appropriately, before the final document is produced.

### **3. Recording Devices and Data Storage:**

With your permission, the interview will be recorded with a digital recorder and notes of the interview taken. If you do not wish for the conversation to be recorded, I will take hand-written notes only. However, recording ensures a more accurate record of your responses in the final document. You will not be identified in the project documentation. All audio files and interview notes collected during the research process will be stored securely, and destroyed upon completion of the project. Only the researcher will have access to the interview data. Digital data will be password protected. Physical handwritten notes will be stored securely in my briefcase while in the field and locked in my home office upon return to Winnipeg. All data gathered (recordings and notes) will be destroyed 2 years after the conclusion of the project.

### **4. Risks and Benefits:**

There are no particular risks to you in participating in this study. There are no risks associated with this project beyond normal everyday risk. The study asks only about your professional knowledge, and in particular your tacit knowledge, around planning for climate change adaptation. However, you should be aware that the general role you play will be identified. As such, it may be possible for those with knowledge of the topic and setting to infer your identity. As well, given the small pool of relevant participants, a participant might be identifiable by their choice of words as used in the practicum. Participants will be allowed to withdraw from the interview at any time, if they believe there is a concern. Participants will be able to withdraw from the entire process at any time before the thesis has been submitted into the Electronic Thesis database.

### **5. Confidentiality:**

**Your privacy is important.** You will not be identified in the final document.

Information you give during the interview will be coded for use in the thesis, and pseudonyms will be used. Interview transcripts will be identified using pseudonyms. You should be aware that the general role you play (or played) within climate change adaptation in the regions in BC will be mentioned in the thesis. It may be possible for those familiar with the subject matter and/or settings to infer your identity. Given the small number of interview participants in this study, a participant might be identifiable by their language as used in the practicum. However, no personal information – other than the tacit knowledge you choose to share - will be gathered. If at any time you wish to withdraw from the interview or the project, your responses will not be used in the final document. All information collected in the interview (hand-written notes, audio files, and transcripts) will be destroyed after the project is complete. Audio files and transcripts will be stored on my own secure, password-protected computer. Handwritten notes will be kept in a locked drawer in my office. An external hard drive will be used to backup all electronic data however it will be kept in a locked drawer in my office. While travelling all materials will be kept in a locked briefcase.

### **6. Credit or Remuneration:**

There is no credit, remuneration, or compensation for participant involvement in this study.

**7. Debriefing:**

A summary of research results will be made available to all participants. For those who are interested, the final completed Major Degree Project will also be made available, by email in PDF format, upon request.

**Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and / or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.**

**The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.**

**This research has been approved by the Joint Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at (204) 474-7122. A copy of this consent form has been given to you to keep for your records and reference.**

Participant's Signature \_\_\_\_\_

Date \_\_\_\_\_

Researcher's Signature \_\_\_\_\_

Date \_\_\_\_\_