

TRANSFORMATIVE EDUCATION FOR SUSTAINABILITY LEADERSHIP:
Identifying and addressing the challenges of mobilizing change

by

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Abstract

Using a transdisciplinary approach the dissertation explores how change occurs in human systems, and what is needed from us to mobilize such change. Part 1 explores the topic of change in human systems. It includes a literature review regarding the difficulties and realities of mobilizing change on all levels of human systems: individual, organizational, and societal. To complement current change theories and increase their effectiveness in explaining the process of change, two psychological concepts are introduced: individual cycles of emotional experience in the face of loss and crisis, and individual developmental meaning-making structures. From a perspective of practice and mobilizing change the challenges created by different sustainability worldviews are discussed. A simple framework and ten recommendations are presented to aid in the process of diagnosing and mobilizing change. Part 1 concludes with a case study in Costa Rica, diagnosing soil erosion challenges. The study explored motivations of local farmers regarding soil conservation practices, and analyzed their responses to a hypothetical payment for ecosystem services (PES) bidding scheme. It concludes that a PES scheme, in this context, does not address the reasons why farmers are not engaging in soil conservation practices; and is possibly counterproductive to the goal of behavioural change and soil conservation. Part 2 explores how we can better support university students to develop the skills needed to mobilize change and argues that the challenges of sustainability require individuals that have more practical *know-how* skills and more developed *know-who* awareness. It concludes that in the context of sustainability, higher education institutions can do more to contribute to the development of these ways of knowing. The cornerstone of part 2 is a case study of a sustainability leadership course taught at UBC. The course aimed to increase individuals' adaptive leadership skills, and to support transformative learning. The course was successful at both increasing leadership skills and supporting transformative learning, however shortcomings of the course are also presented. The dissertation concludes with a discussion of what has been learned about the limitations of a course based approach to addressing the shortcomings of practical sustainability skills development in a university setting.

Preface

Chapter 4 – Costa Rica Case study. Julian Gonzalez was hired by professor Tim McDaniels in 2010 as a research assistant to support a project led by professor Raffael Vignola from CATIE (Tropical Agricultural Research and Higher Education Center) in Costa Rica. Julian spent six weeks in the spring of 2010 in Turrialba, Costa Rica, working with Dr. McDaniels and Dr. Vignola, and continued working on the research project for the rest of 2010 based from Vancouver, BC.

The research focused on better understanding what strategies would support small scale farmers in Costa Rica to engage in soil conservation practices in the context of climate change adaptation. The research was based on a lengthy survey developed and administered to farmers by Dr. Vignola. Julian was not part of the development of the survey or administering the survey to farmers. Julian received the raw data of the survey and his role was to analyze, synthesize and write a paper using the survey data collected. During the data analysis Julian met a number of times with Dr. McDaniels and Dr. Vignola to discuss scope and possible outlines of the paper given what he was discovering from the data. Julian completed a draft of the paper by the end of 2010, which is included in this document in Chapter 4.

A revised version of this material is being prepared for submission to a journal. Dr. Vignola will be first author on the paper, Julian will be second author for contributing the majority of written material, framing, and data analysis, and Dr. McDaniels will be third author for contributing financial support and intellectual input into the framing of the paper. This research was covered by UBC Ethics Certificate number H10-00848.

Chapter 6 – Sustainability leadership course case study. The case study reported in Chapter 6 was covered by UBC Ethics Certificate number H11-01323.

The rest of the dissertation is an original intellectual product of the author, J. Gonzalez.

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List of abbreviations

ACE	American Council on Education	NGO	Non-governmental organization
AESHA	An Evaluation of Sex workers' Health Access	NIMBY	Not In My Back Yard
CATIE	Centro Agronómico Tropical de Investigación y Educación - Tropical Agricultural Research and Higher Education Center	OEA	Others' Emotion Appraisal
CEO	Chief Executive Officer	PBL	Problem Based Learning
CSL	Community Service Learning	PES	Payment for Ecosystem Services
DProf	Doctor of Professional Practice	RGS	Regional Growth Strategy
EBM	Ecosystem-Based Management	ROE	Regulation Of Emotion
EDT	Ego Development Theory	SCT	Sentence Completion Test
EI	Emotional Intelligence	SDM	Structured Decision Making
ES	Environmental Services	SEA	Self-Emotion Appraisal
ESL	English as Second Language	SLATE	Strengthening Learning And Teaching Excellence
FONAFIFO	Fondo de Financiamiento Forestal de Costa Rica - National Forest Financing Fund	SPSS	Statistical Package for the Social Sciences
HIV/AIDS	Human immunodeficiency virus infection and acquired immune deficiency syndrome	SoTL	Scholarship of Teaching and Learning
ICDP	Integrated Conservation and Development Projects	STT	Socio-Technical Transitions
ICE	Instituto Costarricense de Electricidad - National Electricity Institute	TD	Transdisciplinary
ID	Interdisciplinary	UBC	University of British Columbia
IPCC	Intergovernmental Panel on Climate Change	UOE	Use Of Emotion
LEED	Leadership in Energy and Environmental Design	VOC	Voice of Cynicism
LIC	Living In Community	VOF	Voice of Fear
MASL	Meters Above Sea Level	VOJ	Voice Of Judgment
MBA	Master in Business Administration	WKKF	W.K. Kellogg Foundation
MLP	Multilevel perspective	WUSCT	Washington University Sentence Completion Test
MOOCs	Massive Open Online Courses		
MSc	Master in Science		

Glossary

Most of the words and terms of the glossary are in reference to leadership metaphors as used by Heifetz and associates. The entries that have an asterisk ‘*’ are sourced from the book *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World* by Heifetz, Linsky, and Grashow (2009).

act politically*	Incorporate the loyalties and values of the other parties into your mobilization strategy. Assume that no one operates solely as an individual but represents, formally or informally, a set of constituent loyalties, expectations, and pressures.
adaptation*	A successful adaptation enables an organism to thrive in a new or challenging environment. The adaptive process is both conservative and progressive in that it enables the living system to take the best from its traditions, identity, and history into the future. See also thrive
adaptive capacity*	The resilience of people and the capacity of systems to engage in problem-defining and problem-solving work in the midst of adaptive pressures and the resulting disequilibrium.
adaptive challenge*	The gap between the values people stand for (that constitute thriving) and the reality that they face (their current lack of capacity to realize those values in their environment). See also technical problem.
adaptive culture*	Adaptive cultures engage in at least five practices. They (1) name the elephants in the room, (2) share responsibility for the organization's future, (3) exercise independent judgment, (4) develop leadership capacity, and (5) institutionalize reflection and continuous learning.
adaptive leadership*	The activity of mobilizing adaptive work.
adaptive work*	Holding people through a sustained period of disequilibrium during which they identify what cultural DNA to conserve and discard, and invent or discover the new cultural DNA that will enable them to thrive anew; i.e., the learning process through which people in a system achieve a successful adaptation. See also technical work.
ally*	A member of the community in alignment on a particular issue.
ancestor*	A family or community member from an earlier generation who shapes a person's identity
assassination*	The killing or neutralizing (through character assassination) of someone who embodies a perspective that another faction in the social system desperately wants to silence

attention*	A critical resource for leadership. To make progress on adaptive challenges, those who lead must be able to hold people's engagement with hard questions through a sustained period of disequilibrium. This is the currency of leadership. The heart of leadership strategy is getting people to pay attention to tough issues rather than diversions. Exercising leadership for an authority means redirecting attention from his or her person and role to the issues that are generating distress.
authority*	Formal or informal power within a system, entrusted by one party to another in exchange for a service. The basic services, or social functions, provided by authorities are: (1) direction; (2) protection; and (3) order. See also formal authority and informal authority.
bandwidth*	The range of capacities within which an individual has gained comfort and skill. See also repertoire.
below the neck*	The non-intellectual human faculties: emotional, spiritual, instinctive, kinetic.
carrying water*	Doing the work of others that they should be doing for themselves.
casualty*	A person, competency, or role that is lost as a by-product of adaptive change
classic error*	Treating an adaptive challenge as a technical problem
Community- Based Natural Resource Management	Community-based natural resources management (CBNRM) is an approach under which communities become responsible for managing natural resources (forests, land, water, biodiversity) within a designated area. CBNRM gives communities full or partial control over decisions regarding natural resources, such as water, forests, pastures, communal lands, protected areas, and fisheries. For more information see (Leach, Mearns, & Scoones, 1999)
confidant*	A person invested in the success and happiness of another person, rather than in the other person's perspective or agenda.
courageous conversation*	A dialogue designed to resolve competing priorities and beliefs while preserving relationships. See also orchestrating the conflict
dance floor*	Where the action is. Where the friction, noise, tension, and systemic activity are occurring. Ultimately, the place where the work gets done
dancing on the edge of your scope of authority*	Taking action near or beyond the formal or informal limits of what you are expected to do.
default*	A routine and habitual response to recurring stimuli, also called conditioning
deploying yourself*	Deliberately managing your roles, skills, and identity.
disequilibrium*	The absence of a steady state, typically characterized in a social system by increasing levels of urgency, conflict, dissonance, and tension generated by adaptive challenges
elephant in the room*	A difficult issue that is commonly known to exist in an organization or community but is not discussed openly. See also naming the elephant in the room.

engaging above and below the neck*	Connecting with all the dimensions of the people you lead. Also, bringing all of yourself to the practice of leadership. Above the neck speaks to intellectual faculties, the home of logic and facts; below the neck speaks to emotional faculties, the home of values, beliefs, habits of behavior, and patterns of reaction. See also below the neck.
experimental mind-set*	An attitude that treats any approach to an adaptive issue not as a solution, but as the beginning of an iterative process of testing a hypothesis, observing what happens, learning, making midcourse corrections, and then, if necessary, trying something else.
faction*	A group with (1) a shared perspective that has been shaped by tradition, power relationships, loyalties, and interests and (2) its own grammar for analyzing a situation and its own system of internal logic that defines the stakes, terms of problems, and solutions in ways that make sense to its own members.
faction map*	A diagram that depicts the groups relevant to an adaptive challenge, and includes the loyalties, values, and losses at risk that keep each faction invested in its position.
finding your voice*	The process of discovering how to best use yourself as an instrument to frame issues effectively, shape and tell stories purposefully, and inspire others.
formal authority*	Explicit power granted to meet an explicit set of service expectations, such as those in job descriptions or legislative mandates
getting on the balcony*	Taking a distanced view. The mental act of disengaging from the dance floor, the current swirl of activity, in order to observe and gain perspective on yourself and on the larger system. Enables you to see patterns that are not visible from the ground. This is accomplished by asking the right questions that can help illuminate key patterns in the events that are happening. Leadership capacities for reflection and analysis include: stepping back, observing the fray, and interpreting political and organizational dynamics in real time; engaging in process and strategic thinking; and reasoning up and down levels of abstraction.
giving the work back*	The action of an authority figure in resisting the pressure to take the responsibility for solving problems off of other people's shoulders, and instead mobilizing the responsibility of the primary stakeholders in doing their share of the adaptive work

gross, subtle, and causal cognition	“Wilber distinguishes between gross, subtle, and causal cognition. Very briefly, whereas gross cognition takes the external, material, sensorimotor realm as its object of reflection, subtle cognition takes the internal world of thought and altered states of consciousness (including both mental and subtle realms) as its object of reflection. Subtle cognition involves precisely those forms of mental activity that Western cognitive psychologists have tended to ignore, downplay, or dismiss: imagination, creative visions, reverie, hypnotic and hypnogogic states, and transcendental, revelatory, and other noetic states. Causal cognition involves both the root essence of attention itself as well as the capacity to take the "position" of witnessing.” (Marquis, 2008, p. 107)
holding environment*	The cohesive properties of a relationship or social system that serve to keep people engaged with one another in spite of the divisive forces generated by adaptive work. May include, for example, bonds of affiliation and love; agreed-upon rules, procedures, and norms; shared purposes and common values; traditions, language, and rituals; familiarity with adaptive work; and trust in authority. However it may include brute force or use of threat or fear. Holding environments give a group identity and contain the conflict, chaos, and confusion often produced when struggling with complex problematic realities.
holding steady*	Withholding your perspective, not primarily for self-protecting, but to wait for the right moment to act, or act again. Also, remaining steadfast, tolerating the heat and push back of people who resist dealing with the issue.
hunger*	A normal human need that each person seeks to fulfill, such as (1) power and control, (2) affirmation and importance, and (3) intimacy and delight.
illusion of the broken system*	Every group of human beings is aligned to achieve the results it currently gets. The current reality is the product of the implicit and explicit decisions of people in the system, at least of the dominant stakeholders. In that sense, no system is broken, although change processes are often driven by the idea that an organization is broken. That view discounts the accumulated functionality for many people of the system's current way of operating
informal authority*	Power granted implicitly to meet a set of service expectations, such as representing cultural norms like civility or being given moral authority to champion the aspirations of a movement.
Integrated Conservation and Development Projects (ICDP)	Are biodiversity conservation projects with rural development components. These projects seek to address biodiversity conservation objectives through the use of local socio-economic investment tools. (for more see Alpert, 1996)
interpretation*	Identifying patterns of behavior that help make sense of a situation. Interpretation is the process of explaining raw data through digestible understandings and narratives. Most situations have multiple possible interpretations

intervention*	Any series of actions or a particular action, including intentional inaction, aimed at mobilizing progress on adaptive challenges.
leadership with authority*	Mobilizing people to address an adaptive challenge from a position of authority. The authority role brings with it resources and constraints for exercising leadership.
leadership without authority*	Mobilizing people to address an adaptive challenge by taking action beyond the formal and informal expectations that define your scope of power, such as raising unexpected questions upward from the middle of the organization, challenging the expectations of your constituents, or engaging people across boundaries from outside the organization. Lacking authority also brings with it resources and constraints
leap to action*	The default behavior of reacting prematurely to disequilibrium with a habituated set of responses.
lightning rod*	A person who is the recipient of a group's anger or frustration, often expressed as a personal attack and typically intended to deflect attention from a disturbing issue and displace responsibility for it to someone else
living into the disequilibrium*	The gradual process of easing people into an uncomfortable state of uncertainty, disorder, conflict, or chaos at a pace and level that does not overwhelm them yet takes them out of their comfort zones and mobilizes them to engage in addressing an adaptive challenge.
naming the elephant in the room*	The act of addressing an issue that may be central to making progress on an adaptive challenge but that has been ignored in the interest of maintaining equilibrium. Discussing the undiscussable. See also elephant in the room.
observation*	Collection of relevant data from a detached perspective and from as many sources as possible. See also getting on the balcony
opposition*	Those parties or factions that feel threatened or at risk of loss if your perspective is accepted.
orchestrating the conflict*	Designing and leading the process of getting parties with differences to work them through productively, as distinguished from resolving the differences for them. See also courageous conversation.
pacing the work*	Gauging how much disturbance the social system can withstand and then breaking down a complex challenge into small elements, sequencing them at a rate that people can absorb
partners*	Leadership cannot be exercised alone. Each leader has blind spots that require the vision of others and passions that need to be contained by others. Leaders can lose the capacity to get on the balcony and stay in the diagnostic mode. They need help in distinguishing self from role when attacked or idealized and in identifying the underlying issues that generate attack.
personal leadership work*	Learning about and managing yourself to be more effective in mobilizing adaptive work.
pressure cooker*	A holding environment strong enough to contain the disequilibrium of adaptive processes.

productive zone of disequilibrium*	The optimal range of distress within which the urgency in the system motivates people to engage in adaptive work. If the level is too low, people will be inclined to complacently maintain their current way of working, but if it is too high, people are likely to be overwhelmed and may start to panic or engage in severe forms of work avoidance, like scapegoating or assassination. See also work avoidance
progress*	The development of new capacity that enables the social system to thrive in new and challenging environments. The process of social and political learning that leads to improvement in the condition of the group, community, organization, nation, or world. See also thrive
purpose*	The overarching sense of direction and contribution that provides meaningful orientation to a set of activities in organizational and political life.
reality testing *	The process of comparing data and interpretations of a situation to discern which one, or which new synthesis of competing interpretations, captures the most information and best explains the situation.
regulating the heat*	Raising or lowering the distress in the system to stay within the productive zone of disequilibrium.
repertoire*	The range of capacities within which an individual has gained comfort and skill.
resilience*	The capacity of individuals and the holding environment to contain disequilibrium over time. See also holding environment and pressure cooker.
ripeness of an issue*	The readiness of a dominant coalition of stakeholders to tackle an issue because of a generalized sense of urgency across stakeholding groups.
ritual *	A practice with symbolic import that helps to create a shared sense of community.
role*	The set of expectations in a social system that define the services individuals or groups are supposed to provide.
sanctuary*	A place or set of practices for personal renewal.
scope of authority *	The set of services for which a person is entrusted by others with circumscribed power.
skills	A short hand word to refer to the complex constellation of perceptual, intellectual, intuitive, and emotional abilities of an individual.
social system *	Any collective enterprise (small group, organization, network of organizations, nation, or the world) with shared challenges that has interdependent and therefore interactive dynamics and features.
song beneath the words *	The underlying meaning or unspoken subtext in someone's comment, often identified by body language, tone, intensity of voice, and the choice of language.
sustainability	The process of mobilizing change to make progress on the economic, ecological, and social imperatives a group and/or society faces

taking the temperature *	Assessing the level of disequilibrium currently in the system.
technical problem*	Problems that can be diagnosed and solved, generally within a short time frame, by applying established know-how and procedures. Technical problems are amenable to authoritative expertise and management of routine processes.
technical work *	Problem defining and problem solving that effectively mobilizes, coordinates, and applies currently sufficient expertise, processes, and cultural norms.
thrive *	To live up to people's highest values. Requires adaptive responses that distinguish what's essential from what's expendable, and innovates so that the social system can bring the best of its past into the future.
tuning *	An individual's personal psychology, including the set of loyalties, values, and perspectives that have shaped his worldview and identity, and cause the individual to resonate consciously and unconsciously, productively and unproductively, to external stimuli. See also default.
work avoidance *	The conscious or unconscious patterns in a social system that distract people's attention or displace responsibility in order to restore social equilibrium at the cost of progress in meeting an adaptive challenge.

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Dedication

Throughout the vastness of space and the immensity of time, it is my joy to spend this lifetime with Ines.

Prologue: not knowing

For a PhD dissertation this is a paradoxical way to start.

Through more than ten years of working, researching, and reflecting on human conditions and the challenges that we face as a global community I have learned a lot. Some of it is shared in this document. Above all, I've been humbled by the experience. Let me explain.

I now stand at an interesting point: I have mastered many skills and developed expertise, I have written a dissertation, I am working on sustainability issues and have many interesting projects ahead; a perfect springboard to act and influence the world for the better. Yet the mystery of all this — I mean ALL this — is incredible. This tiny planet, in this 'still' tiny galaxy, part of this somewhat larger universe that has been around for just 13.5 billion years. If one is able to fathom the enormity and the smallness of all this it can only leave you in awe. How little we really know . . .

This is just the beginning of not knowing. As I sit and contemplate the human condition, I realize how much I construct this world of good and bad. It is a world that is full of suffering that needs compassionate action to alleviate. From one perspective, there is an important truth in the notion that the world needs compassionate action to alleviate suffering; and many of us look up to such exemplary historical figures as Martin Luther King, Mother Theresa, and Nelson Mandela for the inspiration of their actions towards improving the well-being of many. From another perspective this is insignificant. I don't say this as a nihilist, but as somebody who is in awe of our smallness. I realize that the constructs of climate change, extreme poverty, war, and suffering in general have less of a hold on me now. I guess I've come to accept that I just don't know how to understand their significance in the grand scheme of things.

In a more practical sense it is astonishing what we humans have constructed — cities, planes, medicine, psychology—all of it. It is amazing given how feeble we are; being tricked by all the biologically inherited biases that we have. Biases that, in practice, will never go away. Even the smartest, most trained, most logical of us is limited by our biology. We can design better processes to scaffold us up around them, yet in everyday life we operate as if partially blind. It is quite astonishing that our decisions have been successful enough to allow us to create all of this over the generations. The magnitude of the achievement holds even though, as I will share later in this document, a very large part of our decisions fail to make any significant progress toward the results we desire. How all this came to be seems to be a

mix of luck, intention, and the ability of systems to self-organize independent of our individual and collective purposeful actions. I have arrived at the conclusion that, given the complexity of the problems that we are currently facing, we human beings are limited in our ability to know the impacts of our choices. Consequently, even our best-intended actions can have adverse effects on the system as a whole.

Interestingly, this dissertation is in essence about how to better get things done, how to make more progress on those difficult things that we care about. In a sense I feel a bit like I am participating in a hoax — the truth is that I don't feel I have answers to the questions I have before me, even though you will find many ideas and answers in this document. I do believe that what I will share with you can better prepare us to make progress on the challenges that we face, but only if I am also able to communicate how lightly and deeply all of this should be taken. I am not skilled enough to say this in my own words so I'll rely on two sources that are. First, is an ancient tradition that has worked with this paradox for centuries. The Zen Peacemaker Order (Glassman, 1998), a socially engaged Buddhist organization, lives by three vows, the first of which is 'not-knowing' and it states:

1. **Not-knowing**, thereby giving up fixed ideas about ourselves and the universe

The vow of not-knowing in the Zen Peacemaker Order encourages us to drop our conceptual framework, such concepts and assumptions as 'us and them', 'good and bad', 'knowing and not-knowing'. When realized, not-knowing is a state of open presence without separation, allowing us to deeply listen to all that arises in a situation. The second source that speaks gracefully to not-knowing is the modern poet Mary Oliver:

Mysteries, Yes

"Truly, we live with mysteries too marvelous
to be understood.

How grass can be nourishing in the
mouths of the lambs.

How rivers and stones are forever
in allegiance with gravity,
while we ourselves dream of rising.

How two hands touch and the bonds
will never be broken.

How people come, from delight or the
scars of damage,
to the comfort of a poem.

Let me keep my distance, always, from those
who think they have the answers.

Let me keep company always with those who say
“Look!” and laugh in astonishment,
and bow their heads.”

Introduction

It was close to 8 o'clock in the evening, a colleague and I had just finished facilitating a four hour workshop with mayors and elected officials of a heavily populated region in the interior of British Columbia. As participants were leaving the room I approached a younger woman still seated at her table and asked if she thought the evening had been productive for her. She started out by saying, "It is the first time that I see so clearly the importance of clarifying my own and my community's values as they are crucial in helping us make better decisions". The workshop was part of a longer participatory process focused on creating a Regional Growth Strategy (RGS) with a vision of promoting socially, economically, and environmentally healthy communities in the region. What was a surprise for her was that even though Regional Growth Strategies focus on land resources and public facilities, the workshop mainly focused on eliciting and clarifying values of the participants, and through the course of the workshop connected the participants' values back to the trade-offs they needed to make in the planning process. Another male participant that I approached said, "As an elected official I have gone to many symposiums, but there are only a handful of them that I recall learning – you know, those 'aha' moments – and seeing other people at my table also feeling the same way". By the end of the workshop my colleague and I had observed a profound shift in the preferred strategies that the electorate had initially voted on at the beginning of the evening.

Though I personally continue to struggle to make sense of what sustainability means in practice, that evening remains fresh in my mind as it speaks to some of the dynamics of sustainability work that are not readily captured in the vast literature of sustainability. This gap between what we know of sustainability and what I have found to work in the practice of sustainability is what I have come to experience as the blind spot of sustainability.

This dissertation was born from practice. As a consultant I experience daily the challenges my clients face, and the difficulties they encounter in trying to create more sustainable futures. They hire me, and the organizations I work for, because they are looking for answers – they want solutions they can implement, not only to survive, but to thrive in today's complex and rapidly changing world. No matter the context of the work, all my clients face the same challenge of mobilizing change in a group, a neighbourhood, a city, a province or a country. The reason I embarked on the journey of a PhD is because I was inspired by people like my clients who are doing their best to create a more sustainable

world for all of us, and they face incredible difficulties in mobilizing and creating long-lasting sustainable change.

Focus of the dissertation

Sustainability related challenges and the accompanying discourses continue to be central topics in government, the private sector, and civil society. Most organizations, public and private, include some sustainability related statement in their visions or goals. The definition of the term *sustainability* is an ongoing conversation resulting in many, sometimes diverging interpretations of the term (Dobson, 1996). The most common use of the term *sustainability* refers to the goal of achieving environmental, economic, and social continuity over time, also commonly referred to as ‘sustainable development’ (WCED, 1987). Since the late 1990s the term sustainability has also been used to define the process by which a society can purposefully change to narrow the gap between the normative aspects of sustainability and the current reality (Meppem & Gill, 1998; Robinson, 2004). Robinson (2004) suggests that *sustainability* is more usefully defined by two dimensions, one substantive and the other procedural. The substantive aspect seeks to reconcile the three imperatives: ecological, social, and economic. The procedural aspect argues that sustainability is a social process, not an end state, of constructing with citizens the preferred outcomes to address the substantive aspects of sustainability.

This dissertation focuses on the procedural rather than the substantive aspects of sustainability for two practical reasons. First, the more difficult sustainability challenges that we face, like climate change, resist being addressed by the application of knowledge and solutions (Hulme, 2009; Prins & Rayner, 2007). They require that we engage in a multi-scale processes of continual action, learning, and adapting (O’Brien, 2012; Ostrom, Janssen, & Anderies, 2007). To me such a process speaks to the procedural challenges of sustainability, and not the substantive aspects of it. I will expand this point further in chapter 3.

A second reason for focusing on the procedural aspects of sustainability is that the reasoning that emerges from seeking substantive solutions is typically limited in its ability to effect change. This is because that reasoning typically assumes that, once better knowledge and understanding of the problem is reached, it will naturally lead to solutions that can be implemented. While very common, this assumption is false. As Hungerford states “We still believe—so very strongly—in the knowledge > attitude > behavior model of learning when, at the same time, we know how desperately inadequate

this is when it comes to changing the citizenship behaviors of large numbers of learners over long periods of time” (quoted in Simmons & Volk, 2002, p. 7). Many other academics and practitioners assert that the theory of change that assumes knowledge will naturally lead to change is flawed (Finger, 1994; Kollmuss & Agyeman, 2002; Leiserowitz, Kates, & Parris, 2005; McKenzie-Mohr, 2011; Pfeffer & Sutton, 2000), especially when change is required to meet complex challenges. It is therefore important to appreciate that sustainability challenges are complex in at least three dimensions (Kahane, 2007): (1) dynamic complexity when cause and effect are far apart in space and time, (2) generative complexity when the future is unpredictable and uncertain, and (3) social complexity when the parties involved have different assumptions, objectives, and values. All of these dimensions add to the difficulty of arriving at any one view of the underlying causes and best solutions to sustainability challenges; especially the social complexity dimension. Thus, substantive positions on what to do about sustainability issues are limited in their ability to effect change, not only because knowledge by itself rarely leads to action, but also because any one account of the underlying causes and best solutions to sustainability challenges is necessarily limited. I will also expand on this point further in chapter 3.

The term *sustainability* is powerful because it can cut across disciplines and worldviews. It can do so not as a clearly defined and widely understood term, but as a call for action. What *sustainability* means is context specific and generally includes an ill-defined problem with inevitable tension between stakeholders and their diverging interests and worldviews. The polarization of values and differing interpretation of facts is a concern for a pluralistic society facing challenges that require widespread coordinated action.

In summary: The focus of this dissertation is on the procedural dimension of sustainability; on how groups, organizations, and societies transition from one way of being and acting to another. Therefore, *sustainability* in this dissertation is defined as the process of mobilizing change to make progress on a group or society’s economic, ecological, and social imperatives.

Philosophical perspectives

Before discussing the research questions this dissertation undertakes to address, and the methods that it employs, it is important to situate the reader in the philosophical perspectives that ground this work (Zuber-Skerritt, 1992, pp. 124–140). This is because the questions that I ask and how I approach them follow from my beliefs about the purpose of research, the nature of knowledge (epistemology), and the

nature of reality (ontology). I situate myself in a philosophy that has renounced the tenants of positivism and subscribed to a critical philosophy regarding the purpose of research; I take a constructivist-developmental philosophy regarding the nature of knowledge; and a Buddhist view regarding the nature of reality.

This dissertation is in line with Giddens' (1984) approach to sociology, which renounces the futile pursuit of positivism; that is, of finding timeless laws of human behaviour and organization. I share with Giddens the belief that positivism applied to social problems is of little use given the realities of individual agency and evolutionary patterns of self-organization that spontaneously create novelty in how we interact in groups and organizations. Giddens suggests that the best that social science can do is offer 'sensitizing concepts', or simply 'distinctions', which, when skilfully used, provide us with more options for observing, interpreting, and intervening in human systems in a way that mobilizes increased consciousness, freedom, and learning.

Furthermore, I fundamentally disagree with the following four assumptions that stem from a positivist perspective:

1. That advances in knowledge stem mainly from the application of the scientific method: observation, hypothesis and evidence.
2. That there is an objective, value-free approach to research and knowledge generation.
3. That reality exists separate from the knower, and therefore a phenomenon can be studied independently from the researcher studying the phenomena, and the historical/social context of the time.
4. That empirical factual science is the only legitimate form of knowledge generation.

This is not to say that I am against the scientific method, knowledge generation, research or empirical studies; not at all. It is to agree that all these are more fruitfully undertaken within a critical rather than positivistic paradigm. I include this statement because what I have experienced as a student in the 21st century is similar to Miller's (1988) observation almost three decades ago that, although nobody claims to be a positivist, "positivism remains the dominant philosophy of science" (p.3).

Given the myriad of social challenges that we face, I find most meaningful research that purposefully aims to facilitate change in individuals and society. This philosophical view on the purpose of research goes by many names such as *critical theory* (Calhoun, 1995), *action research* (Stringer, 2013), *activism* (Freire, 1970), and *research-as-praxis* (Lather, 1986). From this perspective, the purpose of research is to go beyond the goal of better understanding a phenomenon and aim to empower individuals and shift oppressive social structures. This is a radical shift in positioning from the stance of objective, value-free researcher to one of researcher as an agent of change.

From a constructivist perspective I forgo the belief that there is one objective reality that can be known, and accept the challenge that knowledge is an interpretation of reality, which many times creates conflicting claims on what is true and valid. Constructivism stems from the work of many scholars. Heidegger (1962) and hermeneutic philosophy in general emphasize that our understanding and interpretation of our experience are bound by the concepts, language and symbols of our particular historical time and social context. Furthermore, Piaget (1970) and other constructivist-developmental scholars have informed my view that how we construct reality is to a large degree a function of the breath of our internal awareness. Therefore a constructivist-developmental perspective leads to research as a meaning-making activity, where the phenomenon under study is constructed from the perspectives of those who experience it, and through the research the researcher and those involved can expand their meaning making structures.

Finally, from a Buddhist non-dualistic ontological-epistemological view I disagree with those western philosophical perspectives that assume that the ultimate answer to the question “What is reality?” can be grasped by the intellect and formulated abstractly. To challenge this assumption is not to say that reality cannot be known, or that the intellect and its concepts have no value. Rather, it is to affirm that ultimate knowledge relies on *dhyāna*, which can be translated as meditation or introspection. Buddhist and other eastern traditions assert that reality reveals itself when concepts are dropped and one comes into direct, non-conceptual contact with reality (Loy, 1997). The poet Yeats (1939) states this beautifully: “Man can embody truth but he cannot know it”. From such a perspective that see all conceptual knowledge as partial and approximate, how should one meet the practical challenges of day-to-day living, including research? One possible answer to this question based on Buddhist principles is Glassman’s (1998) three tenets:

1. Not-knowing: is the practice of engaging with a situation without being attached to any opinion, idea or concept, which translates to a complete openness to what arises, and to deep and authentic listening.
2. Bearing witness: is the practice of presence and surrendering to what one sees and experiences, which allows for a deep and powerful intelligence to arise that does not depend on study or action. When one bears witness there is a shift from being an observer of a situation to becoming the situation.
3. Loving actions: not-knowing and bearing witness do not mean passivity or in-action, quite the contrary, in a state of not-knowing and bearing witness the actions that arise naturally are congruent with what is needed in the situation.

In summary: the research I find compelling is that which explicitly aims to create change and empower individuals. I believe conceptual knowledge is a constructed interpretation of reality that is always partial and incomplete, because we can develop ever deeper and more complex ways of perceiving reality and constructing knowledge. Finally, I endorse the view of Buddhist and other contemplative traditions (east and west) that reality can be known most accurately through direct, intimate, non-conceptual experience.

Research questions

Within the context of its focus on procedural sustainability the dissertation explores the following two broad questions:

1. How does change occur in human systems?
2. How can we better support university students to develop the skills needed to mobilize change?

These two questions are broad; no one study could give a complete answer to them. My objective is to offer useful contributions to what is currently believed. To do so, in this dissertation I address these

questions first in more general terms, in the literature review chapters, and then more narrowly, in the case study chapters.¹ The answers to these questions are complementary and interconnected, each informing the other. However, in the dissertation they stand somewhat separately in part 1 and part 2 of the document.

The objective of part 1 is to present my understanding, in the light of relevant literature and my professional experience, of some of the key conditions under which change happens in individuals, organizations and society. It is comprised of four chapters. Chapter 1 sets the stage for the dissertation by providing an account of how often we fail when trying to change, including individual, organizational and societal change initiatives. Chapter 2 provides an overview of theories of change spanning the scale of individuals to societies. Chapter 3 discusses challenges of sustainability from the perspective of a practitioner, and introduces a simple framework and ten recommendations to aid in the process of diagnosing and mobilizing change. Finally, chapter 4 illustrates, via a case study, some of the concepts introduced in chapter 3. The case study explores the following questions, which are narrower, yet within the context of the broader question of part 1:

1. What motivates small scale farmers to engage in conservation practices?
2. Do small scale farmers believe that a PES policy would support them in furthering their conservation practices?

The case study concludes with a set of recommendations for addressing the procedural challenges of encouraging farmers to adopt soil conservation practices in a Costa Rica watershed. In synthesis, part 1 argues that in the sustainability discourse, we have overly focused on *what* needs to change and less so on *how* to go about creating the changes to which we aspire.

Part 2 explores the question of *who* leads the change, which in essence is a question of leadership, and how to better support students to develop leadership skills. Chapter 5 briefly introduces the larger field

¹ The literature review chapters for part 1 are chapter 1, 2, & 3. The literature review chapter for part 2 is chapter 5. The case study for part 1 is chapter 4, and for part 2 is chapter 6.

of leadership studies and in particular a framing of leadership that is coherent with the challenges of sustainability, it then follows to discuss some of the weakness of higher education in preparing individuals to tackle sustainability challenges, in essence arguing that *know-what* knowledge is overemphasized over practical *know-how* skills, and personal *know-who* awareness. This is followed by a review of educational approaches that encourage transformative learning, and a discussion of the importance of encouraging transformative learning in leadership development courses.²

Chapter 6 presents a case study of a sustainability leadership course carried out at UBC, and is the cornerstone of the dissertation.³ Within the context of the broad question of part 2, the case study explores the following question:

1. What impacts on students does a course have that fosters cognitive understanding of sustainability leadership diagnostic abilities, encourages deeper awareness of themselves and the complexities of change, and provides embodied leadership skills for mobilizing people?

I designed and was the lead instructor of the course in the fall term of 2011 at UBC. The chapter describes the course, the transformative learning and teaching approach, the impacts it had in students' lives, and my reflections on teaching it.

Finally, chapter 7 discusses some implications of the findings for higher education institutions, and offers a summary of the overall conclusions of the dissertation. In summary; part 2 argues that the challenges of sustainability require individuals that have more practical *know-how* skills and more developed *know-who* awareness, and concludes that in the context of sustainability, higher education institutions can do more to contribute to the development of these ways of knowing.

² Transformative learning as defined by constructive developmental theories (Kegan, 2009).

³ The significance of this chapter accounts for its length, which is almost equal to that of all the other chapters combined.

Research methods

The research methods used for the case studies are those found most appropriate to studying the research questions within the context of the philosophical perspectives that ground this work. This dissertation uses predominately qualitative methods, though both case studies use some quantitative methods and analysis. Qualitative research can be defined by the following five features (Bogdan & Biklen, 2006):

1. The actual setting is important because the researcher is concerned about *context*. I would add that research is *context specific* (Flyvbjerg, 2001).
2. It solicits *meaning* from the participants in order to access participants understanding of their experience.
3. Research is about the *process* and not just the outcomes or products.
4. The data used is *descriptive* and *narrative*, in other words “qualitative researchers do not reduce the pages upon pages of narration and other data to numerical symbols” (p. 5).
5. The research method is *inductive*, meaning that generalizations are derived from specific observations. That is, the researcher is not seeking “data or evidence to prove or disprove hypotheses they hold before entering the study; rather, the abstractions are built as the particulars that have been gathered are grouped together” (p. 6).

Within qualitative research there are various methodologies. For example, the Costa Rica case study in chapter 4 looks into farmer motivations and the impacts a payment for ecosystem services (PES) policy would have on soil conservation practices. The study is exploratory and does not aim to prove or disprove any hypotheses. To better understand farmer motivations a mixed survey of open and closed end questions was used.⁴ The resulting data was analyzed using grounded theory (Glaser & Strauss, 1967), a qualitative research method, to discover underlying patterns of meaning making that give rise

⁴ As stated in the preface, I was not part of the development of the survey or administrating the survey to farmers. I was given the survey raw data, and my contribution was the analysis, synthesis and writing of the findings.

to farmer's behaviour. Within the field of study of PES, using a qualitative method to study the motivations behind farmer's behaviour is novel, whereas most studies of PES use a neoclassical economics paradigm (Gómez-Baggethun, de Groot, Lomas, & Montes, 2010; Kosoy & Corbera, 2010). To my knowledge there is only one other study (Petheram & Campbell, 2010) similar to this one that takes a behavioural and qualitative approach to studying PES.

The case study in chapter six, the development and teaching of a sustainability leadership course, used more elaborate research methods. First, the research method used a critical and emancipatory approach (Calhoun, 1995; Freire, 1973) to developing the course curriculum, and teaching materials and practices, this is also referred to as research-as-praxis (W. Carr & Kemmis, 1986; Lather, 1986). This means that the research goal was not only to study the phenomena of teaching and learning sustainability leadership, but also to uncover and make visible the power dynamics of the phenomena being studied, in this case the teacher-student relationship. By taking a critical stance on the status-quo, it was hoped that students would come to realize and emancipate from both the personally habituated behaviours and institutionalized norms that create unhealthy and sometimes oppressive authority relationships. Taking a critical and emancipatory approach is a direct response to the "instrumental rationality" model of education (Giroux, 1988), where a large part of our educational system is tightly bound to the positivist view of the sufficiency of technique applied to problems and does not take into account or train students well for the real world where we are all embedded in a web of power dynamics and authority relationships. Taking a critical emancipatory approach is in line with a long history of educators such as Paulo Freire, John Dewey, Donald Schön, and many others. In essence research-as-praxis is a commitment to supporting oneself and others to become more integrated free-functioning human beings (Merzel, 2007).

A second aspect of the research method used was self-inquiry as part of the research process. Self-inquiry as a research method is part of critical praxis research (Kress, 2011), where the researcher in the process of conducting research is critically aware and examines their identity, context, and purpose. This method was expanded using the Buddhist practice of samatha and vipassana meditation; or, in other words, a contemplative cycle between 'open attention' and 'focused attention' (Zajonc, 2008, p. 39). The purpose of this research method is to develop insights into that which one cannot see at the moment, especially within oneself. This is similar to the 'bracketing' technique used in phenomenology research methods (Moustakas, 1994), where one tries to suspend the critical mind and create space for

awareness to illuminate that to which one is blind. This method is fundamentally different from conventional methods in the sense that ‘objectivity’ in conventional science is achieved by distancing oneself or being independent from the phenomena studied, whereas in self-inquiry one seeks to engage in direct experience to participate more fully in the phenomena, achieving ‘objectivity’ through self-knowledge (Zajonc, 2008, p. 35). In essence, self-inquiry as a research method forces the researcher to pay attention to a vast, but largely silent and hidden world of interiority of oneself and others.⁵

Third, a constructive-developmental method (Hy & Loevinger, 1996) was used to better understand and gauge transformative learning. Constructive-development methods use more rigorous and validated methodologies for gauging transformative learning (Kegan, 2009) than the more common ‘Learning Activates Survey Questionnaire’ (King, 2009) used to gauge transformative learning in other studies (E. W. Taylor & Snyder, 2012). Furthermore, a constructive-developmental framework provides constructs and distinctions that help to better understand how meaning-making structures in a leadership context can grow and expand; this is explained further in chapter 5.

Fourth, and similarly to the Costa Rica case study, grounded theory was used as an inductive method to discover broader patterns from the individual surveys and interviews collected from students. The broader patterns or generalizations found in this dissertation are by no means proof that applying the same interventions will give rise to the same findings.⁶ Furthermore this dissertation does not go as far as to develop a theory from the patterns found. An exploratory method as grounded theory was used because the phenomena studied in this dissertation is in its infancy. To my knowledge there are only three other studies (K. M. Brown, 2006; Madsen, 2010; Nelson, 2011) that explore transformative learning in a leadership course context, and no previous study that applies a constructive-developmental method for gauging transformative learning in a leadership course.

⁵ Three other benefit of expanding the self-inquiry method with Buddhist practices and principles are: (1) our addictions and attachments, what Buddhist call our aversions and cravings, naturally surface and come into our attention so we can work with them; (2) it helps us become aware how we construct a sense of ‘other’ apart from the self that limits our ability to connect and understand others; and (3) it emphasizes the practice of compassion with self and others as an antidote to our delusion or ignorance.

⁶ By interventions I mean: course advertising, course syllabus, and pedagogy.

Finally, with the intent to contributing to the scholarship of integration (Boyer, 1990), both part one and two of the dissertation include a few chapters dedicate to interpreting relevant literature, performing critical analysis, and synthesizing across disciplines to draw broader patterns and insights into the research question. These chapters are grounded in the philosophical perspectives discussed above, draw from my interdisciplinary work experience, and have been enriched with my understanding of the relevant literature in different disciplines.

Audience

This dissertation is a product of my background in engineering, professional consultancy, and adult education. This covers a wide audience that rarely share philosophical perspectives, and even less so concepts, theories, and methodologies. Part 1 of the dissertation dwells in the domains and possible experiences of professional sustainability practitioners. The main lessons learned are in regards to better supporting change in groups and society. Part 2 of the dissertation is aimed at a wider audience of sustainability educators, especially those who are experiencing the limitations of traditional teaching methods in the context of sustainability. Educators who are versed in transformational educational pedagogies will be familiar with many of the methods applied in the case study. However, these educators may find novel the constructive-developmental approach (Kegan, 2009) utilized for better understanding and supporting individuals and groups in the process of transformational learning.

Even though the dissertation has two distinct parts which seem to be written for different audiences, the ideal audience for the dissertation are those individuals that bridge the worlds of part 1 and part 2 of the dissertation. These are individuals who engage in the *realpolitik* of sustainability practice, working with multiple stakeholders to address challenging problems, and at the same time have realized the limitations of only applying expertise and skillful facilitation as tools for working through the difficulties encountered in the process of planning and implementation. These individuals have come to see that change requires a type of leadership that is educational, which can mobilize people through a process of adaptation that goes against the grain of many of those involved, therefore requiring to some degree a transformative learning process. From this vantage point readers will find that the two parts of the dissertation are complementary, informing each other, even though they may seem worlds apart to some.

Terminology

Given the trans-disciplinary approach (Russell, Wickson, & Carew, 2008; Wickson, Carew, & Russell, 2006) of the dissertation I draw and use distinctions and corresponding terms from multiple disciplines (see Appendix G for a discussion of challenges in trans-disciplinary research). While I introduce and define the words that are critical for understanding the discussion, there are many words that I do not define because doing so would turn this document into more of a manual than a dissertation. This can lead to two communication challenges. The first would be that the reader is not familiar with the terminology used and might have difficulty following the discussion. A second, and more troubling challenge, would be a diverging interpretation of the meaning of a word between how I use it and how the reader understands it, given the different disciplinary worlds that we may come from. For example, a term such as 'skills' is imbued with meaning, discussion, and even disagreements in the field of education; yet most people use it as short hand for behavioural competency. In the dissertation I will use the word 'skills' as short hand to refer to the complex constellation of perceptual, intellectual, intuitive, and emotional abilities of an individual. Given that it is unrealistic to explain the meaning of each term used in this document I ask the reader to engage with the dissertation in a spirit of receptiveness, not losing sight of the 'forest' when caught up on the definition and use of the word 'tree'. The glossary contains words and terms used in the document that might be new or ambiguous to the reader.

Part1 – Sustainability challenges and change in human systems

Chapter 1. The sad story of change initiatives

“It’s easy to quit smoking. I’ve done it hundreds of times.” — Mark Twain

Mark Twain’s tongue-in-cheek statement contains a puzzling paradox and sounds a cautionary note. We develop New Year resolutions or plan how best to decrease poverty in a neighbourhood. We carry out our actions successfully using nicotine patches or creating training centres, only to realize that the challenge persists over time. Although we have the best of intentions and are informed by the best practices of the time, the sad reality is that our interventions have little effect or actually make matters worse. Nassim Taleb coined the term “Naive Interventions” (Taleb, 2012) to describe when ‘do-gooders’ actually do more harm than good. History is full of examples; Taleb describes how George Washington’s premature death is attributed to the medical practice at the time of bleeding the patient, thinking it would remove the illness. This disjunction between intentions and results happens in initiatives large scale and small, including individual, organizational and societal efforts to make progress on meeting tough challenges.

Many international development initiatives are examples of societal efforts of change that are plagued by failure. In 2005 Jeffery Sachs (2005) , a world superstar economist, argued that with enough funding and proper planning extreme poverty in the world could be history in 20 years. In 2006, with seed money of US\$120 million, a five-year Millennium Villages Project was launched, working across 14 villages in 10 countries of sub-Saharan Africa. A formal review of the Millennium Villages will be published mid-2016 (Sachs, 2013); but Munk (2013) describes what she observed over a period of 6 years following Sachs as he implemented his bold plan to end extreme poverty in Africa. She tells a sobering tale in which the life of people has been improved by the generous flow of money into the villages, but not more than what other international development organizations have achieved with far less economic resources. Sach’s plan, outlined in a 147-page handbook, did not take into consideration ageing infrastructure, political violence, drought, local values far diverging from western ones, and resistance to change. In some of the villages the project had the opposite effect than what was planned, fostering a culture of dependency instead; creating a ‘refugee syndrome’ that re-enforces patterns of

behaviour detrimental to making progress on ending extreme poverty. The clear path that Sachs had laid out to eradicating poverty now seems like a naive idealist's dream.

The success ratio of change initiatives in organizations is disheartening, which speaks to the real difficulties of shifting realities at an organizational level. For example, Paul Nutt (2002) found that only half of senior management decisions are acted upon. His research spans over 400 decisions across the United States, Canada, and Europe, made within medium to large organizations of all types; business, government, and civil society. The ratio of failures also does not vary much by sector or type of decision. Kotter (1995) documents over 100 well-known companies with which he worked that tried to re-create themselves to be more competitive. Only a few succeeded, most of them failed. Even more discouraging is a 2006 McKinsey and Company survey of business executives from 1,546 organizations that found that only 30% of them thought their change efforts were mostly or completely successful (Isern & Pung, 2006). We can assume these are conservative numbers given that the evaluation comes from the same people in charge of designing and implementing the change programs. Both Miller (2002) and Higgs & Rowland (2005) report a similar gloomy picture in which 70% of change initiatives that are critical for the success of the company fail to achieve the desired results. Even with the incredible resources and talented individuals that many of these organizations enjoy, their track record of sustaining meaningful change is poor.

At an individual level we are not doing much better. Most of us know that some simple actions such as exercising more, reducing our intake of alcohol, and not smoking increase our health and help prevent premature deaths. Given our busy and sedentary lives, it is not surprising that most of us are not too good at following those simple actions; delaying into the future the day we will exercise more, drink less or stop smoking. What is surprising is that, even after being diagnosed with chronic and life threatening diseases such as diabetes, heart disease, cancer, and respiratory illnesses, most of us still do not change our behaviours. A recent longitudinal study (Newsom et al., 2012) found that, even if behavioural change does happen after a new chronic diagnosis, it is only short term. They conclude that in the long term "the vast majority of individuals diagnosed with a new chronic condition did not adopt healthier behaviors" (p. 279). It is shocking that, even when faced with the prospect of death, many of us still cannot change our behaviours.

The above examples report on our staggering failure, even though we are purposefully trying to improve; be it at the individual, organizational or societal level. Sadly, I would argue that we fail even

more often than what the studies above conclude when having to adequately respond and adapt to continual changing conditions around us. We are often blindsided by them; resulting in cardiac arrests, failed business, and economic meltdowns. The collapse of the Atlantic cod fisheries (Frank, Petrie, Choi, & Leggett, 2005) is just one example of a system-wide failure to adapt — where a whole society turned a blind eye to underlying changes occurring in the environment, resulting in collapsed economies and permanently degraded environments.

This chapter began by sharing one case of how, as a society, we fail even when purposefully trying to change, as in the example of Millennium Development Villages, and we end with another failure; the collapse of the cod fisheries, when as a society we did not respond fast enough to the changes around us (L. C. Hamilton, Haedrich, & Duncan, 2004). This pattern holds true at smaller scales, such as organizations and even at the individual level. Why is this? Why are we not good at changing or adapting even if our lives depend on it? In the next chapter I will explore this question through the lens of theories of change.

Chapter 2. Theories of change

“What are the three hardest things in the world to do? 1) Transform the culture you are part of; 2) Transform a meeting or conversation you are in; 3) Transform your own mind?”

— Bill Torbert (2012)

The question of how organisms, which includes individuals, organizations, and society, adapt and transition has been explored for various centuries across multiple disciplines; including but not limited to biology, philosophy, economics, political sciences, sociology, psychology, and system sciences. This section will present a combination of theories of change that I find most useful for understanding the complex nature of change in human systems ranging from individuals to societies. I have not come across any document that summarizes change theories across individual, organizational, and societal scales using multiple disciplinary perspectives, either during literature reviews or through work experience. Some change theories address the range of scales from individual to organizational, like panarchy (Gunderson & Holling, 2002) and socio-technical transitions (Grin, 2010) theories; however, they do this within a disciplinary view. For example, the two theories mentioned above focus heavily on a systems science perspective that overlooks the psychological dimensions of change. The same is true for psychological theories of change, such as ‘immunity to change’ (Kegan & Lahey, 2009), which focus on the individual and group change processes but lack a more systemic, societal view of change dynamics.

Each theory presented below has its strengths and weaknesses, and in the end I do not attempt to propose an integrated change theory. Metaphorically speaking, each theory offers a distinct lens and perspective that can inform what we observe, how we interpret, and ultimately what actions we decide to take to support a change process. My final objective is supporting groups, organizations, and societies to more effectively engage in a change process. With this objective in mind, I think the main contribution of this chapter is foregrounding two key psychological concepts and placing them in the context of organizational and societal change theories. First, this is the concept of psychological loss and the process an individual goes through when coming to terms with a new reality. Second, is the concept of individual developmental orders of mind and the patterns of meaning making structures that are associated with them.

I will present the theories of change starting from a societal scale to an intra-individual view. As I present each theory I will highlight the gaps and begin to fill them in as I progress towards an individual view of change. The concept of loss is described in the section 2.4, which focuses on individual theories of change. And the individual developmental 'orders of mind' is introduced in section 2.6.

Before I begin, a word of caution: underpinning these theories of change are concepts derived from evolutionary biology. An evolutionary biological perspective has limits when applied to social domains and as history has proven can be dangerous if taken too literally, as in the examples of eugenics and the holocaust. These concepts are best used as metaphors that at times can give us insights into a challenge and help us derive new options for intervening, while at other times they will not be of use. In this section I will not explicitly address the methods or processes of change by which individuals and groups facilitate change. This will be addressed in chapter 3 and 5.

2.1 Theories of evolution

The theories of biological evolution can generally be grouped into three camps (Sammut-Bonnici & Wensley, 2002): natural-selection, probability, and complexity theories. Summarizing Sammut-Bonnici and Wensley (2002) , the key points of each of these camps applied to organizations are as follows:

Natural selection:

- *Survival of the fittest*: the organizations that are best fit to their environment will survive. However, the environment can shift quickly because of disruptive technologies, environmental or social shifts. These shifts can make a previously fit organization weak.
- *Diversity*: for novelty to arise there has to be variation or diversity. From a strictly biological perspective, variations in the gene pool happen by chance and trial-and-error, whereas in organizations intent plays a role in defining the scope of where to experiment with novelty.
- *Gradual steady rate of change*: from a natural selection perspective organizational change is gradual and takes time. It is incremental with small changes accumulating over time.

Probability

- *Punctuated equilibrium*: the idea in natural selection of gradual change is contested with a view that change happens in quick spurts over long periods of stability.

- *Historic contingency and stochastic drift*: referring to the probability that future events are determined by previous events, this term is more commonly known as path dependencies.
- *Sources of change*: given that a group is limited by historic contingencies, novelty in a population occurs in isolated pockets that are not influenced by the larger population. The idea is that change can happen faster in a small groups that are isolated from the main group.
- *Dual nature of evolution*: large groups tend to be more stable and discourage change; whereas small isolated groups can rapidly change and bring novelty back to the large group, destabilizing its inertia.

Complexity:

- *Self-organizing systems*: a few simple rules and goals followed by individuals create complex emergent patterns in a group.
- *Continuous adaptation*: a system is seen as always being on the edge of chaos and order. To maintain stability the system is always adapting to the changing environment.
- *Sensitivity to initial conditions*: states that two identical systems starting out in slightly different environments will evolve entirely differently.
- *Non-linear*: cause-consequences are spread out through space and time, which makes it practically impossible to predict how a system will evolve.
- *Increasing returns and lock in*: refers to positive feedback loops that prize early innovators. QWERTY keyboards are a great example of this phenomenon because their design no longer is a good fit yet they continue to be ubiquitous.
- *Emergence of novelty*: implies that the novelty of a system emerges from its predisposition to self-organize.

Out of these distinctions and principles of evolution, many theories of change have emerged to explain individual, organizational, and societal change, which I discuss below.

2.2 Socio-technical transitions

With its beginning in 2005 (Grin, 2010), the socio-technical transitions (STT) theory incorporates many of the above principles with the purpose of explaining historical trajectories of socio-economic

development, as well as deriving practical interventions to help redirect a society into more sustainable pathways.

There are four overarching concepts in STT: co-evolution, multilevel perspective, multiphase, and co-design and learning (Grin, 2010), each of which I will briefly describe below. Co-evolution broadly refers to the interlinked continuous adaptation of social, environmental, and economic systems that influence but are not determined by each other. It can also refer to more specific interactions, such as actor and structure (Giddens, 1984), where individual behaviours and collective structures (i.e., norms, policies and laws) shape one another. The concept of co-evolution draws from many points introduced above, principally the following: 1) stable periods in society are punctuated with periods of rapid change; 2) adaptations are contingent on the past and are normally irreversible; 3) shifting a system is difficult because of lock-ins, such as institutionalization of norms, agreements, laws, and cultures. I agree with Grin (2010) that lock-ins occur because of structural histories of a society. At the same time, we need to look further into why it is difficult to change a societal norm or a law. I would add that changing norms, laws, and cultures requires that some factions in a society are able to accept the loss of something that is dear to them and which is upheld by the norm, law or cultural behaviour that we are trying to change.⁷

Multilevel perspective (MLP) draws from probability theories of evolution to describe the transition dynamics between structural scales of the system. MLP distinguishes three scales of a nested hierarchy: landscape, regime, and niches. Landscape refers to the stable macro systems, such as the environment, globalization, and western culture, that are slowest to change and impose on the lower scales exogenous pressure to conform. Regimes are the meso scale encompassed by the means of production that are embedded in practices, processes, institutions, and infrastructure of social groups and society. Niches are the micro-level where new ideas are incubated and protected from the cultural and market forces of the macro and meso scales. In change initiatives, landscapes are seen as beyond the scope of what one change initiative can affect. Regimes are the main target for change; however, they are dynamically stable and change only incrementally. Both the macro and meso scales are affected by co-

⁷ By faction I refer to a group that has a common understanding of problem definition and solution.

evolutionary dynamics of path dependency and lock-ins. On the other hand, protected niches are the source of radical innovation and novelty that, when correctly scaled up, affect change in the regimes. Similarly to the comments I made in the co-evolutionary view of STT, the multilevel perspective focuses on the brighter side of change and how niche innovations scale up, while not addressing the more internal, hidden dynamics of why the meso and macro scale resists change.

The concept of multiphase is used to describe possible phases or patterns that systems go through in a process of transitions. Though the transitions are non-linear they tend to follow a gradual pattern called the four phased S-curve: pre-development, take-off, acceleration, and stabilization of innovation into the mainstream. This pattern spans one or two generations or a period of 25 to 50 years. STT also draws on socio-ecological theories such as panarchy (Gunderson & Holling, 2002) that describe cross scale linkages (co-evolution) and phases of change. The multiphase concept of transitions seems to derive the pattern of change heavily from the history of technological innovations and less so on the history and patterns of change in social innovations, such as the women's suffrage movement, civil rights movement, the transition out of apartheid, and so forth.

When managing change processes, Kemp et al. (2007) distinguish five key difficulties that need to be addressed. First is 'dissent', which refers to the factions that arise to a given challenge; representing different interpretations and solutions to the problem. Second is the difficulty of 'distributed control', which refers to the reality that, in pluricentric societies, authority is distributed and no central entity exists that can directly control from the top; therefore necessitating cooperation and coordination across multiple organizations. Third is the uncertainty of developing 'short-term' actions that achieve the long term envisioned structural changes. Fourth is the 'danger of lock-in', where the initial development dominates over all later improved options. Finally, they list 'political myopia'; referring to the common mismatch between short-term political cycles and priorities, with long term actions required for socio-technical transitions.

To overcome these difficulties Kemp et al. propose a governance model that can side-step political cycles. This is the final overarching concept of STT, which describes a governance model that works at multiple levels and across stakeholders on a process of co-design and social learning. The governance model aligns three levels of action: a strategic level where vision and problem formulation are carried out; the tactical level where networking, negotiation, and agendas are build; and finally the operational

level that implements projects, experiments with new options, and monitors progress (Kemp et al., 2007).

The strength of STT is in its broad view on change. It provides us with structure and useful distinctions for understanding how long term change and transitions occur in society. Their value notwithstanding, the insights of STT are not enough to help us understand the difficulties of change and why we often fail to achieve the results we desire. STT needs to be complemented by other theories of change to give us more perspectives on the dynamics of change. The strength and weakness of STT is in its 'outside-in' focus. This is not to say that they emphasize top-down approaches to change, it just means that its strength is its ability to frame the challenges of regime transition from a broad structural and temporal perspective, and the weakness of this approach will become apparent as I introduce other perspective on how change happens. The organizational theories of change that I describe below have a 'middle view' focus: their unit of analysis is the organization, which spans from small and medium groups to large corporations and governmental agencies. From an STT viewpoint these are the agents that make up both niches and regimes. Lastly, I will present individual theories of change that have an 'inside-out' focus; where the unit of analysis is mainly the individual, and both the external behaviours and internal processes are reviewed.

2.3 Organizational theories of change

First of all it is useful to introduce the distinction made by Argyris (1999) between two different types of change in organizations. First order change, which requires single-loop learning, seeks to improve or alter current methods and practices while retaining existing norms and structures. In contrast, second-order change, which requires double-loop learning, is disruptive and seeks to reformulate norms and structures to enable innovative solutions. The study of *organizational development* focuses on first order change; for example, total quality management or re-engineering approaches. In contrast, the study of *organizational change* focuses on second-order change.

With regards to theories of organizational change, Kurt Lewin (1952) is arguably the forefather of many of today's more refined theories of organizational change. His planned approach to change interweaves four elements:

1. Field theory: the current patterns of individual behaviour are shaped by the group environment and structure. The group environment is a complex field of symbolic

- interactions between all members of the group. The group structure is the implicit and explicit norms and policies that an individual must conform to in order to be part of the group. Lewin's work is pre-Giddens theory of structuration (Giddens, 1984), yet it has a lot in common with the polarity described by Giddens between agents and structures.
2. Group dynamics: aims to understand how the forces of field theory actually shape group behaviour. It explores how factors such as roles, group norms, theories-in-use, and socialization processes impact what we are trying to change. Lewin proposes that the focus of change should be the group dynamics and not individual behaviour.
 3. Action research: is the planned approach to change composed of continuous cycles of planning, action, and reflection with the aim of learning from what worked and what did not. In essence: one cannot understand the organizational dynamics that we want to change without intervening, and learning as from what worked and what did not.
 4. Three-step model of change: a successful change initiative involves unfreezing, moving, and re-freezing. This process aims to first destabilize (unfreeze) the equilibrium in the field, which creates the space for learning and novelty (moving) that lead to new fields, which then have to be stabilized (re-freezing).

In essence, his planned approach to change stated that, on the assumption that the group field strongly shapes individual behaviour, interventions to create change should focus not on individual behaviour but on the group dynamics that give rise to the behaviour. Lewin argued that the individual is constrained by the group pressure to conform. Change is accomplished by democratically working with a group to focus on learning from the groups dynamics and intervening in ways that create dissonance in the group. This creates an opportunity for the actors to engage, reflect, and learn about the fields that have a hold on them and constrict their behaviours, so that they can purposefully decide on and create new roles, norms, policies, and so forth; thereby giving rise to new group behaviours.

Creating productive dissonance in a group is easier said than done. Argyris (1993) argues that change in organizations is difficult because of organizational defensive routines, which he defines as "any [organizational] policy or [individual] action that inhibits individuals, groups, intergroups, and organizations from experiencing embarrassment or threat and, at the same time, prevents the actors from identifying and reducing the causes of the embarrassment or threat. Organizational defensive routines are anti-learning and over-protective" (Argyris, 1993, Chapter 1). An intervention that creates

dissonance in a group or individual is generally experienced as threatening, which triggers the defensive cycle. Argyris' arguments are supported by some neuroscientific studies. Gordon (2000) has found that social behaviour is primarily shaped by a principal of 'minimizing danger and maximizing reward'. Lieberman & Eisenberg (2009) have discovered that the same brain networks are activated by a social experience of 'minimizing danger and maximizing reward' as are from primal physical survival needs. We will explore this further in the next section.

Since Lewin, the field of organizational change has been highly influenced by multiple theories of biological evolution. Some commentators, such as Kanter et al. (1992) argue Lewin's model is linear, outdated, and inappropriate for today's fast paced world, while others (Burnes, 2004; MacIntosh & MacLean, 2001) find similarities between evolutionary theories and Lewin's planned model of change. Burnes (2004) directly compares Lewin's model with complexity theories and finds at least three synergies between them. First, Lewin's emphasis on democracy in his planned approach to change has similarities to the emphasis of evolutionary theories on participation enabling self-organization and continuous adaptation. Second, Lewin's distinctions of the polarity between individuals and groups echoes the dual nature of evolution, where change lies in small protected groups that can generate novelty within the stabilizing pressures of the larger collective. Lastly, there are many similarities between Lewin's concepts of roles and rules that shape group dynamics with evolutionary concepts of simple rules that spontaneously give rise to self-organizing systems. Kanter's (1992) critique that Lewin's linear and static approach treats "organization as ice cube" (p. 10) is in my opinion more a condition of the intervenor than the theory itself. As O'Brien states "The success of an intervention depends on the interior condition of the intervenor" (quoted in Scharmer, 2009, p. 7), and is less a fault of any shortcomings in Lewin's approach.

Where Lewin's planned approach to change falls short is in overemphasizing the group dynamics as the main focus of an organizational change intervention. I would suggest that focusing on the polarity individual-group (Johnson, 1992) is more useful: at times the focus will be the group, other times the individual, and sometimes the space in between. Argyris (1993) argues that effective organizational interventions are those that alter both individual defensive reasoning and the organizational defensive norms. This leads us into individual theories of change, where the unit of analysis is on the individual within the context of the group.

2.4 Group / individual / interpersonal change theory

Zaffron and Logan (2009) provide three useful distinctions, they call them three laws, for bridging the space between individual and group change. The first law states 'how people perform correlates to how situations occur to them'. This law personalizes the evolutionary notion that rules guide our actions and behaviour. How we give meaning to a situation is shaped by our past, and our meaning-making structures condition our actions. In other words, our actions are coherent with how we experience a situation. The authors argue that we are not able to easily change because we live into a future that is crafted by the past, which they term the 'default future'.

Zaffron and Logan's second rule states that 'how a situation occurs arises in language'. The way that a situation occurs is a complex phenomenon that is constructed in language and shows up as a mix of conscious and unconscious narrative that 'has' the individual (Kegan & Lahey, 2009). At the same time, it is through the skillful use of language and the distinctions that language permits that we are able to leverage a shift in how situations occur for us. For example, Kegan and Lahey (2009) argue that we all have 'hidden commitments' that are basically rules that shape and condition our individual and collective lives. These hidden commitments are by definition unconscious, and using Kegan and Lahey's language they are *subject* to our experience and undistinguished; we cannot see them. As long as they remain *subject* they are the authors of our lives, the rules by which we unconsciously behave. It is through the process of making that which is *subject* an *object* that we can actively reflect and have agency and choice over our commitments (Kegan & Lahey, 2009). Zaffron and Logan make a similar analogy, saying that we are 'at the effect' of that which is undistinguished. Linguistic distinctions such as *hidden commitments* are the tools that we have at our disposal to scaffold individuals' and groups' abilities in the process of making that which is undistinguished and rules us, into that which we can distinguish and have agency over.

The third rule states that 'future based language transforms how situations occur to people'. For change initiatives to succeed the minimum that needs to be altered is how the situation occurs to people. If the future occurs as more of the same, people will unconsciously be ruled by this and their actions will naturally give rise to the default future that is a projection of the past. Zaffron and Logan ascertain that "before anything [new] is to be created, there has to be a space of nothingness" (p. 74). The default future needs to be transformed into a blank canvas. They describe a three step process to accomplish this. First, realizing that we are conditioned not by facts, but by language. Second, surfacing and

articulating the default future that currently authors one's actions. Third, making peace with the default future by completing issues from the past. Issues are those things which are unwanted but persist, such as regrets, resentments, and negative feelings about a person or a past situation.

Zaffron and Logan skim the surface of two difficulties to accomplish this process. First, to transition from a default future to a blank canvas requires an ability to make *object* that which is *subject* (Kegan & Lahey, 2009). Kegan has thoroughly explored adults' abilities to shift a narrative that is *subject* to us and hence authors our life, to one that is *object* and which we are able to author. We will explore this ability further in the next section. Second, to transition from one narrative to another we need to be able to make peace with the current narrative, what Zaffron and Logan call 'give closure'. This is likely a threatening process for two reasons: we might have to face aspects of ourselves that we do not like; and we might have to let go of something we cherish. What we cherish can be a set of behaviours and beliefs that protect us from facing the aspects of ourselves that we don't like. In general, this is a process of experiencing loss and re-fashioning loyalties. Our narratives shape our identity and what we value. They are made up by a web of loyalties to ideas, beliefs, and people. Making peace requires an ending; these are losses that we must be willing to undergo before we can relinquish the old narrative and create space for the new one. In the toughest of challenges these loyalties are deep and go back many generations. Think of Israel and Palestine: the ingrained identities of a people, and the promises made to their fathers, grandfathers, and forefathers that they will not give up their land. These loyalties are not only to their own people, but there are also deep loyalties to the idea of mistrust, passed on from generation to generation in stories of wrongs done by the other.

The cycle individuals go through when experiencing loss and crisis has been thoroughly studied (Fink, 1967; Kübler-Ross, 1969): shock, defensive retreat, acknowledgement, and adaptation and change. Similar cycles have been found true for people undergoing more general change and transitions (Adams, 1976; Argyris, 1993). Going from what Argyris calls single-loop to double-loop learning seems to require going through a process of loss (D. Fisher, Rooke, & Torbert, 2001). This is a process where one comes to terms with an unproductive way of being (theory-in-use) and is able to then start to reconstruct one that is more capable of double-loop learning.

Bridges (1980) extends the concept from individual change to organizational change. He makes the crucial distinction between change, which is external, and transition, which is internal, saying that "unless transition occurs, change will not work" (p. 4). I agree with Bridges, and believe that why we fail

so often is because we mainly focus on the external aspects of change. I suspect that we overlook the internal processes of transitions because they require us to enter into uncomfortable territory. Few individuals are skilled at navigating the terrain of working through individual and collective losses required to transition into new narratives that will give life to the changes desired. At its essence, the ability to mobilize change in tough situations requires renegotiating loyalties and supporting people through an experience of loss (Bridges, 2009; Heifetz, 2002).

Heifetz (1994) makes an important point that not all change is difficult — think of winning the lottery or being promoted in your job. He distinguishes between those problems that are technical in nature, for which we have the knowledge and skills to solve, and those that are adaptive challenges; which require something new from us. Using Bridges' distinctions we can say that technical problems are those that require external change, but no internal transitions, whereas adaptive challenges require internal transitions. By no means are technical problems free from the risk of failure, but the corrective actions that are needed do not typically require internal transitions from the individuals involved.

2.5 Individual / intrapersonal change

Kegan (2009) distinguishes between two types of learning: informational learning and transformational learning. Informational learning aims at expanding an individual's knowledge, whereas transformational learning seeks to transform the meaning-making structure that gives rise to the knowledge. In other words, informational learning brings new content into an existing meaning-making structure, whereas transformational learning modifies the structure that gives meaning to the content. For Kegan (1994), transformational learning is when someone changes, "not just the way he behaves, not just the way he feels, but the way he knows— not just what he knows but the *way* he knows" (p. 17). Wilber (1983) uses the analogy of a building to make this distinction. He calls 'surface features' the furniture on the floor, whereas 'deep structures' are the floors in a building. Changing or reorganizing the furniture relates to skills, behaviours, beliefs, and values that are altered in a change process. On the other hand, the type of change that shifts the floor from which we are viewing (more precisely: constructing) reality creates an epistemological shift in our meaning-making structures; making them more complex than the previous ones.

There are many theories that explore how transformative learning happens (Maslow, 1968; Mezirow, 1991; Perry, 1999). I will draw mainly on the constructive developmental theory literature (i.e., the work

of J. Piaget, L. Kohlberg, W. Perry, J. Loevinger, and S. Cook-Greuter), and especially Kegan's (1994) Subject-Object theory to briefly describe this process. The reasons for relying mainly on Kegan's work are multiple: (1) it is grounded in both practice and theory; (2) Kegan and his associates continue to develop, test, and expand their work; (3) the psychological theory relates to the sociological dynamics; more precisely, the demands that individuals need to meet as functioning citizens in a society; (4) it elegantly explains gaps of why some individuals are more successful than others at meeting similar life demands; (5) the theory does not conflate the content of our experience (e.g., behaviours, beliefs, values) with the underlying meaning-making structures (for example Graves' (Beck & Cowan, 2006) work interweaves values with development).

Constructive developmental theory is 'constructive' in reference to how individuals construct meaning and make interpretations out of an experience. It is 'developmental' in reference to the study of how these constructs become more complex over time. The theory assumes a process in which qualitatively different and more complex meaning systems develop in response to the daily demands placed upon an individual. Each meaning system includes and transcends the previous one, becoming more able to differentiate and integrate more aspects of a person's experience.

Kegan defines the process of transformative learning as moving that which is *subject* to *object*. Elements that are *subject* to a person's experience are by definition embedded and fused to a person in such a way that they cannot see it because it is a part of them. These elements can be behaviours, emotions, assumption of the world, and values; all of which are either taken for truths or not considered at all because they are one with the person. On the other hand, elements that are *object* to a person can be looked at, reflected upon, and acted upon. When something is *subject* to you it *has* you; when it is *object* you *have* it. The process of transformational learning is moving more and more elements from *subject* to *object*. The more elements that are *object* to a person, the more complex ways in which they are able to construct reality because there is more of their experience they can see, take responsibility for, and act upon.

The actual process of how individuals move what is *subject* to *object*, and mature and develop is not precisely clear; and given the complexity of human development, it might never be. Most researchers on the subject suggest a combination of challenge and support to encourage the process of development (Kegan, 1994; Mezirow, 1991). This process is exemplified by how children develop from babies to adults. The environment places pressure on the child to grow, be it for survival or to meet societal

demands, while at the same time it receives support from others, such as caregivers and teachers. An important point that constructive developmental theories make is that human development does not end in adulthood. In fact, many stages are recognized that a mature adult can be constructing meaning from. It is hard to grasp the full extent of human potential when we tend to get stuck on a plateau that, as a society, we have come to assume is the apex of human development.

To describe the process of change, Kegan, in his later work (Kegan & Lahey, 2009), uses the medical metaphor of an immune system. The immune system is a psychological phenomenon that we all have developed over the years to help us cope and survive. It consists of the theories-in-use that Argyris (1993) describes, which principally develop when we are children and adolescents. It protects us from experiencing negative emotions of embarrassment, shame, incompetence, anxiety, and fear. This immune system generally becomes a source of strength for an individual, by giving them the resilience to thrive in difficult environments. However, as Argyris has thoroughly explored, at times the automatic theories-in-use can limit our ability to learn and adapt. When we probe this system to change some of the dysfunctions, we find that it also has an 'immunity to change'. These theories-in-use that we operate from are generally unconscious and have a set of behaviours, beliefs, and assumptions that reinforce their use.

As a simple example, and without going into too much detail on the immunity to change methodology (Kegan & Lahey, 2009), we could think of an individual who is trying to change his behaviour to drive his car less. The immunity to change process would invite the individual to make a list of all the actions that he is doing or not doing that works against his stated goal of driving less. Through a series of steps the individual would discover a set of hidden competing commitments that get in the way of successfully changing his behaviour. This individual might discover that he has a commitment to appearing professional, and tied to this commitment is a belief or assumption that taking the bus to a meeting looks unprofessional. Unless the individual can explore and release the assumption that taking the bus appears as unprofessional he is not likely to change his behaviour of driving less given that he is committed to appearing professional.

Kegan and Lahey (2010) describe the following process that we go through to overturn a given immune system. At first the immune system is unconscious to us, we are captive to it, and it is *subject* to us. Using the example above, the individual could have been blind to the fact that he was committed to appearing professional and/or that that he held the assumption that taking the bus appears

unprofessional. At some point through the process of change this immune system becomes conscious to us, it still has a hold on us, but we have moved it from *subject* to *object*. Kegan utilizes a structure reflective process to accomplish this (the above example is a simple illustration of the process); others (Mezirow, 1991; K. Taylor, Marienau, & Fiddler, 2000) also rely on a reflective process to help us question what has a hold on us. However, this initial movement from *subject* to *object* can happen spontaneously; it can be self-created though intentionally seeking a challenging environment (e.g., psychotherapy, new job, going to school); or it can imposed on us by sudden changes in the environment (e.g., the death of a loved one, the birth of a child, prolonged illness) that create an ‘aha’ moment. Once we are able to see the part of the immune system that generates the automatic response, the next step is to purposefully work on releasing the immunity; here normally is where a supportive environment is useful. Once we have consciously released the immunity we still have to consciously work to not fall back on previous patterns. However, over time it becomes unconsciously released, where we no longer need to consciously think about our behaviours and choose. Regarding time, Kegan suggest that once we have taken the first step of going from the unconscious immunity to the conscious immunity, we can be consciously released from the immunity within a matter of months; provided we have the right support. However, the process of becoming unconsciously released takes longer.

As we move more elements from *subject* to *object*, Kegan describes successively more complex ways that we can develop for making sense out of our experience. Following the tradition of Piaget, he maps out this process into stages of development or a series of ‘orders of mind’. It is important to clarify that his theory describes how our meaning-making structure evolves and not the content that can be included in the structure. The content can be behaviours, beliefs, and values; these are present in all orders of mind, and what changes is *how* we relate to them more so than *what* they are.

2.6 Orders of mind

In this chapter we are exploring theories of change in social systems. We started at a large systemic scale and have worked down to the individual scale. In this section I introduce five individual meaning-making structures (four are present in adulthood; See Kegan and Lahey (2010) for an expanded overview) and briefly discuss some implications of the last four orders of mind for social change processes. The five orders of mind that Kegan distinguishes are:

- 1st order: Impulsive mind
- 2nd order: Self-sovereign mind
- 3rd order: Socialized mind
- 4th order: Self-authoring mind
- 5th order: Self-transformational mind

The first order of mind is mainly seen in young children who cannot yet hold the idea of durable categories or objects, which refers to the idea that things retain the same qualities over time. At this order an individual needs to be reminded of the rules over and over, as they cannot hold a given idea or concept in their minds for a long period of time.

The 2nd order, self-sovereign mind, is most commonly seen in teenagers, however about 3-15% of the adult population construct reality from this order of mind.⁸ From a self-sovereign order of mind the world is generally seen in black and white dichotomies (good and bad, us and them). The notion of empathy seems foreign because, from this order of mind, we cannot bridge the distance between our own minds and the minds of others. In a social context we appear as self-centred and egoistic, as we are mainly driven to meet our own goals with little concern for the impact on others. However, we are aware that people perceive us in different ways and have wants different from our own. At this stage, we see others as either barriers or helpers to meet our wants, and can be perceived as manipulative as we interact with others with the main purpose of getting what we want. When faced with complex challenges we make use of simple global distinctions and tend to make dichotomous decisions, because we have little access to seeing subtleties in ourselves, others, and the challenge we are facing.

Individuals functioning mainly from a 3rd order, socialized mind, have the ability to think abstractly about a problem, be self-reflective about their own feelings and actions, and are able to see the complexities of a challenge. However, from this order of mind we tend to rely on exterior pre-established beliefs, theories, and/or perspectives that we have internalized as our own. In a sense, the

⁸ The percentages mentioned in this section, here and below, are drawn from Cook-Greuter (2004) and Kegan (1994).

authority for decision making lies outside of us, the individual, and is located in the norms, beliefs, and theories of the group/culture we trust. All of these live as an unconscious narrative that guides us through our lives. In a decision making context, when presented with an option that contradicts what we believe to be true or right, we will not support it; independent of the facts, arguments or the merits of the option. From this order of mind we struggle when there are conflicting viewpoints coming from those whom we trust (individuals, theories, so forth) and whom we rely on to aid us in making decisions. In these cases we are 'in over our heads' having no mechanism to aid us in making a decision. About 55-66% of the adult population is estimated to construct reality from this order of mind.

In change processes there are two important limitations to functioning from a socialized order of mind. First, other perspectives are heavily filtered through the internalized narratives of the socialized mind. The validity of other perspectives and facts depends on how far they are from the narratives the socialized mind takes for true and right. From this order of mind one is immune to other perspectives and facts that do not support the already internalized narratives. Second, from this order of mind one is not able to see that one has the option to shape the narrative that runs our lives. Small shifts in the narrative from which one makes sense and acts are possible as long as it is congruent with the existing narrative. As the new narratives become less congruent it will require that the individual sees that they have some authority over the narrative that shapes them and their actions. In these cases it will require that individuals grow to a more complex order of mind.

When we grow to a 4th order, self-authoring mind, we retain and expand on the previous mental structures by taking distance from the socializing pressures that abound in society. We are able to see the claims made on us, in the form of expectations and judgements of how we should behave and see the world, and therefore make our own distinctions and decisions of what we think is best. We are able to do this because we become able to self-generate our own values, thoughts, and feelings, independent of the expectations placed on us in different contexts. In contrast, from a 3rd order perspective we were self-conscious of these values and ideas but less able to author them ourselves; we integrated them from the group we identify with and trust.

In a decision making context, self-authoring individuals have the ability to behold different perspectives on an issue and make decisions that are informed by these different perspectives, while still informed by their own thoughts and values; not necessarily by those from the group. The limitations of this order of mind become apparent when a change context requires that one genuinely questions one's own ideas

and values and see their limitations; for example in cross-cultural or cross-disciplinary contexts. Studies estimate that about 16-40% of adult population constructs reality from this order of mind.

From a 5th order, self-transforming mind, one becomes able to see the larger biological and historical, as well as particular social and psychological forces that have shaped who we have become today. We see how 'my' identity is a product of these particular forces, unique to each one of us. Individuals are able to identify the 'other' in themselves even if the other is foreign to our experience; we can imagine us being them if we had gone through the same experiences and context. From this order one starts seeing the inevitable paradox of what before were dichotomies or polarities. At this order of mind it is more common for individuals to realize how strongly language, in all its forms, conditions our everyday experience. We are bound to the historical development and adaptations of the particular language/s we use. We might be free of this bondage in contemplative or meditative states, but even so, each time we articulate our experience it is shaped and limited by the languages we use.

The ability to construct reality from a self-transforming mind can be a double-edged sword. Given that at this order of mind we can see more interdependencies, multiple framings, and paradoxes, we can easily be paralysed when needing to make decisions. Individuals at this order of mind may want to add more complexity into the diagnostics than is practical, or hesitate to take action because of the many uncertainties that they are able to fathom. Less than 2% of the adult population is thought to function from this order of mind.

The influence of orders of mind on our ability to re-shape our narratives

As the complexity of our thinking increases, this increases what we can see and in that sense more things are *object* to us. However, this does not mean that it becomes easier for us to shift the narrative from which we are operating. Though individuals at higher stages are able to make more of their experience *object* and therefore reflect on it, they can also develop more nuanced mechanisms to protect the narratives that inform them ('immunity to change'). As we have discussed before, the process of transitioning from one narrative to another subjugates us to varying degrees of anxiety, loss, uncertainty, and overall emotional upheaval. The order of mind we are constructing from does not necessarily make the transition any easier.

Orders of mind, decision making and participatory processes

When most people think about a mature adult they imagine someone who constructs reality from a 4th order of mind. One could argue that a participatory process, be it to make a decision or engage in a process of change, requires people who are able to deliberate rationally and make choices that are based on externally agreeable criteria. This is in contrast to “collapsing to sameness”, or “group-think”, which is common from individuals mainly operating from a 3rd order mind (Kegan & Lahey, 2009, p. 18).

Knowing that more than half the adult population (Kegan & Lahey, 2009, p. 27) mainly functions from a 2nd or 3rd order of mind, it is important to consider first the quality of the participatory decisions that we are making, and secondly how we can create decision making processes that support individuals so they have more ability to engage in rational deliberation and decision making. Long term participatory decision processes, if structured well, can act as a scaffolding process to help individuals engage in a more complex order of mind by modelling the process of making *object* that which is mainly *subject*. This is in contrast with, for example, one-off open house events; which are likely to mainly elicit opinions that are influenced by group-think.

An example of scaffolding in a planning context to support individuals making meaning from 2nd and 3rd order is the Structured Decision Making (SDM) process (Gregory et al., 2012). SDM guides a group through a process of distinguishing values from facts, thinking critically of the impact of the facts on the options being explored, and finally exploring how value preferences might change the decision taken. SDM is rigorous in differentiating between values and facts, and provides ample opportunities for individuals to talk and learn together about the values basis and facts basis of their choices. For a 2nd order, self-sovereign mind, talking about values and facts will likely seem foreign, and individuals will likely struggle in naming their values as they are still *subject* to them. However, participating in such a process would allow these individuals to witness others who do have a higher reflective capacity, and if the facilitator is skilful she can coach individuals to connect the dots together from the participants’ concerns and help them to start seeing the values they hold.

Individuals constructing reality mainly from a 3rd order, socialized mind, are likely to be aware of the values they hold, but not likely to have explored or reflected on these as they have adopted them from their socialized group. In an SDM process, as the values are disaggregated and discussed in a facilitated group setting, individuals can start taking perspective on them, as well as witnessing some values that

contradict theirs; and if the process is facilitated well, the emotional charge that comes with defending values will not be as present, which invites individuals to engage and ponder values that are foreign to them. In this sense the SDM process provides scaffolding for individuals constructing meaning from a 2nd and 3rd order, which can support them to grow into a 4th order, self-authoring mind, where the individual is able to reflect on contradicting values and then choose or self-generate the values that matter to them.

SDM processes are not informed by developmental psychology, but I believe an SDM approach would benefit greatly from incorporating the ideas related to adult human development outlined in this section. This would ensure a better understanding of why some individuals struggle and resist the process of value elicitation and especially value prioritization, so that better scaffolding methods can be developed to support individuals in the process of differentiation. For the same reason, it would also be beneficial to include a process in SDM by which to surface the losses that factions will have to work through given the different strategies selected.

Ethical concerns

I want to be very clear here that higher orders of mind do not equate with ‘better’ in a moral sense, they simply describe more complex ways of constructing reality. The access to additional complexity can bring great benefit to individuals by enabling them to hold many perspectives on reality; to function in the face of the many paradoxes of a change initiative; and to take the heat and stand steady in conflict, because they can see that what is being attacked is the role they are playing and not necessarily the person. At the same time, more complexity can allow the individual to more easily self-delude by always finding the way around a criticism. Even worse, by having expanded access to multiple perspectives an individual can more easily become a large scale demagogue; by more easily seeing and talking to peoples’ hungers and longings, manipulating them for self-purpose.

2.7 Barriers to change

Kegan and Lahey (2009, Chapter 11) extend the metaphors and tools of the ‘immunity to change’ framework to the group and organizational level. They find that similar self-protective and competing commitments exist at a collective level, limiting groups in their ability to adapt and learn. Argyris calls these ‘defensive routines’, which follow a pattern of four actions: “[1] communicate inconsistent messages, [2] act as if the messages are not inconsistent, [3] make the previous actions undiscussable,

and [4] make the undiscussability undiscussable” (Argyris, 1993, Chapter 1). This creates a reality where organizations are not able to discuss risky and threatening issues, again hindering their ability to learn and adapt.

To better understand this dynamic, Bion (1961) argues that the primary task of any group is what it must do to survive. This gives rise to two realities of group life: one is the ‘*work group*’ where members consciously pursue an agreed upon goal; the other is the ‘*basic assumption group*’ that combines all the hidden agendas, fantasies, fears, and impulses of group members. The *work group* is focused outwardly, whereas the *basic assumption group* is focused inwardly, and comprises the irrational, emotional life of a group. It is the *basic assumption group* that normally hinders the ability of the group to do the *group work*.

The specific behaviours, norms, and patterns that arise out of the *basic assumption group* are varied. Heifetz (2011) has categorized defensive patterns into two overarching categories, which he terms ‘work avoidance mechanisms’. The first category are actions and norms that displace responsibility from those that need to do the work. When we displace responsibility we normally revert to one of four work avoidance mechanisms: externalize the enemy, attack authority, scapegoat, and kill the messenger. The second category are actions and norms that distract attention from the difficult work. When we distract attention we normally do so by using deflection/denial, providing fake remedies, and/or creating sterile conflict. These actions are identifiable at both the individual and collective levels.

Argyris argues that to make progress on these barriers one needs to help individuals and organizations move from a place where these patterns are undiscussable, or even unconscious, to one where they are able to see them and take corrective action at both the individual and organizational level to alter the theories-in-use and the norms that support the defensive reasoning and routines. Kegan’s ‘immunity to change’ process is one possible reflective method that assists, or scaffolds, both individuals and groups in making that which *is subject* into *object*. Once it is *object* we can reflect on it, take responsibility, and take corrective actions.

2.8 Concluding remarks

Why do we fail so often? Why do so many issues that we care about seem to be stuck in a rut that is beyond the most well intentioned efforts to improve it?

One reason is that we continue to believe that knowledge creates changes in behaviour (Pfeffer & Sutton, 2000), whereas we are much more conditioned than we realize. Forms of such conditioning vary from the macro processes of path dependencies and non-linearity to our over-reliance on rationality, which blinds us to the interior and mainly unconscious life of groups and organizations. Most change processes are oblivious to the irrational, the projecting and splitting, the dependency and counter dependency, to the experience of loss, and ultimately fear that exists in the shadows of individuals and groups.

This dissertation will draw from these distinctions and principles throughout. Here I would like to underline two points. First and foremost is the humbling reality that, to effect planned change in social systems, we must move a long way from the still common assumption that we can create change by means of a rational, top-down, command-and-control, plan-act-monitor approach. The reality of deep change is often long term and in some ways unmanageable, involving a synergy between top-down planning and actions with bottom-up self-organizing behaviours. Second, over the decades we have developed many maps of the process of individual and social change. However, as anyone who has used a map to navigate knows, the path 'on the ground' is often unclear, requiring that we constantly look at the terrain with fresh eyes, seeking cairns along the messy and mysterious journey of change.

Chapter 3. Worldviews, sustainability and change challenges

Sustainability is a far reaching term that cuts across many disciplines. This has both benefits and drawbacks. One of the primary drawbacks is that, because the term *sustainability* is so broad and vague, it can be and is used to characterize almost any type of problem. This is not without reason, given that many problems that we currently face integrate some environmental, societal, and/or economic sustainability components. This chapter begins by outlining how different worldviews construct meaning regarding sustainability, specifically; *why* we are facing these problems, *what* to do about them, and the challenges these differences in worldviews create in the world of practice. The second section introduces a simple framework that helps diagnose four different procedural types of sustainability challenges with the purpose of helping a practitioner reflect on what methods and processes might be more conducive for successfully mobilizing change. The chapter concludes with ten recommendations of practice for mobilizing change in the context of difficult sustainability challenges.

3.1 Worldviews and sustainability

The field of sustainability studies is vast and continues to grow exponentially as we strive to understand and provide recommendations to address the myriad of challenges that we collectively face. In the sustainability literature one can find a multitude of diverging, even conflicting, points of view of *why* we are facing these challenges, and *what* are the best practices and actions to address them. These different points of view on sustainability can be categorized according to worldviews (Clapp & Dauvergne, 2005; Colby, 1991; Dryzek, 2005) and meaning making structures (Gonzalez, 2007; Marrewijk & Werre, 2003). Using Clapp and Dauvergne's (2005) worldview distinctions, Table 3-1 provides a brief overview of how differently these two questions are answered according to four worldviews.

Table 3-1. Worldviews and sustainability – adapted from Clapp and Dauvergne (2005)

	Market liberals	Institutionalists	Bioenvironmentalists	Social greens
WHY do we have these problems?	<p>Poverty and weak economic growth.</p> <p>Market failures and poor government policy (i.e. market distortions)</p>	<p>Weak institutions</p> <p>Inadequate global cooperation</p> <p>Perverse effects of state sovereignty</p>	<p>Human instinct to overfill ecological space (i.e. overpopulation)</p> <p>Excessive economic growth</p> <p>Overconsumption</p>	<p>Large-scale industrial life (global capitalism and corporations)</p> <p>Exploitation of labour, women, indigenous people, the poor and the environment</p> <p>Unequal patterns of consumption</p>
WHAT should we do?	<p>Promote economic growth</p> <p>Improve efficiency and globalization</p> <p>Correct market and policy failures</p> <p>Utilize market incentives to encourage sustainability practices</p> <p>Promote voluntary corporate greening</p>	<p>Harness globalization</p> <p>Promote strong global institutions, norms, and regimes that manage global environment</p> <p>Build state capacity</p> <p>Employ precautionary principle</p>	<p>Create a new global economy within limits to growth</p> <p>Limit population growth and reduce consumption</p> <p>Internalize the value of nonhuman life into institutions and policies</p> <p>Agree to collective coercion to control greed, exploitation, and reproductions</p>	<p>Reject industrialism (an/or capitalism)</p> <p>Reverse economic globalization</p> <p>Restore local community autonomy</p> <p>Empower marginalized voices</p> <p>Promote ecological justice</p> <p>Promote indigenous knowledge systems</p>

The four worldviews are simplified meta-narratives that undoubtedly will fail to include, or over-simplify alternate perspectives on sustainability. To some degree these organizing categories are arbitrary. I could have used Colby's (1991), Dryzek's (2005) or many other meta-frameworks (Edwards, 2010). What is important is that the field of sustainability is entangled in a web of values and beliefs (Thompson & Rayner, 1998b). This is not surprising given that the field of study to a large degree is about human behaviour, and the multiplicities of worldviews have ardent academics, policymakers, and activists supporting their particular framing of the problem. Each worldview also has its critics, because the framing and solutions between worldviews generally contradict each other. Therefore, if we seek

universal solutions it seems that we are destined to end up with irresolvable paradoxes and contradictions (Thompson, Rayner, & Ney, 1998). For example, to address our sustainability challenges, market liberals call for expanded markets and increased 'green' economic growth (Ekins, 1999); whereas bioenvironmentalists strongly argue for a no growth, steady state economy (Jackson, 2009) that internalizes all externalities (Barnes, 2006); while social greens call for the abolition of capitalism and its replacement with a solidary economy (Eisler, 2008; W. Fisher & Ponniah, 2003). Given these contradicting options, what should we do?

The focus of this dissertation is not to argue in favour of one approach over another in search of one solution, as I agree with Hulme (2009) that doing so would be dogmatic (p. 365). In my experience, we rarely realize how blinded by values and beliefs we are as we argue for how we should move forward, instead of suspending our knowing-mind and working in the here-and-now with what is possible in a given context. Thompson et al. (1998) speak poignantly to this point:

To impose a single definition of what the problem is, which is what so much of policy analysis and science-for-public-policy does, is to exclude all those who happen not to share that particular way of framing things. Since people are unlikely to support a policy that is aimed at solving what they do not see to be the problem, approaches that insist on singularity... will inevitably be low on consent, surprise-prone, unreflexive, brittle and undemocratic. (p. 330)

I cannot agree more with Dreyfus's (1986), Bourdieu's (1990), and Flyvbjerg's (2001) pleas that in social science we need to go beyond theory and ground our work in practice and in context. It is not that different framings and suggested solutions are useless, but they need to be situated in a particular context to become meaningful.

For example, the case study in chapter 4 is based in Costa Rica, which has a long history of employing policies of payment for ecosystems services (PES) (Sánchez-Azofeifa, Pfaff, Robalino, & Boomhower, 2007). Simply stated, PES are economic instruments for internalizing the cost of what are considered externalities of the market (Gómez-Baggethun et al., 2010). Introducing PES into a market economy has largely been the work of bioenvironmentalists, who argue for internalizing the value of environmental externalities into the market economy as an effective means for addressing many of our environmental challenges (Costanza, Cumberland, Daly, Goodland, & Norgaard, 1997; Farber, Costanza, & Wilson, 2002; Farley & Costanza, 2010). In many cases I agree with the PES approach for addressing environmental externalities, but in the Costa Rica case study I conclude that for the context of the case study a PES approach is likely to be counter-productive to the goal of sustainability; and I argue that

keeping the current market liberals' approach in addition to further supporting the agricultural extension office (an institutionalist approach) is the best way forward in that context.

However, in a different context I might disagree with the market liberals' approach. For example, in Chile all water rights are private; meaning that ownership of the land does not imply ownership of the water flowing through the land (Orrego, 2012). In theory, I can see many reasons why applying such a market approach to a limited resource as water is a good idea. However, in practice this has not been the case, as there have been many flaws in implementing the market approach; leading to an unjust system of water access (Bauer, 1998). What is the best way forward in this context? Does Chile need to reform its market liberal approach to water access, or make the resource public and let the government decide how to distribute it (i.e. quotas), or maybe another approach needs to be taken? I do not know the answer, and I am sceptical of those who claim they know and propose theoretically sound solutions, as they generally lead to elegant failures (Verweij & Thompson, 2011) in addressing the wicked (Rittel & Webber, 1973) problems that we face. To address these water challenges a region in Chile is currently exploring options through a multi-stakeholder process.⁹ As I discuss below, (section 3.3) processes like those being used in Chile tackle the challenge from a place of practice, building from the experience and knowledge of the people facing the problem.

Bourdieu's (1990) phrase "practice has a logic which is not that of the logician" (p. 86) captures the paradoxical challenges of practice. The best thought out plans and solutions often fail at making any substantial on-the-ground change, as I have discussed in chapter 1. The natural tendency to gravitate towards solutions is actually part of the challenge. On this point, Flyvbjerg (2001) contrasts Habermas's universal formulas with Foucault's non-action orientation, because "[universal] 'solutions' of this type are themselves part of the problem." (p. 103)

As stated in the introduction, the focus of this dissertation is on the procedural aspect of sustainability; (Robinson, 2004) which focuses on better understanding the process of change in groups, organizations, and society, as well as the leadership required to mobilize change. I believe that the questions of what

⁹ For more information on the project see ecoadapt.eu

specifically needs to change, and what direction solutions should take, are best left to be addressed by the study and practice of particular problems in particular contexts. This includes many of the so-called 'global' sustainability challenges that we face. Unfortunately, the dominant sustainability discourse is a battleground of universal ideas which, in my opinion, are counter-productive to making progress on these challenges. No better example of this can be found than the Kyoto protocol as a global mechanism for addressing climate change (an institutionalist approach), which has become an elegant failure (Verweij & Thompson, 2011), and has expended a lot of political capital that would have been more productively applied to approaches that did not aim at a universal solution (Prins & Rayner, 2007).

So, if finding universal sustainability solutions is not the answer to our challenges, how should we move forward? Robinson's (2004) influential sustainability paper addresses this point eloquently:

The problem of [sustainability] will not be resolved by new research, better science, and teaching people to understand the true nature of the problems, desirable as these may be. Instead, the way forward involves the development of new forms of partnership, and new tools for creating political dialogue, that frame the problems as questions of political choice, given uncertainly [sic] and constraints; that renounce the goal of precise and unambiguous definition and knowledge; and that involve many more people in the conversation. (p. 382)

The only issue I take with Robinson's point is that there is an implicit theory of change in his statement "the way forward involves the development of new forms of partnership, and new tools for creating political dialogue". Though I agree with the general statement, I think that, as described in chapter one and two, the difficulties of change lie mainly within the necessity for internal transitions and how we deal with loss. If new partnerships and tools for political dialogue explicitly address these issues then I think those mechanisms have a greater opportunity for mobilizing change when facing wicked challenges.

3.2 Typology of the procedural aspects of sustainability challenges

Clearly not all sustainability challenges are as difficult or value ridden as climate change. For example, in the field of the built environment, there is agreement that buildings, both old and new, should be more energy efficient and there is an agreed upon standard (i.e., Leadership in Energy and Environmental Design – LEED) of best practices on how to accomplish this. This is not to say that the field does not have its challenges; as critics suggest (Humbert, Abeck, Bali, & Horvath, 2007) some designs that give a building more LEED credits do not benefit the environment. However, in this example the disagreements are more technical than value based.

As a professional practitioner in the wide field of sustainability, from the built environment to climate change related challenges, I have experienced some sustainability challenges much more difficult to make progress on than others. Even if one does not have experience in the field of practice, one can intuitively understand that *designing a process* to successfully develop and build a LEED certified building is quite different than *designing a process* for addressing water scarcity and conflict in a small watershed. In the first case the challenge is mainly technical, where we can draw on previous expertise; in the second case the challenge is likely to be about a disagreement on the nature of the problem, its causes, and/or what the solution may be, in essence a conflict of values and beliefs. In the first case a linear process of planning will probably suffice; while in the second case that same process will likely be clumsy, dominated by trial and error, and require changes in values, beliefs, and/or behaviours of some or all of the stakeholders involved.

To help in the *design of processes* for addressing different sustainability challenges, I suggest that two meta-distinctions can provide us with insights into what difficulties we might encounter and possible approaches for addressing sustainability challenges. For the first distinction I will use Heifetz's (1994) definition of technical problems and adaptive challenges. Technical problems are those that we can diagnose and solve by applying existing know-how, which is comprised of known competencies and knowledge, and existing behaviours and values. I would argue that failures in responding to technical problems are mainly due to mistakes in execution and management, and not because there was a mismatch between the know-how and the problem. On the other hand, adaptive challenges are those where there is a gap between the aspirations of a group or society and the reality that they face that cannot be bridged with technical solutions. In adaptive challenges the established set of procedures and know-hows are not sufficient to bridge this gap and what is required are new competencies, beliefs, and values, as well as discarding old ones. Most change initiatives fail because we treat adaptive challenges as if they were technical problems (Heifetz, Grashow, & Linsky, 2009). Adaptive challenges require adaptive work. This is a shift from single to double-loop learning (Argyris, 1993), and a shift of attention from the external changes that we want, to the internal transitions that are required if the changes are going to succeed (Bridges, 2009). Heifetz et al. (2009) define adaptive work as "holding people through a sustained period of disequilibrium during which they identify what cultural DNA to conserve and discard, and invent or discover the new cultural DNA that will enable them to thrive anew" (p. 303). This is similar to the distinction that Rittel and Webber (1973) made between tame and wicked problems. Tame problems lend themselves to linear processes of diagnosing, planning, action, and resolution.

Wicked problems, on the other hand, are rarely solved linearly; as we intervene in a linear fashion they shift and create unexpected consequences.

The second meta-distinction categorizes approaches to addressing a challenge in simple terms as either a top-down or bottom-up initiative (see Messick & Brewer, 1983). A top-down, or structural, approach seeks to modify the conditions within which individuals and organizations make decisions; for example regulations and laws. Bottom-up, or individual, approaches seek to influence personal motivations, awareness, and values that affect choices made; for example, ‘Buy organic’ campaigns. In energy conservation, an example of a bottom-up, individual approach, is urging citizens to conserve energy by turning lights off, lowering thermostats in winter or reducing air conditioning use in summer. These examples to energy conservation solutions are bottom-up because the campaign is influencing a person’s internal *intention to act* (Hines, Hungerford, & Tomera, 1986). On the other hand, an example of a top-down, structural approach, is raising energy prices to dissuade consumers from consuming energy. This example of energy conservation solutions is top-down because the structural change alters the *situational factors* in which an individual behaves (Hines et al., 1986). Also, raising energy prices is only possible through coordinated, organized group action; action that cannot be taken by a single individual, whereas turning lights off can.

Placing these two dimensions in a 2x2 matrix highlights four main types of sustainability challenges and strategies for addressing them (Table 3-2). These categorizations are general *gestalts* or patterns that are congruent as a whole. The boundaries between them are less clear than what is presented below. In reality, sustainability issues generally represent a mix of technical and adaptive challenges and also require a mix of structural and individual strategies to make progress. Below I will provide a brief example for each type of sustainability challenge.

Table 3-2: Typology of sustainability change challenges

	Structural strategies – Top-down	Individual strategies – Bottom-up
Technical	Type I - example: Challenge of addressing energy demand through infrastructure investment (i.e. designing and constructing LEED buildings).	Type II - example: Challenge of addressing waste through individual changes (i.e. encouraging individual recycling).

	Structural strategies – Top-down	Individual strategies – Bottom-up
Adaptive	Type III - example: Challenge of addressing changes in transportation options and preferences (i.e. regional transportation strategies and investments).	Type IV - example: Challenge of addressing Aboriginal Peoples quality of life (i.e. ownership of the problem needs to change from either an Aboriginal Peoples or Government of Canada problem to one where all Canadians take ownership and contribute to addressing the challenge)

Type I sustainability problems are those that are mainly technical in nature and lend themselves to structural approaches. Continuing with the example of reducing energy consumption; planning and designing a LEED certified building is a difficult problem that can be addressed in many ways. However, this problem generally has a clear problem space, where the stakeholders affected can easily agree upon the boundaries, problem definition, and challenges presented; therefore, I would categorize it as mainly a technical problem. It is also a structural approach to addressing energy consumption because it changes the environment in which individuals function and make choices. Type II sustainability problems focus on behavioural change strategies that are generally technical in nature (e.g., where the experience of loss is low), for example using less water or turning off the lights in unoccupied rooms. Geller (2002) explains in detail various methods for constructing such bottom-up strategies.

Type III and type IV sustainability challenges are more adaptive, with more complexity in the social domain. An indicator of such challenges is when stakeholders have conflicting viewpoints that lead to polarization, conflict, and paralysis. In my experience, we only know once we have solved the challenge how technical and adaptive it was. The design of a LEED building can be or become an adaptive challenge if we start running into challenges that cannot be resolved with authoritative expertise. We can make educated guesses in advance about which parts of a challenge are technical and which might be adaptive; but it is only through intervening and seeing the response in the system that we actually learn what aspects of the challenge are mainly technical, and which are adaptive. For example, if after ending a social marketing campaign (McKenzie-Mohr, 2011) to reduce electrical consumption we see that consumers return to their previous behaviour, which is called a rebound effect (Leonard, 2013), we learn that the challenge is actually more adaptive than technical.

As discussed in chapter 2, when facing adaptive challenges there is no one best framework, method or process for achieving change given the dynamic, generative, and social complexity of the issues faced. It requires a predisposition to Argyris's (1999) double-loop learning, which requires addressing the interiority of individuals and groups including their theories-in-use, beliefs, values, and potential losses.

An example of a type III challenge is developing or updating a regional transportation strategy. The various alternatives explored will likely impact underlying preferences and values of different stakeholders in both positive and negative ways. Therefore it is common that factions will arise and coalitions will form advocating for different alternatives. Given the factional divide, these types of challenges require mobilizing those affected into a process of learning, where people with conflicting perspectives have an opportunity to interact with and learn from each other, both on how the problem is understood and possible alternatives for addressing it (Salter, Robinson, & Wiek, 2010). What we see here is that the sustainability challenge shifts from being exclusively about figuring out exterior problems to one where addressing the interiority of groups and individuals becomes of prime importance; where the ability to make progress on these challenges requires that we address conflicting viewpoints, values, and beliefs. A regional transportation strategy is classified as a type III challenge and not type IV because the changes needed to address the transportation issues are principally structural.

Type IV challenges are those that are less likely to respond well to mainly structural solutions and require that we engage through a longer process of learning; where stakeholders take ownership of the problem, as any progress is likely to require a refashioning of values and loyalties of some or all groups affected by the problem. Whereas in type II problems the kind of learning was mainly informational, in type IV challenges the learning is mainly transformational (Kegan & Lahey, 2009).

An example of a type IV challenge is improving the quality of life of First Nations, Métis, and Inuit Peoples (from now on referred to as Aboriginal Peoples).¹⁰ What we observe is that a lot of money and technical solutions are applied to the challenge, but not much progress is made on the principal issues;

¹⁰ Though First Nations, Métis, and Inuit Peoples are distinct from each other and each has a unique history, for simplicity of writing I group them together.

as Aboriginal Peoples continue to be one of the highest at risk populations in Canada (FNQLHSSC, 2012; HCC, 2005; NCCAH, 2010). Over the years new schools are built (technical solution), yet education is not improving (adaptive challenge); new homes are built (technical solution), yet they quickly deteriorate, become overcrowded and fail to meet Aboriginal Peoples' housing needs (adaptive challenge); cultural centres are built (technical solution), yet their traditional languages and knowledge are in precipitous decline (adaptive challenge).

Perspectives on why Aboriginal Peoples find themselves in such a situation and recommendations for solutions are as varied and contradicting as the worldviews on sustainability introduced before. If we only focus on the economic aspect of well-being, Aboriginal Peoples are one of the poorest in Canada (Macdonald & Wilson, 2013; Wilson & Macdonald, 2010).¹¹ Three recent books on the subject (Helin, 2008; Wadden, 2009; Wuttunee, 2004), two written by Aboriginal Peoples, addressing the 'why', 'what', and 'how' of moving forward come to very different recommendations. For example, Wadden (2009) argues that Aboriginal Peoples first need social healing before they can embark on economic development. Helin (2008), on the other hand, argues that healing is not possible under the current socio-economic conditions and communities need to become self-sufficient to heal. For Wadden (2009) and Wuttunee (2004) the government has not done enough to support Aboriginal Peoples, whereas Helin (2008) argues that Aboriginal Peoples' mentality of expecting the government to do something is the core problem of why they are trapped in a cycle of dependency. The one point that all authors agree upon is that Aboriginal Peoples must be the ones to create, design, and take ownership of their community development and change process; in essence to take responsibility for the problem they face. This is not to say that other groups are free from responsibility, especially the federal government as it exercises a lot of power over Aboriginal Peoples' life through the Indian Act.

The plight to improve Aboriginal Peoples' well-being is a type IV challenge because to one degree or another, values, beliefs, and behaviours of all parties involved keep recreating the past. In other words, both Aboriginal Peoples and non-Aboriginal Peoples need to unlearn deeply rooted habits of perceiving,

¹¹ By 'poor' I refer to economic poverty as measured by modern economic theories. I acknowledge that there are other ways of measuring wealth (Eisler, 2008), especially in an Aboriginal Peoples context (Trosper, 2011), but that discussion is beyond the scope of this argument.

feeling, thinking, and acting that are part of the colonial legacy. Pursuing mainly structural top-down solutions (type III) is very unlikely to address this challenge. That is not to say that structural changes are not necessary, they clearly are; at least at the levels of law (Indian Act) and infrastructure (schools, home, energy, water, and so forth). However, to make substantial progress everyone, Aboriginal Peoples and Canadian citizens, need to take responsibility for these challenges, as former National Chief Atleo (2013) argued in the 11th LaFontaine-Baldwin Symposium.

Taking responsibility means confronting, in both Canadian citizens and Aboriginal Peoples, the many difficult internal values, beliefs, and behaviours that continue to recreate the difficult reality many Aboriginal Peoples live in. Obviously when someone is bound up by trauma, which many Aboriginal Peoples are after all the effects of colonization and assimilation policies, the ability to take responsibility is greatly reduced (Du Toit & Brendtro, 2005), and providing more opportunities for healing is necessary; as the Truth and Reconciliation Commission interim report (2012) recommends. It is also true that current federal policies that criminalize drug use (Mate, 2010), prostitution (Oppal, 2012), and many other ‘tough on crime’ legislation and laws (Reilly, 2010) , subjugate Aboriginal Peoples by failing to address or worsening the underlying substantive challenges. The difficult path forward requires that all parties involved engage with the ambivalence they feel towards each other; as Richards (2012) states, “probably the country's most significant social policy task is improving the immensely complex relations between Aboriginal and non-Aboriginal Canadians” (p. 28).

When working on type IV challenges, attempts that do not address deep-seated beliefs and values across the whole-system generally fail at making any significant change in the underlying challenges. Symptoms might be addressed, but underlying causes are left unaltered. Adam Kahane (2012a) gives many examples of these type IV challenges and explores the success and failures of applying transformative scenario planning as an approach to making progress on these challenges. In Canada, the 2006 Great Bear Rainforest agreement is a successful example that brought together local governments, environmentalist, industry, First Nation, and many other stakeholders into a process of negotiation that was fruitful in shifting values, developing a shared vision for the area, and creating a framework of how to move forward on the environmental, social, and economic concerns of the parties involved.

The four types of sustainability challenges presented above are not mutually exclusive ‘either-or’ phenomena, rather they are complementary and in complex challenges they co-exist. The most successful change initiatives that we have seen in the last century have engaged with multiple strategies

for accomplishing change. For example, the American Civil rights social movement went through a process of, first, engaging with adaptive learning strategies (type IV); forcing average Americans to engage with the gap between the aspirations of a free nation and the reality of a marginalized and segregated group, then, once the issue was politically ripe enough, both Johnston and later Kennedy introduced structural changes to the constitution (type III) to protect black Americans from the previous injustice. In contrast, the Great Bear Rainforest initiative unfortunately has not yet, and maybe never will, lead to structural and legal changes in the forest practices in British Columbia. Currently, the agreement between the stakeholders is carried out voluntarily.

3.3 Avoiding pitfalls of adaptive challenges

A common pitfall for addressing type III and IV challenges is to push the problem and therefore the expected solution up to those with higher formal authority (Bradford & Cohen, 1998). By this, I refer to the tendency in human systems to look at those in positions of authority when we face novel problems, and then expect from them elegant solutions to these problems (Verweij & Thompson, 2011).¹² The more difficult the problem, the higher up we tend to push the responsibility. A good recent example of this pitfall is the Kyoto Protocol response to climate change that framed the problem and solutions as global problems requiring global solutions. This approach unfortunately has failed at achieving emissions reductions, as Victor (2001) predicted it would. The latest Intergovernmental Panel on Climate Change report (IPCC WGIII, 2014) shows that emissions grew more quickly in the decade between 2000 and 2010 (Kyoto was ratified on December 11th, 1997) than in each of the three previous decades. Furthermore, the emphasis that the problem could only be addressed by global cooperation (an institutionalist approach) has stifled other perspectives and options of how to address the problem. Referring to the IPCC, Thompspon et al (1998) say “one booming voice drowns out everything, and the adopted policy is tailored only to that one set of concerns” (p. 352). In Prins & Rayner’s (2007) Nature article they argue that the Kyoto protocol was always the wrong approach for the type of challenge.

¹² In chapter 5 I develop and expand on this point

Climate change is an adaptive challenge. It cuts across global political, ideological, value, and belief spectrums (Hulme, 2009). Validating only an institutionalist top-down approach to addressing the challenge not only places an unreasonable responsibility on actors at higher levels to bring all of the lower levels into line (Thompson et al., 1998), but also shapes the discourse in such a way that the world becomes one of dualities, of villains (Canada) and heroes (EU); which blinds us to the complexity of the problem and distracts us from the myriad of other ways we could work towards addressing the challenge (McGray, Bradley, Hammill, Schipper, & Parry, 2007).

The nature of adaptive challenges is that we, as a society, do not know how to address the problem, and even further, we sometimes do not know what the problem is (Heifetz, 1994). When facing type III and IV challenges, a monologue approach (Thompson et al., 1998) where one discourse dominates the framing of the problem and its solutions is counterproductive to the necessity of trial and error; of experimenting and prototyping multiple framings and solutions (Hulme, 2009). Drawing on Rayner's and Prins's (2007) radical rethinking of climate change policy, Heifetz's (1994) work on leadership, Scharmer's (2009) work on collective processes of change, and the general literature of social innovation (Mulgan, 2006), I outline below 10 recommendations for avoiding such pitfalls when working with type III and type IV challenges.

Recommendation 1 – Adaptive work (type III and IV) demands experimentation: Heifetz uses the metaphor of 'cultural DNA' as a way of framing the idea that change in a society requires a similar multiplicity of experiments as is required in the gene pool in the context of evolutionary biology. Many, if not most, of these experiments will fail, as they do in the evolutionary process of biology. What is different between biology and society is the human species' capacity to learn. In his Theory U, Scharmer (2009) calls for a process of 'rapid prototyping' where we quickly develop new ideas, apply them, and discard all those that fail.

Recommendation 2 – Distinguish between the technical and adaptive aspects of the challenge: The aspects of the challenge that are technical can be addressed with authoritative expertise and already acquired know-how. However, the adaptive aspects are novel; requiring that we soften the distinction between expert and layperson, and between scientific knowledge and local knowledge. This point is critically important for academics and experts alike, because confusing this leads to the culturally potent narrative of scientific knowledge and expert judgement used unconsciously to fight a war of competing social and ethical values (Rayner & Prins, 2007; Sarewitz, 2004; Thompson & Rayner, 1998a). The

adaptive aspects of the challenge require that we enter into a space of not-knowing, curiosity, and co-creation (Scharmer, 2009). Moving from an emphasis on *knowledge*, of ‘what’ and ‘why’, to the world of *practice*, of ‘how’ questions. Adaptive challenges exist in the messy world of refashioning values, beliefs, and behaviours; having clarity when we are working in this world can help us avoid the classical error of applying technical solutions to adaptive challenges (Heifetz et al., 2009), which almost unmistakably leads to elegant failures (Verweij & Thompson, 2011).

Recommendation 3 – The people with the problem have to own and take responsibility for the problem:

This recommendation is likely to be met with resistance given the dominant postmodern discourse of oppressed and oppressor, victim and perpetrator. In my experience and as others have thoroughly documented (Lamb, 1999), such framing is disempowering to the so-called victim or oppressed. One of the greatest contributions for working with the oppressed-oppressor dichotomy is Freire’s (1970) work, which aims at mobilizing change and clarifying how some dominant societal values create unjust and oppressive conditions for some segments of society. His pedagogy, which is reflected in the United Nations Human Rights Education (Flowers, 2004), supports people in recognizing oppressive social structures and empowering them to act upon their reality instead of continuing to adhere to the status quo. In essence, Freire’s critical pedagogy supports individuals to take responsibility for the problems they face, and therefore they both own the problem and are its solution.

To further strengthen this point, one of the most influential books on the procedural methods of sustainability is Pascale et al.’s (2010) “The Power of Positive Deviance”. In the book they present a wealth of experience with tackling many of the unworkable challenges that for years have escaped the elegant solutions of scientists and policy makers. The case studies range from childhood malnutrition in Vietnam, to female circumcision in Egypt, to infant mortality in Pakistan. One of the grounding principles of their approach is that the community with the problem not only has to own the entire process of change (i.e., take responsibility for their problems), but they also unknowingly have within the community the solutions needed; they just need to discover them and learn how to amplify them. In describing successful mechanisms of social innovation, Mulgan (2006) echoes a similar suggestion: “some of the most effective methods for cultivating social innovation start from the presumption that people are competent interpreters of their own lives and competent solvers of their own problems” (p. 150). Clearly not all problems can be addressed by the methodology that Pascale et al. (2010) use, but I

believe that starting with such a framing is more empowering and enabling than blaming others for the problems we have.

Recommendation 4 – Distinguish between what's precious and what's expendable: At the root of many adaptive challenges is the need to refashion values, beliefs, and behaviours. As I argued in chapter two this process ultimately generates loss to some if not all involved, and this naturally generates resistance to change. To be able to mobilize change we need to articulate losses so those experiencing them are understood and supported through the process. This is not only a practical step to mobilize change, but is also fundamentally about practising compassion and empathy. To sustain people through a process of loss, Heifetz (1994) argues that articulating the precious aspects of our past that are being conserved through the change process can help alleviate some of the pains of change. However, we have to come to terms with the reality that processes of change often create casualties (Heifetz, 1994). In armed conflicts this refers literally to physical casualty, but for most change processes the metaphor 'casualty' refers to the loss of competence, roles, beliefs, and/or values of a faction. For example, when a business needs to change or adapt so it can continue to exist, the changes it undergoes nearly always involve "ruthless turnover of managers and executives, [and]... outgrowing founders" (Mulgan, 2006, p. 154). The question of what faction(s) bare(s) the brunt of the losses is mired with moral and ethical concerns (Machiavelli, 1992; Rawls, 1999). In situations when the losses are not equally distributed across factions, which they normally are not, Rawls' (1999) *veil of ignorance* thought experiment can aid not only in making a decision but also to support individuals to take perspective and situate themselves in others' shoes.

Recommendation 5 – Address the work avoidance generated through the process of loss: Heifetz (2011) argues that "most forms of failure when addressing adaptive challenges are a product of our difficulty in containing prolonged periods of experimentation, and the difficult, conflictive conversations that accompany them" (p. 81). At its root a process of change is met with resistance because of the conflict and losses it generates (Heifetz, 1994). When facing uncertainty, ambiguity, conflict, and loss – all experiences of a process of change – it is common for people and groups to seek mechanisms to lower the disequilibrium they experience (Heifetz, 1994). As discussed in chapter 2, these mechanisms are a set of individual behaviours and/or organizational norms (Argyris, 1999) that consciously or unconsciously aim at displacing attention and/or responsibility from the actual adaptive work that needs to be done (Heifetz, 2011).

Recommendation 6 – *Start addressing the problem at the lowest decision making scale possible:* As Rayner and Malone (1997) have argued since the ratification of the Kyoto protocol, that cities and regions are probably the best scales to implement and test climate change related policy. Other sustainability related issues might benefit from starting at even lower scales, like the Living In Community work (see Appendix F) that starts at a neighbourhood scale, whereas the Costa Rica case study in chapter 4 focuses at both an individual and watershed level. The same thinking is valid for organizations. It has been known for a number of decades that decentralized decision making in organization fosters innovation (Etzioni, 1961; Vancil, 1979), therefore it seems that a best practice would be to let units and departments in an organization address the sustainability challenges they face. Working at lower scales is also supported by psychological research (Weick, 1984) that argues that framing challenges at large scales precludes innovative action.

Recommendation 7 – *Abandon universalism where everyone needs to agree on the solution:* As I have argued in the first section of this chapter there are many ways of framing the ‘why’, ‘what’, and ‘how’ of sustainability challenges, and many of these contradict each other. If by design a change process requires consensus and it involves conflicting points of view it is likely to have difficulty making progress; more likely it will arrive at the least risky and lowest common denominator action. In discussing social innovations Mulgan (2006) states “change rarely happens without some brave people willing to take risks and take a stand. Leadership matters even in the most egalitarian and democratic movement” (p. 149). Taking a stand means that some people will not agree with a course of action; and the practice of leadership in those situations might be pacing the process or having to accept and work through losses.

Recommendation 8 – *Think silver buckshot, not silver bullets*¹³: The very nature of adaptive challenges is that we do not know how to solve them. This means that no one framing of the problem is more correct than another, and no suggested solution is necessarily better. When we need to innovate there is no better solution than to have diversity of ideas and actions. As Nobel Laureate Pauling is famously quoted: ‘the way to get good ideas is to get lots of ideas and throw the bad ones away’. However, our discomfort with uncertainty and our preference for efficiency predisposes us to gravitate to ready-made

¹³ Though a metaphor that is not related to guns might be better, the ‘silver bullet’ metaphor is very widely used.

monoculture solutions that are likely to end up as elegant failures (Verweij & Thompson, 2011). It is preferable to aim for clumsy solutions knowing that many will fail, and the few that succeed will probably look very different from what was originally envisioned (Mulgan, 2006).

Recommendation 9 – Develop solutions at multiple scales: The literature on social innovations (Mulgan, 2006), socio-technical transitions (Grin, 2010), and panarchy (Gunderson & Holling, 2002) all suggest that societal change happens from the bottom-up, as social innovations are scaled up, which is in line with recommendation six. However, other scholars and practitioners (Ostrom, 2010, 2014; Rayner & Prins, 2007) argue that it is best to take a multi-scale approach to mobilizing change, which is in line with recommendation eight. For complex, adaptive challenges such as reducing greenhouse gas emissions Ostrom (2014) recommends that we develop “complex, multi-scale systems to cope with complex, multi-scale problems” (p. 97). In my experience complex type IV challenges are more likely to be addressed if they are targeted at multiple scales, as this also creates more opportunities for learning. See appendix F for a discussion of the work that Living In Community has done, and how it benefited from the challenge being addressed at the neighbourhood, city, provincial, and federal levels.

Recommendation 10 – Create mechanisms that foster dialogue and learning: At face value there is nothing new about this recommendation. However, supporting learning across political, ideological, and worldview perspectives is a far from trivial challenge. Bohm (2004) and Isaacs (1999) have written at length regarding processes that allow for generative dialogue and learning. Scharmer (2009), after eight years of research and interviewing 150 contemporary scholars and leaders on innovation and change, describes that generative dialogue requires that a group consciously work through three powerful internalized voices of resistance. The first is the voice of judgement (VOJ) that keeps us immune to listening to perspectives that contradict our own. Suspending the Voj means opening up to inquiry and wonder. Second, is the voice of cynicism (VOC) that hardens our emotions so nothing that is threatening (like a perspective that contradicts ours) can harm us. Suspending the VOC means opening up to the experience of empathy for others, and compassion for oneself. Finally, is the voice of fear (VOF) that is at the root of our resistance to open up; at its core is fear of harm and death. Suspending the VOF is the vehicle for experiencing an open mind, open heart, and open will.

Fortunately, the construct *sustainability* has not fallen into the same pitfall that *climate change* with the Kyoto Protocol has. Though the term sustainability can be criticised for being used too widely and too loosely, it benefits from avoiding the political log-jam that climate change has fallen into. Quite the

contrary to climate change, the construct of *sustainability* is inspiring a global movement of thousands of small organizations targeting the wide spectrum of sustainability concerns, from environmentalism to social justice and community economic development (Hawken, 2007). The key point is that these organizations, mainly NGOs, focus on action; not theories and ideologies. Also, given the distributed nature of the movement, they to one degree or another naturally follow many of the ten recommendations provided above.

3.4 Final thoughts

When facing sustainability challenges there are no golden hammers; in the sense that not one method or approach is best for tackling the myriad of sustainability issues that we are facing. In my experience this is one of the potential problems in sustainability processes. We grow comfortable with one approach and apply it across the board, regardless of whether or not it is appropriate: golden hammers abound. Normally there is significant investment placed on building skills that allow us to apply one method and approach to a challenge. We become experts in it, build a reputation around it, and become advocates for its use. Rarely have I seen proponents of a specific approach critically reflect on its limitations or question its inapplicability to a given context. Consultants and academics are especially prone to this problem, but governments, civic groups, and public enterprises also fall prey to this issue. Our ability to stand back and reflect is constantly challenged and so is our humility to admit when we are in over our heads. This is also true for the matrix and recommendations that I introduced in this chapter. They are only useful to the degree that they help us better observe, interpret, and intervene in a situation. They are simply tools that can easily fall prey to a golden hammer approach.

Although I argue that there is no one best method or approach to tackle sustainability challenges, I do think that, when facing sustainability challenges that have an adaptive nature, the best actions are those that improve the capacity for double-loop learning (Argyris, 1999) in individuals and organizations; and therefore accelerate the speed and effectiveness of transformative change. Adaptive change is not value

free; its underlying intention is to engage in transformative learning — which potentially leads to expanded freedom and consciousness of individuals and society.¹⁴

¹⁴ In chapter 5 I will expand on the topic of transformative learning

Chapter 4. Case study - Costa Rica

4.1 Introduction to the case study

In the first three chapters I discussed the challenges of change, theories and barriers of change, worldviews and sustainability, typologies of sustainability challenges, and pitfalls of change initiatives. In this case study, we discuss in depth what strategies would support small scale farmers in Costa Rica to engage in soil conservation practices.¹⁵ The area of study is currently suffering from large scale soil erosion due to mountainous topography and agricultural farming practices. The focus of the case study is on diagnosing the situation and exploring possible interventions to address soil erosion in the area. Diagnosing is the first part of a change process that leads to intervening and further diagnosing, or monitoring and learning, of the impacts of those interventions.

Costa Rica has been a world leader in establishing payment for ecosystem services (PES) schemas (Sánchez-Azofeifa et al., 2007). In simple terms, this means paying a monetary amount to an individual, business, and/or organization for maintaining an ecosystem service that they own or manage, either by not disturbing it or managing it in such a way that it conserves the integrity of the service they provide. In this research we explored whether introducing a PES schema in the study area was likely to address the soil erosion challenges it faced and discovered that it was unlikely to help alleviate these challenges, and even further, was potentially counter-productive to the objective. The case study is related to the previous chapters in its exploration of a complex sustainability challenge, as well as in its findings; in which the planned intervention of creating a PES schema in the watershed treats what we believe is an adaptive challenge as if it was a technical problem. The recommendations that come out of the case study hint to adaptive interventions that are more likely to support the primary objective of soil conservation.

¹⁵ As noted in the preface, Dr. Vignola and Dr. McDaniels have contributed to this chapter, therefore I will use the pronoun 'we' when referring to the work we did in collaboration.

In the case study I do not make use of all the language and distinctions that I have introduced so far, because the case study is aimed at a journal publication and we have tailored the language to the journal, as mentioned in the preface.

4.2 Costa Rica case study

4.2.1 Introduction

Ecosystem services (ES) provide, regulate, and support many of the natural systems humans depend on to survive (Millennium Ecosystem Assessment, 2005). As the human population grows and consumption levels increase, so do the demands imposed on ecosystems and the services they provide. In economic terms, ecosystem services are externalities since they are not accounted for in financial transactions and therefore not internalized in economic decisions. Ecosystem services are being degraded at an alarming rate (Millennium Ecosystem Assessment, 2005); it is argued that payments for ecosystem services (PES) can internalize the cost of ES into economic decision and help reverse this trend (Engel, Pagiola, & Wunder, 2008; Ferraro, 2000). The most commonly cited definition of PES is Wunder (2007), who argues that a PES scheme needs to meet the following five criteria: 1) a well-defined environmental service, 2) is 'bought' by minimum of one buyer, 3) is 'sold' from a minimum of one provider of the ES, 4) the transaction has to be voluntary, and 5) the provider has to continuously secure the provision of the service (conditionality).

In the past decade there has been a widespread emergence of payment schemes for a variety of ES. The strong and growing interest in PES schemes is driven by the inability of government regulatory approaches and the limitations of protected areas to address the growing degradation of ES. At the same time, the perceived failure of bottom-up or indirect approaches, such as Integrated Conservation and Development Projects (ICDP) and Community- Based Natural Resource Management to promote conservation, are also used to advocate in favour of PES schemes (Ferraro & Kiss, 2002).

Most PES case studies use an economic lens to analyze and understand the impacts they have on ES (Asquith, Vargas, & Wunder, 2008; Wunder & Albán, 2008; Zbinden & Lee, 2005). There are surprisingly few studies that utilize more comprehensive social science perspectives to understand the complex social, cognitive or cultural variables that affect motivations, values, and barriers for engaging in conservation practices (Kosoy, Corbera, & Brown, 2008; Kosoy, Martinez-Tuna, Muradian, & Martinez-

Alier, 2007; Petheram & Campbell, 2010).¹⁶ Kosoy and colleagues (2007) found, in an analysis of three PES cases in Central America, that ‘intangibles’ such as social relations, perceptions, conflicts, and negotiations play a role in inducing/preventing local participation in PES schemes. Important social and cultural features may exist that support conservation practices, even though for the individual it may be economically inefficient or irrational to do so. Therefore, it is vital to better understand what influences local users when they engage in conservation practices and how PES schemes can support (or not) these activities.

This study explores two research questions:

3. What motivates small scale farmers to engage in conservation practices?
4. Do small scale farmers believe that a PES policy would support them in furthering their conservation practices?

The study is carried out with local farmers from the Birris watershed in East-Central Costa Rica. The analysis employs an in-depth semi-structured survey instrument to engage with 50 farmers from the area. The results present the analysis of both quantitative and qualitative data, and provide significant insights into the complex dynamics affecting farmers’ motivations for engaging in soil conservation practices, as well as their responses to a hypothetical PES scheme. In the discussion we explore the significance of our results in the context of market efficiency, human morals, fairness in allocation, equity in poverty alleviation, and resilience of the system.

4.2.2 Context and methods

4.2.2.1 Description of the study area

The Birris is a sub-watershed of the Reventazon River located in central Costa Rica (Figure 4-1, Figure 4-2, and Figure 4-3). The sub-watershed has an area of 4800 ha with an altitude range from 1,570 to

¹⁶ One notable exception is the recent paper by Petheram and Campbell (2010), which considers issues and uses methods similar to those addressed in this chapter

3,200 MASL and slopes up 70% gradient in the upper parts of the watershed. The weather is strongly influenced by the Caribbean climate with 2325 mm average rainfall, of which more than 80% is concentrated in 8 months (May-December). In the last 40 years extreme rainfall events have increased in number (Aguilar et al., 2005).



Figure 4-1: Area of study

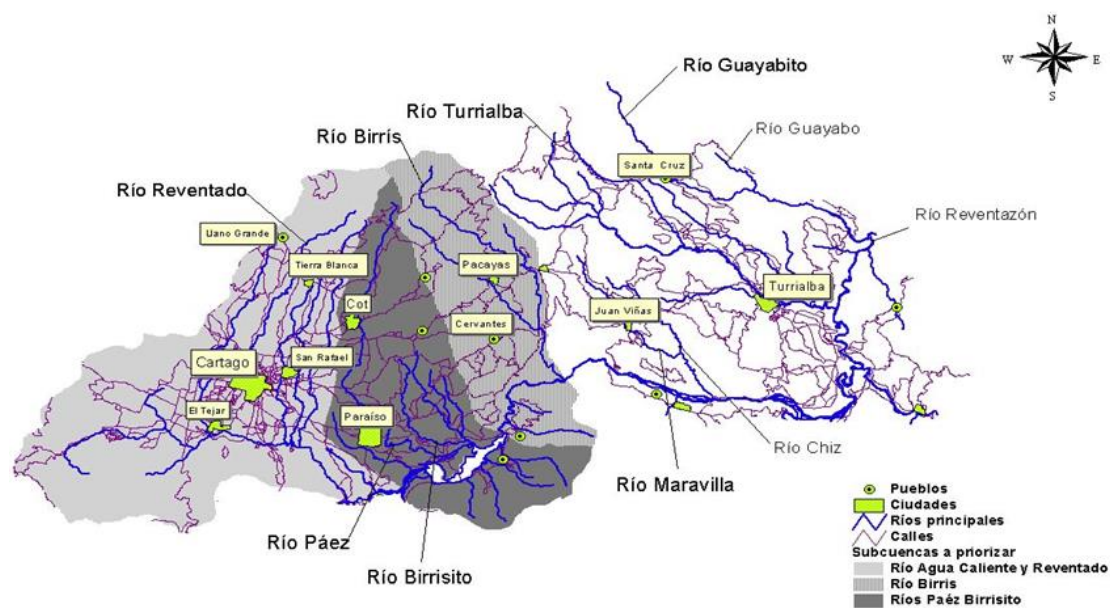


Figure 4-2: Birris sub-watershed – source (Landry, 2009)

Large scale forest fragmentation started in the early 1960s when horticulture and dairy-cattle pastures were established. Currently the landscape is almost entirely rural, dominated by pastures and agricultural land. Infrastructure development is limited to roads and a few small towns. The combination of agriculture, settlement, and infrastructure has reduced the cover of tropical cloud forest to 28% of the total land area in the watershed. Virtually all the land is privately owned in small plots, with average plots of 2.9 ha, and 93% of all plots smaller than 5ha. The area has a population density of just over 160 inhabitants per square kilometre, which is above the national average (INEC, 2002). The main economic driver of the area is market-oriented agriculture, which employs over 60 % of the population of the area, and has done so for the last four decades (ICE, 1999).

The combination of its topography, weather, increasing forest fragmentation, and intense agricultural practices makes the region the greatest producer of water-borne sediment in the country (Sanchez-Azofeifa, Harriss, Storrier, & de Camino-Beck, 2002), see image 4-3. Erosion rates have increased from 12 tonne/ha/yr in 1978 when only 15% of the watershed was under horticulture, to 42 tonne/ha/yr in the 1990s when crops occupied more than 30% of total watershed area (Marchamalo, 2004). However, the presence of deep volcanic soils reduces the relevance of topsoil loss to farmers, which is visible only in some areas (Rodríguez, 2001).



Figure 4-3: Typical farming slopes – source: kristinepaulsen.com

Currently, the National Electricity Institute (ICE) spends more than \$4 million (US) yearly to clean its dams from the sediment accumulation due to upstream soil erosion from the Reventazon River watershed. ICE spends approximately \$300,000 yearly to promote the soil watershed management plan; and receives support from the Ministry of Agriculture, which provides human and logistic resources to promote soil conservation practices in upstream areas. In addition, it is estimated that the replacement cost to farmers of soil nutrients lost through erosion corresponds to roughly \$100,000 a year (Vignola, Otarola, & Calvo, 2010).

4.2.2.2 *Survey design and sample*

The survey instrument was designed by drawing on many sources.¹⁷ First, to better understand how individual farmers were motivated to adapt their soil conservation practices in the face of climate change, we drew on the process model developed by Grothmann and Patt (2005); which describes how individual perceptions such as risk perception and perceived adaptive capacity affect the actions taken by individuals. Second, the structuring of the hypothetical PES scheme was informed by Ferraro's (2008) contract design for payments for environmental services. This was done to address the information asymmetry that is present when conservation buyers know less than landowners about the costs of contractual compliance and therefore distort market prices.

To improve the survey design in order to identify additional aspects of farmers' soil conservation practices, and validate the relevance of the survey approach, we conducted two focus groups and five interviews with key informants (farmers and agricultural extension officers). We worked with the agricultural extension officers to ensure that the questions would be easily understood by farmers. A pilot test was conducted with five farmers to further improve the instrument design.

The sample of fifty individual farmers was randomly selected from a list of 339 registered landowners in the Municipality of Cartago who own parcels larger than one hectare. In the Birris watershed the majority of landowners farm their own land, from now on the sample group will be referred to as

¹⁷ As mentioned in the preface, I was not part of the survey design or sampling, this was carried out by Dr. Vignola from CATIE. I wrote this section with the information Dr. Vignola gave me.

‘farmers’ as we verified that all participants were indeed actively farming their land. The selection was proportionally comprised of three categories of producers present in the watershed: horticulture and dairy-cattle, horticulture only, and dairy-cattle only. The sample was made up of forty-seven males and three females with ages ranging from nineteen to ninety-three. The semi-structured interview was administered by pre-trained interviewers at the farmer’s field or home and lasted around 90 minutes. The interviews were conducted during June-August 2007.

4.2.2.3 *Conceptual framework*

Figure 4-4 illustrates the main components of the survey instrument; a more detailed description of all the aspects of the figure is given in the results.¹⁸ The survey was structured in such a way that the first part of the survey focused on capturing the *current frame of reference* of farmers, that is; how farmers make sense and meaning out of their social and biophysical environment. The farmers’ environment, in this case, is composed of three aspects: the *overall cultural background* that influences a great part of their knowledge and understanding, the variables influencing *their motivations for engaging in soil conservation practices*, and their *awareness of climate change and its potential impacts*.

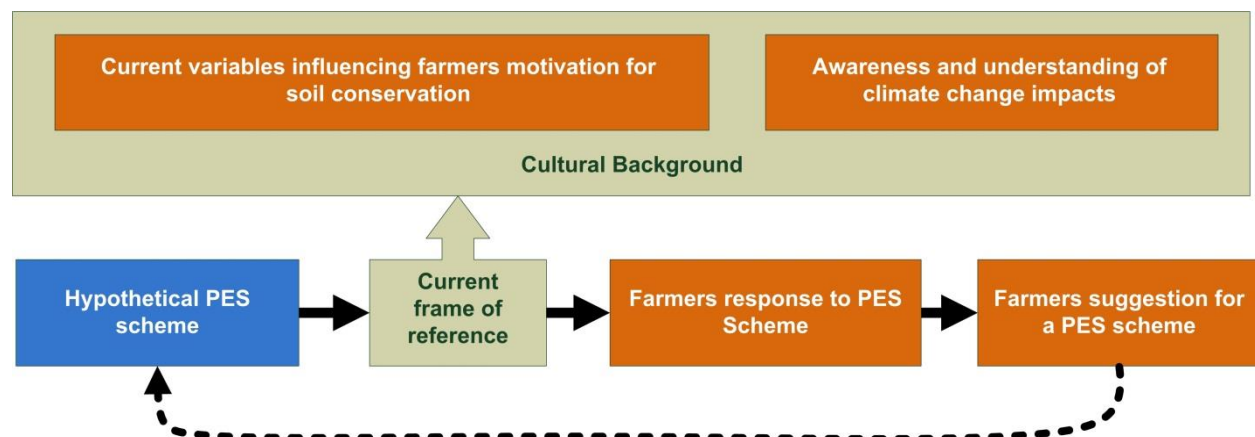


Figure 4-4: Conceptual framework

¹⁸ While I did not develop the survey instrument, both the figures and the conceptualization of how to present the survey instrument design and results were my contributions.

The second part of the survey presented a hypothetical PES scheme to the farmers. More specifically, since interviewees up to this point had been asked questions also related to climate change and soil erosion, we mentioned that the national PES scheme could also be interested in providing farmers with incentives to increase soil conservation efforts; through the design of a program and contracts similar to those envisaged by FONAFIFO, which is the National Forest Financing Fund in Costa Rica (Pagiola, 2008). However, we introduced the use of an auction system where farmers would bid for contracts which, as indicated in recent literature (Ferraro, 2008), has the potential to increase the economic efficiency of PES schemes. The instructions in the questionnaire indicated that the farmers with the lowest bid per hectare to be managed in a soil conservation practice would be selected. The scheme allowed for multiple techniques of soil conservation practices to be included. The conditions stated in the instructions were the following: farmers had to own the land, the contracts were for 5 years, the farmer had to develop and maintain the practice for the payment negotiated. If the farmer was not compliant, they would have to return the full payment.

As Figure 4-4 illustrates, the responses and suggestions to the hypothetical PES scheme are conditioned or filtered by the farmers' current frames of reference; which can be understood as a lens through which the farmers see and make sense of the hypothetical PES scheme. This is an important aspect of the survey, since it permits us to better understand the farmers' views, motivations, and values. The intent was to provide information to design PES schemes that are more appropriate to the context and reality of the lives of farmers in this region.

4.2.2.4 *Data collection and analysis*

The survey had a mix of 161 open and closed-ended questions. Each survey interview was recorded and transcribed, since valuable information can be gleaned from the comments of the participants as they think through and answer the questions.¹⁹ The quantitative data were analyzed with frequency counts in Excel and SPSS. The qualitative data, both from the open-ended questions and the transcribed interviews, were analyzed in NVivo software.

¹⁹ I received transcribed data in Spanish. I performed the qualitative and quantitative analysis

Grounded theory, as developed by Glaser and Strauss (1967) and refined by Glaser (1992), was employed as the conceptual basis for the qualitative analysis.^{20, 21} In essence, an iterative process of reading, highlighting main points, coding concepts, and creating categories was done for all the interviews. Through numerous iterations within and between subjects, the categories, also called *metaconcepts*, were refined and clarified (Glaser, 1992). Once these categories were established, we conducted a final search and sorting of the data and analyzed how predominant these concepts were across individuals. This process provided a percentage score of how predominant the categories are in our survey sample. The most relevant categories were then grouped into one of the components described in the conceptual framework.

4.2.3 Results

Figure 4-5 illustrates the main points arising from the analysis of the results. The *cultural background* describes farmers' deep values and beliefs that frame how they view, understand, and engage daily with life. The *current variables influencing farmers' motivation for soil conservation* describes the motives that influence farmers to engage in soil conservation practices. The *awareness and understanding of climate change impacts* describes the farmers' understanding and belief regarding climate change and its impacts on their livelihoods. Together the three make up the *frame of reference* that influences how farmers respond to the *hypothetical PES scheme* that was described in the methods section. The *farmers' response to the PES scheme* describes the main topics that arose when the farmers were presented with the mechanism. Finally, the *farmers' suggestions for a PES scheme* illustrates what the farmers would prefer as mechanisms to help them better manage the soil. Tables 1 through 5 summarize the main quantitative results for each component.

²⁰ We decided to use grounded theory because I was familiar with the methodology as I had applied it my M.Sc research, and Dr. Vignola was also familiar with the methodology and thought that it was the most appropriate for the research.

²¹ Petheram and Campbell (2010) also employ grounded theory, in a recent paper regarding the views of local people regarding design of incentives schemes (including a hypothetical PES scheme) in Thailand

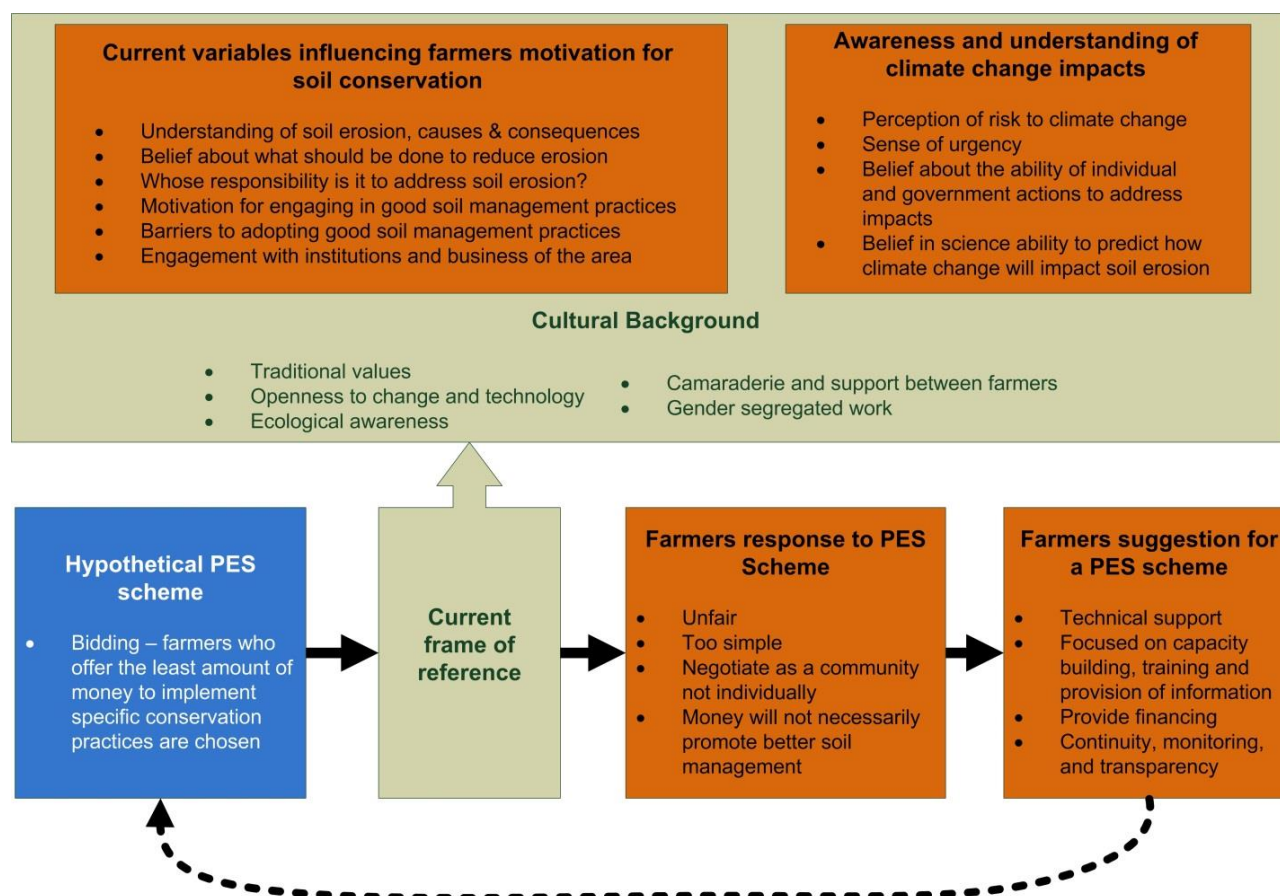


Figure 4-5: Main points from the results

The findings presented draw on both quantitative results found in the tables and on qualitative quotes presented in the text.²² We will go back and forth; drawing from the data in the tables to represent the collective viewpoint of our findings, and providing quotes from the interviews to bring individual voices into the paper.²³ To help guide the reader, the tables and main headings have indices that will be used in the text to indicate where the corresponding quantitative results are to be found in the tables. For example, the cultural background table is marked in capitals, *CB*, and each heading has its own index in

²² Note that the proportion of respondents corresponding to the different items can sum to more than 100% under a specific item since each interviewee might have provided more than one concept. For example, in Table 4-1 many respondents indicated that 'Single citizens', 'Community Organizations' and 'Government' should all be involved in improving soil management.

²³ In the notation employed below, Q12/D16, for example, refers to question 12; interviewee 16.

lower case (e.g., *tech.sci*). When referring to results within a heading, a combination of table and heading indices will be used (e.g., *CB-tech.sci*).

Table 4-1: Cultural background

Cultural background (CB)	
• Belief about technology and science (tech.sci)	
Think that advances in science and technology <u>will</u> bring solutions to soil degradation (Q18g)	47% (n=49)
Think that advances in science and technology <u>will not</u> bring solutions to soil degradation	41% (n=49)
• Ecological awareness (ecol.awa)	
Mention concern about the environment (multiple- via nVivo)	95% (n=44)
In favour of using more renewable energies (Q18f)	76% (n=49)
Emphasis the need for ‘concientización’ awareness building (multiple- via nVivo)	75% (n=44)
• Collective focus towards addressing challenges (coll.foc)	
Mention the need to organize their communities as a strategy to face the challenges of soil erosion (Q96-97-100)	47% (n=43)
Throughout the interview at least mention once the need to work as a group or community to address the multiple challenges faced (Q95-96-97-100-152)	90% (n=48)
<i>Who farmers think should be involved to improve soil management (n=47) (Q95)</i>	
Single citizens	81%
Community organizations	91%
Government	94%

Table 4-2. Variables influencing farmers motivation for soil conservation

Variables influencing farmers motivation for soil conservation (SC)	
• Soil erosion, causes and consequences (soil.cau)	
Understands what soil erosion is (Q54-56)	75% (n=48)
Is currently facing risks of erosion (Q19)	68% (n=50)
Top three factor influencing erosion (Q58)	Deforestation Rain Agriculture

Variables influencing farmers motivation for soil conservation (SC)		
Believes cattle ranching has a significant impact on soil erosion (Q57C)	35% (n=50)	
Top three consequence of erosion (Q54-56)	Loss of top soil Loss of fertility Economic losses	
Believes society has been successful at managing soil erosion (Q61)	40% (n=50)	
Think risk of erosion will increase in the foreseeable future (Q64)	60% (n=50)	
• Most mentioned actions about what should be done to reduce soil erosion (soil.act)		
Institutional solutions (Q96-97)	74% (n=43)	
Capacity building	31%	
Participatory engagement	22%	
Need for higher awareness and shift of values	17%	
Need of a compensation mechanisms	14%	
Agricultural practices (Q96-97)	65% (n=43)	
Water channel ditches	46%	
Less use of chemicals	19%	
Rotation of the soil	12%	
Use of trees (Q96-97)	51% (n=43)	
Reforestation	72%	
Reduction of deforestation	16%	
Protection of existing forests	12%	
• Who is responsible for soil management? (soil.res)		
Farmers are responsible for better managing their soils to reduce erosion (Q18J)	96% (n=49) agree	
Farmers who contribute to soil sedimentation in rivers should pay for dredging of dams (Q18K)	73% (n=49) agree	
Erosion produced by roads and urbanization should be responsibility of the government (Q18L)	83% (n=49) agree	
• Farmers motivation for good soil management (soil.mot)		
Believe it is their responsibility to better manage soil erosion (Q18J)	96% (n=49) agree	
Are aware of others concerns regarding how upstream users manage the soil (Q18a)	67% (n=49) Agree	
Feel that they are accountable towards present and future generations to be good stewards of the soil	97%(n=49) Agree	

Variables influencing farmers motivation for soil conservation (SC)

(Q18H&E)	
<ul style="list-style-type: none"> Barriers to adopting good soil management practices (soil.bar) 	
Current conservation practices (n=49) (Q42)	
Currently been used	59%
Tried and abandoned	5%
Never have been used	36%
Main Reasons for abandoning the practices (n=24) (Q47)	
Thought it was not a good practice	42%
Various other reasons	29%
Required more labour	13%
Economic cost was a limiting factor	13%
Main reasons why they never tried the practices (n=37) (Q48)	
Did not know about them	42%
Economic cost was a limiting factor	30%
Did not see the need for them	27%
Main barriers to implementing practices (n=50) (combination Q45-47-48)	
Farmers did not see a benefit from implementing a practice	38%
Farmers did not know of a practice	32%
Economic cost is a barrier to implementation	28%
Higher labour is a barrier to implementation	16%
<ul style="list-style-type: none"> Engagement with institutions and businesses of the area (Q161) (inst.eng) 	
Engagement with institutional outreach (n=50)	
Do not engage with any institution out of the seven active in the area	12%
Engage with only one institution	24%
Engage with only two institutions	50%
Engage with three or more institutions	14%
Engagement with business of the area (n=50)	
Do not engage with any of the seven main businesses of the area	14%
Engage with only one business	26%
Engage with only two business	40%
Engage with three or more business	20%

Table 4-3. Awareness and understanding of climate change impacts

Awareness and understanding of climate change impacts (CC)	
• Perception of risk of climate change (perc.cli)	
Have heard about climate change (Q77)	84% (n=50)
Believe that climate change is an imminent threat, and that urgent action is needed (only the ones that answered yes above where taken into account)(Q87)	79% (n=42)
Believe that they will be affected personally by the growing risk of erosion due to climate change (Q89)	88% (n=42)
Understanding of CC and local impacts (n=50)(Q79-80-82-84)	
Describes closeness and vividness of impacts of CC at local level	44%
Describes impacts as global with local consequences	30%
Aware of climate change, but perceives no local risk	2%
Do not know about it or are not able to describe CC	24%
Most predominant topics mentioned when talking about the impacts of climate change (n=38) (Q84)	
Catastrophe	37%
Agriculture	29%
Health	26%
Changes in temperature	24%
Extreme heat	18%
Extreme rains	16%
Drought	16%
• Belief about ability to address impacts (abil.imp)	
Believe that no matter our (individual and government) efforts there is not much we can do to reduce the risk of soil erosion (Q88)	19% (n=42)
• Belief in science ability to predict impacts (scie.imp)	
Believe that science will be able to predict the impacts of climate change on soil erosion (Q86)	59% (n=42)

Table 4-4. Farmers response to the PES scheme

Farmers response to the PES scheme (FR)	
Willingness to participate in a soil conservation program (Q134)	
	90% (n=50)

• Unfair (unfair)	
Perception of justice after been introduced to the bidding scheme (n=44) (Q137)	
Unjust	75%
Indifferent	14%
Just	11%
• Main reason they do not like the PES scheme (main.rea)	
Main reasons why they do not like the PES scheme (from the group that though it was unjust or where indifferent to it n=39) (Q138)	
Unjust	85%
Does not take into account other factors	56%
Should be catered to the financial need of each person	26%
Should depend on cost, not bidding	21%
• How should monetary payment be decided? (mone.dec)	
Strategy they would pursue to fix the monetary amount to implement the soil conservation practices (n=44) (Q152)	
Outbid other farmers	17%
Would see what others are offering and offer something similar	21%
Would discuss it with other farmers to find a shared price that we would all agree as fair	62%
• The influence of cost in deciding if to participate or not (cost.inf)	
Acceptance to participate if cost are covered completely (Q143)	97% (n=30)
Acceptance to participate if scheme does not cover costs (Q144)	86% (n=29)
For how much less they would still participate (n=25) (Q145)	
Would participate even if they got 25% less than cost	28%
Would participate even if they got 50% less than cost	32%
Would participate even if they got 75% less than cost	24%
Needed more information before making a decision	16%

Table 4-5. Farmers suggestions for a PES scheme

Farmers suggestions for a PES scheme (FS)	
Main topics mentioned that farmers think are necessary so they would participate in a soil management program (Q155 n=34)	
Technical support	76%
Better channels of information delivery	56%
Capacity building	47%
Financing	44%
Continuity, transparency and monitoring	15%

4.2.3.1 Cultural background

Except for the three female farmers, the sample interviewed constituted a heterogeneous group of men; in terms of their age, type of productive activity, and socio-economic level. The female representation in the sample is 6%, which reflects the gender reality of the region where land ownership and farming activities are male dominated. All participants in the sample had low education levels and ownership of small or medium size land parcels in common; and shared a common history of multigenerational farming families.

The farmers share a traditional rural (campesino) way of life, beliefs, and values: close relationships with both the nuclear and extended family, as well as neighbours; solidarity between farmers, yet also valuing the private sphere of life. They have a segregated work environment where the mother is the care taker of the home, caring for family members, managing the domestic animals (chickens, milk cows, pigs), and running the vegetable garden; while the father is normally the one in charge and working in the farming fields. Though farmers hold traditional values and generally have low education levels they are somewhat open to advances in technology (CB-tec.sci); they value learning new skills and capacity building that promotes better management and care of their land. At the same time, about half of the interviewed did not believe that advances in technology will provide the answers to soil degradation.

The vast majority of farmers express concerns for the environmental problems they are seeing and facing in their area or own lands (CB-ecol.awa). They contextualized these problems within the history of the area. Since the time of the large landowners, to the agricultural reform seen by their grandparents and great grandparents, the drive has always been to deforest and settle new lands for crops and grazing.

Since long ago the cutting of trees began, it happened a lot, the buyers of timber were motivated to sell more at the lumber mills making more money and the owners of the land were motivated to clear shade²⁴, selling the trees for pennies, never thinking what the consequences were and continue to be. It was excessive logging that our forefathers never thought into the future
Q12ID16

²⁴ Clear shade means to cut down trees as to remove the shade they create

The farmers state that in those times deforestation was not seen as detrimental to the environment. However, today they point to the actions of past generations as the main culprits for the environmental risks they are now facing. At the same time, they see how they are still continuing the pattern of natural resource exploitation. Farmers are aware of the environmental impacts of their current actions, but the pressures from national and global market forces in the past (a concept outlined in the previous quote and mentioned by several farmers) are such that they feel they are forced to overexploit the land to stay competitive and survive. Nevertheless, there is a strong call throughout most interviews for awareness-building regarding the need to be better stewards of the land.

They must teach the people to be butlers [stewards] of Mother Nature, to take care of her; we have no right to damage her. Q96ID08

To avoid further changes we have to stop destroying nature, we need to use less fuel, less agrochemical; regarding soil erosion each one of us has to become more conscious of our actions and impacts. Q96ID32

The Church should teach us to be the true stewards of the land, to take care of the resources that God has given us. Q100ID08

Most farmers believe that more can and needs to be done to better manage their land in a way that is more in harmony with the environment.

Working as a community is an important value that comes up often when talking about environmental problems (CB-coll.foc).

We have to work all together, take care of the land, doing rotations and reforestation. Q96ID42

We need to help each other, we should reforest, the government could help us by providing the seedlings. Q98ID33

The government should organize meetings with the communities, and together we could come up with solutions. The government should create incentives so the communities organize themselves. The farmers need to better care for the fields, so there is no erosion. Q96ID42

There is a sense that the problem of erosion needs to be addressed by the whole society; both farmers and multiple levels of government need to work together to address these issues. We will expand on this perspective in the next section.

4.2.3.2 *Current variables influencing farmers' motivation for soil conservation*

The majority of farmers understand what soil erosion is (SC-soil.cau). They rank deforestation, rain, and agriculture as the top three factors influencing erosion, which is in keeping with expert knowledge for the area. However, farmers do not believe cattle ranching to have much of an impact on soil erosion, while experts would argue that it does; through soil compaction and increased runoff (Marchamalo, 2004). The most frequently mentioned consequences of erosion are loss of top soil, loss of fertility, and economic losses to farmers. In general, they do not believe that society as a whole has been very successful at managing soil erosion and they believe the risk of erosion will increase in the foreseeable future. All in all, except for the impact of cattle ranching, farmers' understanding of soil erosion causes and consequences is quite accurate.

To address erosion, the three most important actions the farmers mentioned were: *institutional solutions*, *agricultural practices*, and the *use of trees* (SC-soil.act). By institutional solutions, farmers refer to a multitude of possible policies. Points mentioned most frequently were the need for capacity building, the need for joint collaboration between organizations (including farmers), the need for more awareness and a shift of values towards more conservation-mindedness, and the need for a compensation mechanism to help farmers better conserve the soil. Within agriculture practices, those most mentioned were water channel ditches, less use of chemicals, and rotation of the soil. Finally, the main emphasis on the use of trees as a soil conservation practice was reforestation, reduction of deforestation, and protection of existing forests. It is understandable that reforestation was mentioned more predominantly than reduction of deforestation and protection of existing forests given that most of the Birris watershed has already been deforested, and existing farms do not have many opportunities for using trees as soil conservation practices; although the remaining forests are highly valuable for many reasons.

Almost three quarters of those interviewed agree that farmers who contribute to soil erosion should pay for dredging of the dams (SC-soil.res). This shows the extent to which farmers feel that it is their responsibility to better manage soil erosion. It is clear that farmers believe that they need to be good

stewards of the land for the present and future generations (SC-soi.mot). However, this might be a politically correct discourse that farmers engage in, but are not able to achieve.

Farmers use over half of the known and feasible soil conservation practices for the area (SC-soil.bar). They have abandoned a few of these practices, and have not tried about a third of them.²⁵ This finding shows that farmers are currently making significant efforts to apply conservation techniques. Of the practices that they have not tried, almost half of the farmers stated that they did not know about them and a third did not see a need for them. This finding could demonstrate a gap in extension work and other information channels that farmers use to stay up to date and may be a possible entry point for accomplishing higher soil conservation in the watershed. About a quarter of farmers also mentioned cost and higher labour as additional barriers to implementation. These last factors are important to consider when considering a PES scheme, and will be expanded on below.

The extent of engagement by farmers with institutions and businesses in the area are similar (SC-inst.eng). In general, farmers do not take extensive advantage of the institutional presence and outreach (from the regional agricultural extension office) in the area; nor do they engage in a significant way with the agri-businesses in the area. These results suggest that the cross-scale social interaction (from farmers to organizations) is quite low. When asked if they consult institutions or business, farmers gave a range of answers:

I consult my pillow. Q159ID08

Sometimes I do, because they recommend things that sometimes work and others that do not; we do not have access to technical advising from agronomist. Q129ID10

Yes they helped me... the service is very expensive, but efficient. Q159ID15

Sometimes, it depends, because they go to the very technical, and it is very different to be in the mud than on the side. Q19ID20

Yes, because there are some things that are theoretical and they are able to explain them, and others not so much because one has grown up in this field and knows better. Q159ID14

²⁵ The survey looks at the 29 common conservation practices; it is beyond the scope of this chapter to describe each of these practices.

The range of answers illustrates the multi-faceted dynamics of the problem. In general, farmers lack trust in institutions and businesses. They respect professional advice that could be obtained from agronomists (third parties) but feel that they are too expensive, while others feel that the advising entities (institutions and business) are not able to bridge knowledge scales or incorporate local knowledge.

4.2.3.3 *Awareness of climate change*

The vast majority of farmers have heard about climate change, but less than half are able to describe the impacts of climate change at a local level in ways denoting closeness and vividness of perception (CC-perc.cli). About a quarter of respondents did not know or had very limited understanding of climate change and its local implications. Most of the group that had said they had heard about climate change also thought they would be affected personally by the growing risk of erosion. Most saw the impacts of climate change as an imminent threat that needed urgent action.

When asked what threats farmers perceived from climate change, the predominant theme in responses was a general fear of catastrophes.

The destruction of nature. Q84ID04

I don't think humanity will be able to survive. Q84ID10

The overall dread of catastrophes framed more specific concerns regarding their livelihoods and health. Farmers said they were already experiencing changes in temperature throughout the year and extreme rains.

In the area we have already seen some symptoms. Before we used to have more defined seasons, now we don't. We now don't know when it is summer or winter. This impacts agriculture a lot because we depend on temperature and rain, so in the moment of planting we do not know if we will face too much heat or water. Q84ID07

Even though farmers spoke of catastrophes, they also seemed confident that individual and government efforts would be able to address the risks they are facing and thus adapt to climate change (SC-abil.imp).

The response to questions regarding the ability of science to predict the impact of climate change on soil erosion was varied (SC-scie.imp). Over half thought that science would be able to predict the future. However, the other half distrusted the ability of science to predict the future climate; with many stating that only God is able to know what the future brings.

No I believe not, only God knows all that. Q86ID18

Obviously they can predict it, you don't need to be a scientist to believe in the word of God. You do not have to be a wise man to know what is going to happen because it is already written by God. Q85ID06

Yes they can do it, but not only the scientist, also the farmers, the elders in the family who have learned what is going to happen because they have already live through many different cycles. Q86ID04

What we see here is the farmers' cultural background influencing their responses. Science is interpreted through the traditional lens of the farmers; who accept its claims if it does not contradict their more established religious beliefs.

4.2.3.4 Farmers response to the PES scheme

When introduced to the hypothetical payment for conservation practices scheme almost all farmers wanted to participate (FR). The few that did not want to participate gave a number of reasons for their reticence: they did not own the land (a prerequisite for participation in the program), had health problems, were too busy, or did not think they needed support regarding their soil conservation practices.

However, when the farmers where introduced in more detail to the mechanisms of the program, specifically the bidding portion of it, 75% percent of farmers thought that the system for allocating the funds was unjust (FR-unfair). Merely 11% of farmers though it was a just system.

That is not just because we would start competing with each other and that would not be reasonable for anybody. Q138ID14

[It should depend] on the economic conditions of each person so we can help the ones less able to do so. Q153ID21

The farmers thought the mechanism was too simple and it did not take into account the complexity of the terrain (FR-main.rea); with terrain meaning the physical properties of the land (i.e slope, soil type, vegetation, etc.).

It should depend on the terrain because the conditions are different, specifically the topography and what land use they have on the parcel. Q138ID24

[It should depend] on the terrain, if it is workable with machinery or if it needs to be done by shovel and pick, it will have different price. The slope, the complexity of the terrain and the microclimate of the area because it can become more expensive with more rain. Q153ID11

It should look at the terrain..., focus on the more vulnerable [erosion risk] areas. Q153ID14

They thought it should be based on the cost of applying a practice to a given area and not on who would bid the least.

Because it should be based on the cost of the practice... so we do not commit an injustice. Q138ID11

Throughout most of the answers there was a strong dissatisfaction with how the monetary allocation of the conservation practice mechanism was structured.

Most of them disliked the notion of having to offer lower bids than other farmers, preferring to see what others were offering or, better still, to discuss among all farmers and agreeing on a bid price that seemed fair to everyone (FR-mone.dec).

It should include many farmers...and assign [the monetary amount] in a participatory manner. Q153ID43

Work in groups, organize the farmers, take into account the area of each farmer. Q153ID35

Even more, they thought that by only engaging the lowest bidder the mechanism would not necessarily influence better soil management practices. Some farmers feel that their dependency on the land to provide for them is a much stronger driver to engage in soil conservation practices than monetary incentives.

There are people who will not do the things correctly even if you pay them, on the other hand there are other who do things the right way, and I tell you it is mainly because you know what is the right thing to do, that land over there I have to work it for the rest of my life. Q138ID03

Some thought that the monetary incentive could even be counterproductive, creating bad habits of receiving money and becoming dependant on it.

We want it all for free and that is not fair, because the free stuff is not valued and then come bad habits. Q138ID47

One farmer even compared voluntary reforestation to the PES scheme active in Costa Rica:

For example, there are some farmers that are stimulated [to plant trees] with PES and they do it because it is a business, it's lucrative. While others, for example, a project done with school kids, have accomplished 4000-4500 planted trees in an area because they made them see the need for it, nobody thought on the lucrative part. Q15ID04

The information available from institutions confirms this point. According to ICE, more than 2.2 million trees have been planted in the Birris watershed alone through voluntary initiatives, compared to about 15 thousand that have been planted under the Costa Rica PES initiative (Calvo G., 2010 pers. comm.).

Surprisingly, the vast majority of farmers were willing to participate in the program even if it did not cover their costs; with almost a quarter willing to participate even if they got 75% less than cost (FR-cost.inf). From an economic perspective, this finding is awkward since one might expect that farmers would want to cover their costs; although they do achieve on-farm benefits of retaining soil. However, what motivates farmers to engage in a soil conservation program is far more complex than just the costs or revenues of implementation. The results indicate that the motivation to manage their lands well is more related to knowledge, capacity, and the personal values that they hold, than to financial incentives.

The perspective that farmers had on the monetary payments seem driven by altruistic or community equity motives, rather than by a means to help them achieve conservation practices. They thought that monetary payments should be tailored to the financial needs of each person, with those most in need receiving the largest payment; whereas those without a financial need should be expected to do the conservation practices without a monetary reward.

I don't think it is effective [bidding mechanism], because the people who have money must do it [conservation practices] by themselves, and the people who do not have money must receive help, so it is more than fair to respond to the needs of each person. Q138ID08

This statement is in accord with the points above, in which farmers indicate they do not feel that financial incentives are an important driver for taking up soil conservation practices. Their answers show an underlying belief that good soil management is a moral duty and should be done if one has the capacity to do it.

4.2.3.5 Farmers suggestion for a PES scheme

When asked, "What activities would you request be available in this program so you would be willing to participate?", the most overwhelming response was technical support (FS). Three quarters of farmers

felt that what they needed to better manage their lands was technical information and guidance regarding effective practices. As we have pointed out before, farmers value the technical support that could be received from an agronomist, but find them too expensive to consult on a regular basis.

Farmers would also like a technical support program to provide opportunities for building their own capacity by providing training and better information delivery. Having accurate information about best practices would help farmers increase their knowledge and keep them up to date on both farming practices as well as climate change related issues and local impacts.

One of the activities they suggest adding to the soil conservation program is financing, but this is a complicated issue because the current financing structure requires farmers to mortgage their land. Farmers are fearful of obtaining mortgages, since the land is their livelihood, and they feel that they are not protected in case of crop failure.²⁶ Related to financing, some farmers would like to have more access to loans for machinery or rental opportunities.

4.2.4 Discussion

This study explores two research questions:

1. What motivates small scale farmers to engage in conservation practices?
2. Do small scale farmers support the implementation of a PES policy to support them in conservation practices?

In this section we discuss our findings, as well as broaden the discussion to include the implications of these results for the current discourse regarding payment for ecosystem services as a means of promoting ES provision.

²⁶ While there may be opportunities for insurance for small farmers, this topic is beyond the scope of this chapter.

4.2.4.1 *What motivates farmers?*

When it comes to understanding soil management practices, each farmer confronts a different reality in terms of: 1) knowledge on conservation practices and alternatives; 2) topography, location and type of use of their land; 3) skills, resources (labour capital they have access to, machinery, financial, and others), and access to technical support; and finally 4) their underlying values, goals, and emotions. All these aspects influence the individual farmer's motivation to engage in better soil management practices (Figure 4-6).

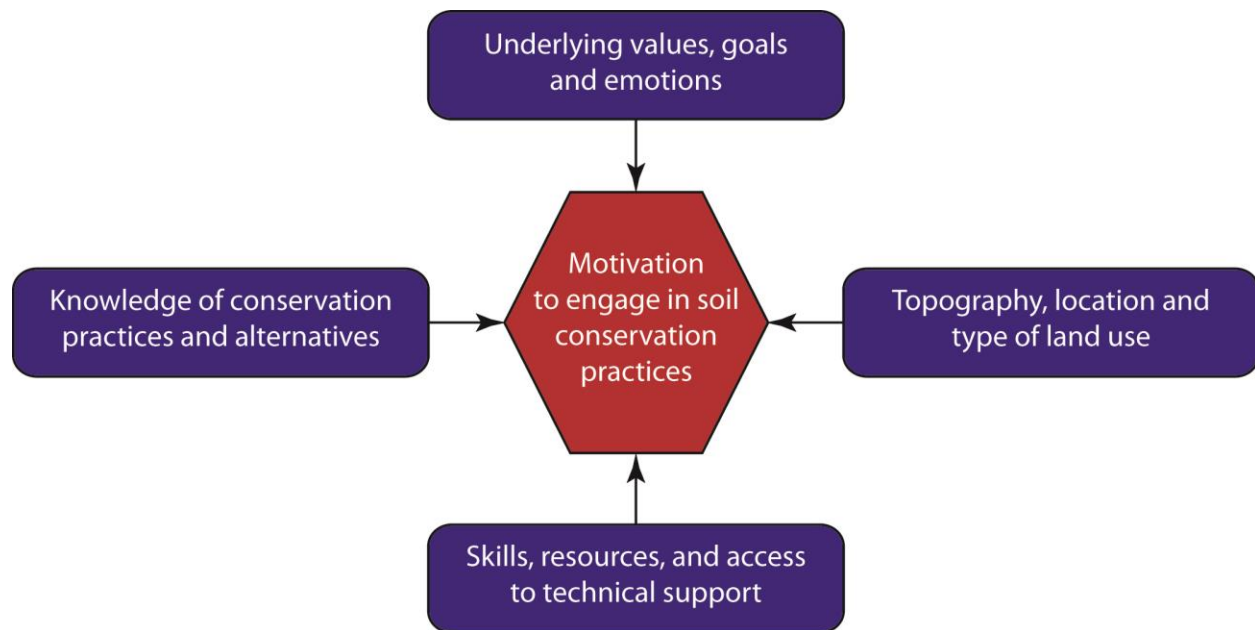


Figure 4-6: Factors influencing motivation

Farmers are aware of these different realities and variables, and suggest that individuals should be helped where they are deficient (which is not always in financial capital) so they can better manage the soils. The vast majority of farmers do not support a simplistic bidding program that only addresses the financial aspect of what they realize is a much more complex problem. Building on Figure 4-6, we have mapped out what this research learned from farmers regarding incentives they would prefer to help them better manage their land (Figure 4-7). One can see that farmers point to multiple variables in the motivation diagram, whereas PES only tries to influence farmers directly through financial incentives. Farmers do see a role for monetary assistance, but only for those worse-off. They see payment issues more from the perspective of justice, fairness, and equity than as mechanism to encourage them to engage in soil conservation practices.

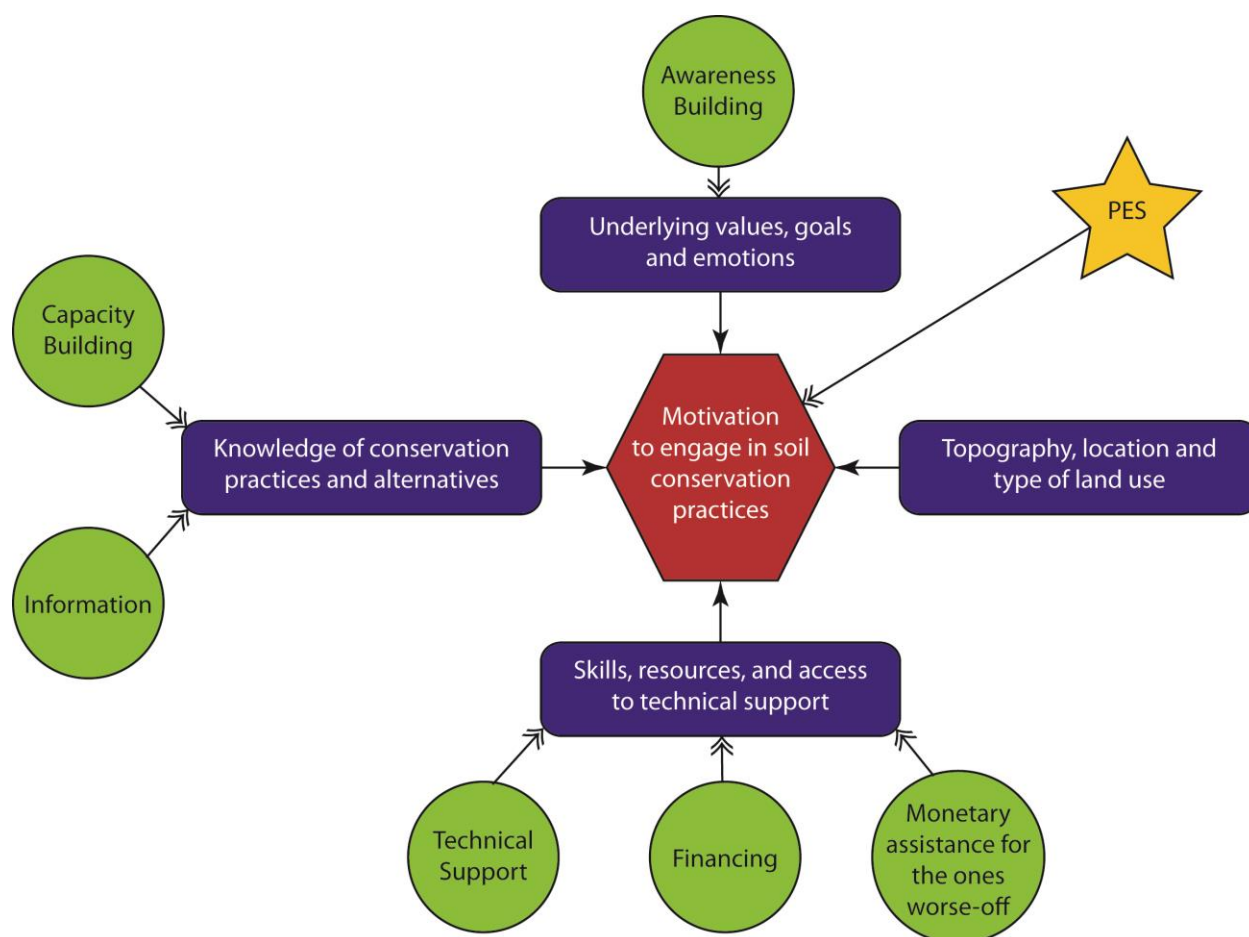


Figure 4-7: Soil management incentives

4.2.4.2 *Payment schemes and effectiveness of soil conservation*

Some concerns that farmers raised regarding the PES for soil conservation practices include the notion that payments do not guarantee better soil management, since they do not believe that a cash incentive would make the difference between implementing bad or good soil management. PES schemes can be effective when used for setting aside land within a tree-based scheme, or excluding other users (hunters, foragers) from an area, but we are sceptical about its use in promoting complex management of soil. To our knowledge there are no successful cases in which PES schemes have been successfully applied to soil conservation practices.

4.2.4.3 *Payment schemes contrasted with human morals*

A common assumption in the PES literature is that individuals will not participate in a conservation program unless full transaction and operational cost are recovered (Ferraro, 2008). In other words, individuals will not voluntarily engage in a conservation program unless they are made financially better-

off or at least the same as before. We argue that this might not always be the case, especially in small rural communities that share a common tradition and history. In our study area, farmers were willing to engage in the program even if their costs were not covered, with some willing to participate with only 25% of cost being covered. Basically, this finding indicates that many farmers were willing to pay the cost required to engage in the conservation practices out of their own pockets. It is clear that these farmers are motivated to engage in soil conservation practices for more than just financial gains. The underlying pro-environmental values, the desire for maintaining social coherence, and desire for capacity building and learning showed up as being more important factors in motivating individuals to participate in a conservation program than were the financial incentives.

Another common assumption is that individuals always want to maximize their economic benefits (utility) from payments they might receive from providing an ES (Ferraro, 2008). This assumption might hold true and be useful in areas with large populations where individuals act in an anonymous manner, and therefore a bidding scheme might be an appropriate mechanism to address issues of landowners' hidden information (transaction and operational costs). However, this assumption is based on a normative model of human behaviour (*homo economicus*), in which individuals are autonomous utility-maximizers, functioning independently of a social context. In small communities that have shared traditions, social norms, and values, it is important to understand individual motivations within the social context in which they have evolved. In our case, the findings show farmers are clearly not trying to maximize individual utility in terms of their land and its effects on others; on the contrary, they feel a personal obligation to be good stewards of the land and at the same time balance this orientation with the reality of working the land to provide for their families. We would argue that it may not be socially acceptable, effective or appropriate to induce competitive behaviour in such a community (more on this in the sections 4.2.4.4 and 4.2.4.5).

Another concern that arises with PES is the potential to sever the individual's sense of worth and place. Farmers in the Birris watershed are generally proud individuals who have worked the same plots of land for multiple generations. A few farmers thought that paying a person for something they did not earn through work might lead to bad habits. In this manner, the potential unwanted side effects of monetary incentives could be detrimental to both individuals and the whole community.

4.2.4.4 *Bidding, fairness, and equity in poverty alleviation*

The premise of conservation auctions or biddings is to induce farmers to reveal their reservation prices (Cason & Gangadharan, 2004; Ferraro, 2008; Jack, Leimona, & Ferraro, 2008). Reservation prices are the minimum payment farmers are willing to accept for engaging in the transaction. The underlying objective is of market efficiency, where landowners would engage in a competitive exercise until the payment for conservation matches their transaction and operational costs. The landowners with lowest cost per unit of conservation would in theory win the auction and be awarded the contract(s).²⁷

When the bidding scheme was presented to farmers, the vast majority saw it as unjust for three main reasons. First, farmers saw the mechanisms as not providing equal opportunity; since the landowner with lowest per unit costs (a function of the size of the farm and thus potential economies of scale) and operational costs (a function of topography and current land use) would benefit from the program and others would not. Here we need to understand that almost every farmer (90%) wanted to engage in a soil conservation program (with their underlying motives discussed above), so the idea that they would have to compete with each other to be part of the program was perceived to be unfair.

Second, farmers felt that priority should be given in the payments to those who are worse-off. Though PES schemes were designed originally to improve management of natural resources and not as mechanisms for poverty reduction, many writers argue that PES schemes in the Global South should meet the dual objectives of poverty alleviation and environmental conservation (Corbera, Brown, & Adger, 2007; Grieg-Gran, Porras, & Wunder, 2005; Landell-Mills & Porras, 2002; Pagiola, Arcenas, & Platais, 2005). Moreover, special consideration to the local context, social norms, and values are all crucial; introduction of a scheme that is perceived to benefit those better-off could damage the community's social well-being and harm trust relationships that have evolved over centuries. Farmers in the Birris watershed felt that the payments should be tailored to the financial needs of an individual and not necessarily to the ES they are able to provide. This pattern reflects their underlying values of social equity in terms of support for those least well-off.

²⁷ This line of reasoning ignores the well-documented phenomena of the winner's curse in auctions. See: Thaler (1988) and Kagel and Levin (1986).

Finally, farmers wanted to decide collectively on how the benefits (in terms of shared price) were going to be distributed in the community. They also wanted to provide input into other aspects they judged as necessary for a successful soil conservation program. Basically, farmers wanted to play a role in the creation of and decision making processes for any PES scheme.

Farmers addressed three elements of equity: equity in access, equity in outcome, and equity in decision-making. These elements have already been discussed in depth elsewhere (K. Brown & Corbera, 2003; Corbera, Kosoy, & Martínez Tuna, 2007). What clearly stands out in this study is that equity in its multivariate form is a crucial component that needs to be considered and included. If potential participants were brought together to participate in the design, the form that the PES scheme might take could be quite different than the bidding scheme presented in our survey.

4.2.4.5 Payment schemes and social resilience

The drive to introduce more direct incentives, such as PES, is largely due to the perceived failure of other more indirect incentives to conserve ecosystems and their services (such as Integrated Conservation and Development Projects), (Ferraro & Kiss, 2002). However, for two primary reasons, this research suggests that indirect incentives are clearly necessary in promoting soil conservation practices and that advocates need to be very careful when introducing direct financial incentives. First, Bowles (2008) argues that the introduction of economic incentives may diminish the morals and social norms that emphasize contributing to the common good. In the views of farmers interviewed for this research, a PES scheme has the potential to reduce collective values and motives to conserve nature. The results indicate the introduction of bidding and individual payments may divert the constructed narrative of the human-nature interactions of the farmers away from conserving natural resources (see quotes above Q138/D03 Q138/D47, Q15/D04, Q138/D08). The farmers believe it is morally inappropriate to view nature as a good that can be traded in a market in which individuals can reap differential benefits by underbidding others, in essence commodifying nature (Kosoy & Corbera, 2010; Swart, Ferraro, & Kiss, 2002). The intrinsic motives for conserving nature could be replaced by extrinsic market motives. Once this shift happens the morality of the action is eroded and a new status quo becomes recognized, creating a shift in values (Bowles, 2008). It is possible to imagine a future where a few farmers receive PES for conservation practices, while the vast majority of farmers perceive a right to exploit the land because they are not receiving PES. Conservation practices would then have become commodified, and it would be up to the market, not the individual, to allocate efforts. In a context like the Birris watershed where

cultural norms exist that promote pro-environmental behaviour, designers should be very careful to avoid introducing mechanisms that might shift the motivation for conservation from intrinsic (within individuals) to extrinsic (the domain of market incentives only).

Second, Goerner et. al. (2009) argue that long-term vitality of a complex system is dependent on two complimentary structure-related attributes: efficiency and diversity. They argue there is an optimal range, or *window of vitality*, within a continuum of system conditions; from brittle (insufficient diversity) at one extreme to stagnant (insufficient efficiency) at the other extreme. Staying within the window of vitality between these extremes allows the system to endure over long periods of time. If too much emphasis is placed on efficiency, positive-feedback autocatalytic loops result in continual increases in efficiency at the expense of resilience in the system. In our research, the structural analogy to the findings of Goerner et al. (2009) is represented by the diverse system of farmers' motivations to engage in soil conservation practices. The introduction of a PES scheme may contribute to short term growth in soil conservation practices, but at the same time lead to declines in other parts of the motivational structure which would reduce the overall system diversity that supports conservation practices (Figure 4-4). A predominant PES scheme also has the potential to alter or replace the complex web of social dynamics (social capital) with the financial exchange mechanism, as discussed above. Gains in ES provisioning might be seen in the short-term, but at the expense of long-term resilience of the social system that manages the ES provisioning. We (the authors) are not necessarily opposed to a PES scheme, but we do have concerns about it becoming the single policy option (with its main concern being efficiency) as it has been applied in the rest of Costa Rica (Sánchez-Azofeifa et al., 2007). Such policy, in the case of the Birris watershed, has the potential to lead to a more fragile system, dependent on external influences (i.e., the flow of financial capital). We instead argue for a more complex policy mix that supports the multiple variables that enable soil conservation practices, as discussed below.

4.2.4.6 *Three approaches to provision of ES*

We argue there are three primary approaches to encouraging ecosystem service provision (Table 4-6). Costa Rica has been experimenting mainly with the first two options, reflecting the orientation of the literature on ES (see earlier citations). We argue that a third option is needed in areas where land parcels are smaller and social ties and complexities are more important. The environmental challenges that we face probably require all three approaches to maintaining and enhancing ES. Open access, public resources and large private lands that provide ES are best managed through regulation (e.g.,

creation of parks, enforced fallow land) and taxation. Owners of medium to large private properties can be encouraged through market forces to provide ES, where given the size of their lands transaction costs are less likely to be an impediment. Finally, subsistence and small to medium private lands need a more complex policy mix, these policy mixes will be context specific. The policy mix that we have discussed above will not necessarily be appropriate in other areas.

Table 4-6: Three approaches of providing ES

	Option 1	Option 2	Option 3
Type & size of resource	Open access resources, public lands, and large private lands	Medium to large private lands	Subsistence, small to medium private lands
Issue	Lack of control over exploitation of the resource harming ES that it provides	ES are an externality for markets. Competition and scarcity drive the system with no accountability to ES	Erosion of environmental values, lack of capacity and conservation know-how. Erosion of institutional protections due to globalization and free-market expansion
Objective	Protect public resource and the ES they provide. Force privatized resource to maintain a certain level of ES provisioning	Commodify ES and optimize the utility of providing ES	Build local and institutional capacity, strengthen social networks and capital, cooperative action
Dynamics	Command-and-control	Market forces	Participatory, interactive, learning, conflict resolution, trust
Participation	Top-down	Market as an intermediary	Bottom-up
Policy focus	Regulation, taxation	Market incentives (e.g., PES)	Participatory policy design, policy-mix options
Study area	Identifying areas of high risk, or ones able to provide the largest amount of ES	Creation of market system (e.g., auctions, bidding, cap-n-trade) for ES	Human behaviour & motivations, institutional network analysis, governance, common pool resource management
Knowledge base	Science	Economics	Sociology, psychology, cognitive studies, social learning theory, political sciences, complex system

The question is not which approach is best, but rather: what is an optimal combination of these three approaches in a given context? Costa Rica is already using two of these approaches and we argue that a third approach is needed. This third approach is more place-dependent and needs to be developed through participatory processes that bridge institutional boundaries and include the voices from the local communities. The use of many of the participatory and learning techniques and methods that were embedded in previous Integrated Conservation and Development projects have been significantly reduced in most PES schemes, based on the assumption that existence and conditionality of payments would guarantee acceptance and participation of ES providers (Engel et al., 2008; Wunder & Albán, 2008). The main reasons for this change was that PES are argued to be more practical and cost-effective (Ferraro & Simpson, 2002; Simpson & Sedjo, 1996). We believe, along with Petheram and Campbell (2010), that there is a place for PES schemes that involve bottom-up learning and participatory methods for designing and implementing policy mixes that are attuned to the local needs and address the multiple challenges that these people face when trying to better provide and conserve ES.

4.2.4.7 *Limitations of the study*

There are a number of limitations to this study. The first limitation of this study is the relatively small sample size of 50 participants. Even though the sampling was random and represent about 15% of registered landowners of the Birris sub-watershed there is a possibility that the data is skewed given its relatively small size. Furthermore, the study only focuses on the Birris sub-watershed that is part of the larger Reventazon watershed. From the data in this study we are not able to say if the results and discussion are valid for other parts of the watershed.

A second limitation of the study is the survey design, which has three limitations. First, the hypothetical PES schema present just one of many possible PES schema – albeit the most common one. It is possible that with a different PES schema farmers would have altered their responses and therefore the results present in this study would be different. Second, the survey methodology only captures individuals stated thoughts, beliefs and preferences, which can differ from revealed or actual preferences (List & Gallet, 2001). Third, even though a lot of attention was placed in the survey design, it is possible that participants were influenced by one or more cognitive biases, such as: anchoring effect, availability heuristics, framing effect, and loss aversion (Kahneman, 2013).

A final limitation of the study is the fact that the data was analyzed by researchers that have different frames of reference, worldviews and values than the farmers interviewed. We have interpreted the data

and drawn conclusions from it. However, these interpretations and conclusions were never validated with the original participants of the study and therefore it is possible that omissions and unintentional misrepresentations are presented in this study.

4.2.5 Conclusions

This chapter studied farmers' motivations and values regarding soil conservation practices and their responses to a hypothetical PES bidding scheme. The findings show that the motivations of small scale farmers for engaging in soil conservation practices are complex and that the most common PES scheme by itself does not address the main challenges that farmers face when trying to engage in soil conservation practices. Even further, we argue that a PES scheme has the potential to undermine the farmers' previously established conservation values and concerns by changing perceptions and shifting incentives. We suggest that PES schemes focused on small parcels in similar contexts should seek more complex policies that are attuned to the local needs and address the multiple challenges that local people face when trying to better provide and conserve ES. These policies should be participatory, focused on social learning and negotiated agreement, building reciprocity and trust.

4.3 Concluding remarks of the case study

What is the best approach for addressing soil erosion in the Birris watershed? In this section I will draw from the ten recommendations introduced in chapter 3 and make suggestions for how people in the region might move forward.

Recommendation 1 – Adaptive work (type III and IV) demands experimentation: The challenges in the Birris watershed can be framed as a type IV sustainability challenge, which is adaptive and requires learning from most, if not all, farmers as well as other stakeholders. In Costa Rica, PES schemes have been applied successfully in other areas and are generally accepted by the population at large. In this context, I would argue that the proposed PES scheme in the Birris watershed is likely applying a technical solution to an adaptive challenge. As we argue in the case study, PES schemes are appropriate, and have been proven to work, for large land holders where the transaction costs in relationship to the overall farming costs are small, and where the main driver of behaviour is financial. The farmers of small and medium land holdings would find PES scheme more expensive, and in essence they do not seem to tackle the root cause of soil erosion in the area. The underlying reasons why farmers of the Birris watershed are not engaging in more soil conservation methods are not solely or mainly financial ones.

With this new insight, the interventions should take an experimental approach; seeking to support behavioural change by working with the multiple barriers, and hence opportunities, facing farmers in the Birris watershed.

Recommendation 2 – *Distinguish between the technical and adaptive aspects of the challenge:* There are a number of known agricultural techniques and methods that if applied would substantially address the soil erosion problems. Techniques and methods are therefore the technical aspect of the challenge. How to encourage a greater uptake of these methods by the local farmers could be one possible framing of the adaptive challenge.

Recommendation 3 – *The people with the problem have to own and take responsibility for the problem:* The people experiencing the problem of soil erosion are mainly the farmers, as over time they lose productive soil, as well as the National Electricity Institute (ICE), as soil accumulation in the dam directly impacts the amount of electricity they can generate and increases the dam maintenance cost. ICE is taking responsibility for addressing soil erosion by spending approximately \$300,000 yearly to promote soil watershed management. The farmers, as documented in this case study, are aware of the soil erosion challenges and most of them acknowledge their responsibility for better addressing the challenges.

Recommendation 4 – *Distinguish between what's precious and what's expendable:* The practices that farmers utilize have been learned and mastered over the years; with some farmers having learned them from their parents. Changing these practices requires undergoing a period of uncertainty, as one learns something new and unlearns practices that might have taken a lifetime to master. Change initiatives are more likely to be successful if they pace the change and start with small areas in a farmer's field. This would reduce the risk of crop failure if the farmer is unable to learn the new technique, or if the new technique is inadequate. On the other hand, from the case study we learned that farmers' values are aligned with the idea of soil conservation. Framing the need for new techniques within farmers' values to conserve the well-being of their land, and not just increase productivity, will also more likely lead to a successful change initiative.

Recommendation 5 – *Address the work avoidance generated through the process of loss:* In this case study we did not look into the implementation of any actions and therefore this recommendation is not

applicable. Once a set of actions are undertaken paying attention to and diagnosing work avoidance mechanisms would be fruitful.

Recommendation 6 – *Start addressing the problem at the lowest decision making scale possible:* For the context of soil erosion it seems that the Birris watershed, a sub-watershed of the Reventazon River, is already the smallest scale feasible. The challenge of soil erosion has a large bio-physical component, so that reducing the scale to something smaller than the Birris sub-watershed risks losing the sense of place and connection that local farmers probably have with the area.

Recommendation 7 – *Abandon universalism where everyone needs to agree on the solution:* In the context of soil erosion in the Birris watershed this is not a risk, as different stakeholders are trying to address the challenge from multiple angles and no governmental policy is in place that forces one solution over another. The Ministry of Agriculture have initiated multiple PES schemas in the country, making Costa Rica one of the world leaders in developing and implementing PES (Sánchez-Azofeifa et al., 2007), but fortunately this is not done as a single policy approach. The challenge is that the main source of funding for agricultural programs is the Ministry of Agriculture and there is a pre-disposition to implement PES schemas over other more clumsy solutions, as discussed in the case study. However, this does not stop research institutes, like CATIE²⁸, from trying other possible interventions.

Recommendation 8 – *Think silver buckshot, not silver bullets:* Figure 4-7 in the case study visually represents, with green circles, the multitude of intervention options that could assist farmers to adopt better soil management practices. PES schemas, which are represented in Figure 4-7 as a yellow star, could also be considered as an option for intervention, especially if the design is opened up to farmer input as discussed in the case study. As well, multiple voluntary tree planting initiatives have already contributed to more than 2.2 million trees being planted in the Birris watershed alone (Calvo G., 2010 pers. comm.), which support soil conservation practices as tree roots and foliage cover help reduce soil erosion.

²⁸ Centro Agronómico Tropical de Investigación y Enseñanza (CATIE)

Recommendation 9 – Develop solutions at multiple scales: The focus of this case study has been at the scale of the sub-watershed, diagnosing farmers' behavioural barriers and opportunities for engaging in soil conservation practices. A larger scale intervention could be to create new international markets for crops, vegetables, and fruits that increase the ground and canopy cover, as these have a very large effect on soil erosion (Nearing et al., 2005).

Recommendation 10 – Create mechanisms that foster dialogue and learning: The Birris watershed has an extension office that overall has good relationships with multiple stakeholders; such as farmers, ICE, the agricultural research center (CATIE), and the Ministry of Agriculture. This positioning provides it with informal authority (Heifetz et al., 2009) across factional divides. The extension office also benefits from being a boundary organization with greater ability to mobilize change (A. Carr & Wilkinson, 2005). It also has the role of knowledge distributor. Given this reality, it seems that the extension office is well positioned to develop new mechanisms for encouraging dialogue, both between farmers and across scales; such as between the Ministry of Agriculture and farmers.

4.4 Who leads the change?

Many of the sustainability issues that we face are adaptive challenges that require more from us than the best science and technical expertise. I believe that a blind spot of those of us engaged in promoting sustainability is that collectively, in the sustainability discourse, we have overly focused on *what* needs to change and less so on *how* to go about creating the changes to which we aspire. By studying the *how* of accomplishing change, I invariably end up with the question of *who* leads the change, which brings me to the topic of leadership that I will explore in Part 2 of the dissertation.

Part 2 – Education for sustainability leadership

Chapter 5. The what, how, and who of sustainability leadership

Making progress on the pressing sustainability challenges that we collectively face is both a daunting and exciting endeavour that calls upon us to exercise sustainability leadership. In chapter 2 I discussed the theories and processes of change in individuals, organizations and society. The challenges of supporting university students to develop the skills needed to mobilize change are the focus of this chapter. I begin by defining how sustainability leadership is understood in this dissertation and emphasize how it is distinct from authoritative expertise in sustainability. Then I proceed to provide a background to teaching and learning sustainability leadership within a university context, which leads to the case study in the next chapter that describes a course that aimed to develop the know-what knowledge, the know-how skills, and know-who awareness of sustainability leadership.

5.1 Defining sustainability leadership

Leadership is a difficult area of study, as it often is conflated with related but distinct phenomena such as management positions, seniority, titles, roles, personal attributes, and/or management. This section provides an overview of how *leadership* is defined in this dissertation, and follows to situate the practice of leadership in the context of sustainability. To help elucidate further the concept of sustainability leadership I illustrate how the work of leadership is distinct from the exercise of authoritative expertise, and how the standard application of authoritative expertise via the procedural aspects of planning, implementing, and monitoring of a sustainability project or policy can be misleading when facing a complex sustainability challenge. I conclude this section by suggesting a framing of the procedural aspects of sustainability that is more conducive to mobilizing change and the practice of leadership.

5.1.1 What is leadership?

The word *leadership* is active in a myriad ways; not only in popular and academic literature, but also in our own minds, both consciously and unconsciously. Jung's (1990) theory of universal social complexes

or archetypes is one that is often invoked in the discourse around leadership; with the hero archetype being especially prominent.

If we follow Jung's theory, complexes are most notably unconscious, and we tend to project them outward onto celebrities, athletes, CEOs, and prominent political figures; many times understanding them as leaders. It is no coincidence that the story of the hero is present in ancient mythology across the world (J. Campbell, 1949); as humans are apt to re-create these myths in their lives, even to this day. This framing of leadership seems to automatically and unthinkingly equate leadership with the lives of a hero or heroine, where in actuality it refers to the hero's journey (J. Campbell, 1949), the *process* of growing, of differentiating and integrating.²⁹ This is the developmental journey that Kegan (1994) describes: the process of making that which is fused and subject in our awareness into object, so we can see it and have agency. The more we shift that which is subject into object in our experience, the further down the path of development we have travelled. This internal process of development is an important one that each one of us undertakes, yet we cannot equate this with leadership.

On the other hand, what can be seen as the outward manifestation of the hero's journey informs a dominant cultural narrative of what constitutes a successful leader. Bradford and Cohen (1998) argue that heroic leaders are those who take sole responsibility for controlling a problem, steering a group, clarifying responsibilities, and managing performance. This heroic behaviour sets up a vicious and self-re-enforcing cycle, where subordinates delegate upward and participate less and less on critical issues, creating a dependency on the heroic leader for answers; a 'leadership trap' (p. 8). A heroic form of leadership might serve well when the problems faced are technical, with clear solutions that can be implemented in a top-down, command-and-control manner, or when facing a crisis requiring clear directions to diminish the disequilibrium in the social system. In contrast, heroic leadership typically fails to provide adequate responses to novel, non-routine, adaptive challenges. For this dissertation, Bradford and Cohen's heroic leaders are equated with people in positions of authority who have

²⁹ Though the male and feminine hero and heroine journeys in Jungian psychology are not the same (Murdock, 1990) the process of growing, of differentiating and integrating, are similar for everyone.

planning and management expertise, which is not the same as exercising leadership. This leads us to the next point.

It seems that it is also hard-wired in us to conflate occupying positions of authority with exercising leadership. Le Bon (1896) describes how groups instinctively organize and individuals place themselves under the authority of a chief. Freud (1921) expands on Le Bon by introducing the father complex and how it shows up in the herd mentality, which at its essence reflects our deep longing for certainty and guidance. Heifetz (1994) clarifies this phenomenon by stating that authority is the power given to someone in exchange for performing the services of protection and direction, and emphasizes that authority does not equate with leadership. Authoritative expertise, or what Bradford and Cohen call heroic leadership, is an adequate response to technical challenges that have clear problem definitions and known solutions. For example, the design and construction of a LEED certified building is a complex process requiring the integration of multiple systems and expertise. This type of challenge lends itself to the skillful use of authority to complete the task. However, when the problem definition and/or the solution require learning, authoritative expertise is not sufficient to address the task. These types of challenges, what Heifetz calls adaptive challenges, require a different form of leadership.

From this framing, leadership is a practice, an activity of mobilizing people from one place to another; a perceived better place. Leadership is not value free; at its roots there are aspirations and intentions for changing something that we care about. I would argue that at the highest level of abstraction, leadership is about expanding consciousness, developing more freedom, and engaging in transformative learning. The work of leadership brings these abstract values down to earth, to the practical challenges faced by a particular group of people.

The beauty of distinguishing authority from leadership, and further defining leadership as a practice, not a role, is that it can transcend many of the dualities and simplistic distinctions that are widespread in the leadership literature. Yukl (1999) explores a few of these dualities, such as task-orientation vs relation-orientation, autocratic vs participative styles, transactional vs transformational, and so forth. Our actions are limited when we get stuck on one side of the duality; for example, if we come to believe that leadership should be participative and not autocratic, then we are handicapped in situations that require the effective use of authority and command (e.g., crisis situations). Or, if we believe that only individuals in formal positions of authority can exercise leadership, then we will be dis-empowered to act; and instead project our discontent with the status quo towards individuals with authority.

Rost (1991) provides an overview of leadership studies from the 1900s to the 1990s. With some irony he criticizes the two most common statements made in leadership studies: “[1] Many scholars have studied leaders and leadership over the years, but there still is no clear idea of what 'leadership' is or who leaders are. [2]The second statement usually takes the form of several paragraphs summarizing the popular theories of leadership: great man, traits, group, behaviorist, and situational.” (p. 13). Rost strongly argues that, for leadership studies to be more fruitful, they require more clarity and consistency in the definition and nature of leadership.

The challenge with following Rost’s suggestion is that leadership cannot be reduced to simple concepts and relationships. Neither can it be studied devoid of context. What might be seen as leadership in a turbulent, recovering, post-conflict region is very different from what leadership will look like in an affluent society working on equality of women in the work place. Useful studies of leadership therefore distill underlying patterns of social systems into metaphors that help us distinguish what before was undistinguished. Of all the definitions of leadership that I have reviewed, the distinction between authority and leadership is the most clarifying one. In this sense Heifetz is a master of metaphors; in his latest book (Heifetz et al., 2009) he provides a multitude of metaphors and weaves them together to provide a tapestry describing the practices of leadership.

Metaphors, like stories and aphorisms, permit multiple levels of interpretation and understanding. For example, one of the key metaphors that Heifetz introduces is ‘orchestrating conflict’. This metaphor operates at multiple levels of cognition; from the gross, to the subtle, to the causal (see Wilber, 1979 and glossary for definition). At the gross level we can observe and interpret actions taken by an individual or group to facilitate productive conflict as a means of energizing a group, ripening what is important, surfacing perspectives, and allowing for differences to collide so novelty can arise. Leadership studies would then interpret these actions as important competencies such as ‘stakeholder analysis’ or ‘power styles’. However, studying competencies of leaders will always fall short of the infinite ways that the practice of ‘orchestrating conflict’ can arise in ever changing contexts. Furthermore, it misses the subtle and causal levels of experience.

The subtle equates with the internal lived experience of leadership. It includes the conscious and unconscious realities, the rational and irrational, feelings and emotions. At the subtle level, orchestrating conflict requires some level of equanimity and the capacity to intuit when to lower the tension so the divisive forces do not pull everything apart. At this level of experience Heifetz provides us

with metaphors such as ‘holding steady’ and ‘regulating the heat’, which act as linguistic abstractions that contain a complex phenomenon and options for intervening. Ideally, these metaphors grow with us as practitioners of leadership, becoming richer and more elaborate as we gain experience and learn from others.

At the causal level of experience boundaries soften. Us and them, good and bad, conflict and peace; these dualities are integrated and experienced as a whole. It is at the causal level that we can experience Buber’s (1937) ‘I and Thou’. It is here, where the other is no longer separate from us, that genuine compassion arises. Our experience of time expands and the urgency we often experience softens, which naturally gives us a sense of patience. We are able to embody the mysteries of life, not-knowing becomes a natural part of us, inspiring us in wonder of what-is and what-is-possible. Heifetz gives us the metaphor of an ‘open heart’ as a gateway to the causal experiences of leadership. It is the quality of open heart that nourishes our equanimity in the face of conflict, and is the source for how we are able to experience in others their discomfort in conflict; providing us with clues to regulate the heat.

What is leadership then? For the sections and chapters that follow I will draw mainly on Heifetz’s characterization of adaptive leadership. Over the years his metaphors have come alive for me, which naturally inclines me to discuss these concepts from a first person perspective; as one who has integrated his distinctions with those of others, as well as those I have clarified personally. Using Heifetz’s (2009) language, leadership is the “practice of mobilizing people to tackle tough challenges and thrive” (p. 14). On this account, leadership is not the practice of providing answers, but of mobilizing people in a process of learning. This practice encompasses our experience from the gross to the causal. At its root, it empowers us to be more integrated, free-functioning, and agile at responding to adaptive challenges. From this perspective, then, leadership is distinct from authority. While both are needed for making progress on sustainability challenges, the skills for each are quite different.

5.1.2 When is leadership needed in sustainability challenges?

To make progress on sustainability challenges we first can draw on Table 3-2 (chapter 3) and understand a crucial distinction between the types of challenges that require authoritative expertise and those challenges that require leadership. Type I and II challenges are more technical in nature, meaning that as a society we have already developed the know-how, the competencies needed to address the challenge. In type I and II challenges what is needed is planning expertise that can arrive at a clear strategy,

including vision, objectives, measures, actions, and a timeframe of how to go from A to B. 'A' being our current situation and 'B' a future state where the problem identified has been addressed. Going successfully from A to B also requires the ability to implement the plan successfully, in essence good management (Drucker, 2001). Whereas type III and IV challenges are adaptive challenges that cannot be addressed solely with authoritative expertise of planning and management; they require leadership (this point is expanded further in the next section). From this framing not all sustainability challenges require leadership; it is only those that have an adaptive nature that require leadership.

The danger of confusing technical with adaptive challenges is that it generally leads to the application of authoritative expertise and not leadership. When a challenge is adaptive and requires leadership the task of the person in authority is not to define the problem, its solution, and implement it, but to frame the challenge, its issues, and ask key questions that drive learning about the situation. Furthermore, exercising leadership in adaptive situations calls for disorientating current roles, letting conflict emerge, and challenging norms (Heifetz, 1994). These actions are counter-intuitive for most people in positions of authority, as we do not realize how deeply embedded and conditioned we are to authority dynamics (Le Bon, 1896). These authority dynamics create a relationship of dependency of groups on those in positions of authority (Freud, 1921), and by giving away our responsibility we are also unconsciously giving away our freedom (Frankl, 1959). Ferdig (2007) hints of this dependency relationship when discussing the need to rethink leadership and change in the context of sustainability:

People look to leaders for guidance, direction and answers and are often comforted by the sense of stability and predictability that comes from a leader perceived to be 'in control.' However, this belief can result in abdication of personal responsibility, be a barrier to understanding the nuances of complex problem solving, and limit the range of appropriate responses to various challenges. Deferring to leaders often creates a 'learned helplessness' that impedes synergistic momentum needed to generate innovative solutions. In the work of sustainability, there is no room for helplessness; each of us has an opportunity to be helpful in working with others on a sustainable course of action. (p. 30)

This is not to say that authority and the ability to influence others has no place in leadership and making progress on adaptive challenges, quite the contrary; in the right situation they are useful instruments, but they are just that, instruments in a larger framing of what it means to exercise leadership.

A key point in the context of this dissertation is emphasizing that the practice of sustainability leadership is distinct from having clarity on the sustainability problems and solutions we face. Furthermore, in the most difficult adaptive challenges we do not even know what the problem is (Heifetz et al., 2009), never

mind have solutions for it. Therefore, distinguishing leadership from authoritative knowledge has the potential to empower us; regardless of our knowledge of the problem and the relative authority of our position. Realizing that our understanding of the complex adaptive challenges is limited, and having the humility to acknowledge that even the most advanced thinking in the field is probably closer to a ‘best guess’ than to actual solutions, can help us move away from dogma to practicality; from unilateral interventions towards a process of engaging with the challenge and with each other in search of its solution. This re-framing can free us from the tyranny of having to have answers before we can act (Ferdig, 2007).

Drawing from Ferdig and Heifetz work, sustainability leadership is defined, in this dissertation, as the practice of mobilizing people to make progress on the economic, ecological, and social adaptive challenges they face. To elucidate what is meant by the *practice of mobilizing people*, the next section describes a shift in how we generally understand the work of mobilizing people when the challenge faced is adaptive, and therefore requires leadership.

5.1.3 The work of sustainability leadership

When facing a technical sustainability challenge it is likely that those involved will engage in three distinct procedural phases: planning, implementing, and monitoring of a project or policy to address a sustainability issue. As the challenge becomes more adaptive the above way of thinking on how to go about mobilizing people to address the challenge begins to fail³⁰; since part of the difficult work of sustainability change is first making the issue ripe enough that the key stakeholders are willing to come together, and then mobilizing them through a process of reconciling conflicting perspectives to arrive at some shared understanding of the problem and solutions for moving forward. From a leadership perspective, and building on Williams (2005) distinctions, I suggest that the linear phases of plan, implement, and monitor are more usefully conceptualized as three distinct and interwoven challenges: activist, coming together, and developing solutions.

³⁰ As discussed and illustrated in chapter 1 and 2

Activist challenges arise when making progress on a sustainability problem is blocked by either or both of two obstacles: key stakeholders are not aware of the important issues and the key parties are not willing to collaborate. The leadership challenge is then one of ripening the issue in such a way that either it becomes clear to the stakeholders that it is a priority that needs to be addressed, or the key parties engage in a collaborative effort to address the issues. This type of sustainability leadership work is generally carried out by NGOs, citizen groups, and scientists. Greenpeace is an excellent example of an organization that over the years has brought issues to public attention that need to be addressed. For example, in the Great Bear Rainforest challenge, Greenpeace and other groups have been very successful at raising the stakes for non-collaborative key parties and convinced them to collaborate in a process to address the issues. The difficult work of this challenge is framing it in such a way that it heightens the gap between societal aspirations and values, and the actual here-and-now reality of behaviours and attitudes regarding the challenge.

The second challenge is one of coming together. The challenge here is that, although people acknowledge there is a problem and are willing to collaborate, there remain strongly diverging conceptions of the problem, creating conflicting factions pulling in different directions. The leadership task is primarily one of creating a shared understanding of the adaptive challenge that all parties are facing, building relationships of trust across the conflicting parties, creating a united purpose (sometimes called vision), of making progress on the challenge, and developing an agreed upon process by which the challenge will be addressed. Continuing with the Great Bear Rainforest example, the Joint Solutions Project was established in 2000 by a group of conservation organizations, First Nations, and logging companies to explore the challenges of logging, conservation, and a sustainable economy in that region. The Joint Solution Project is an example of the stakeholders coming together under a common purpose stated as: “to reduce conflict, collaborate to implement ecosystem-based management (EBM) and constructively engage with other stakeholders involved in implementing the consensus land use agreements in place in the Great Bear Rainforest” (Joint Solutions Project, 2014). In contrast, the Occupy Wall Street social movement failed in moving from the first activist challenge, where they were very successful at drawing attention to the issues, to the second challenge of creating a structure for coming together and working through the challenge. Though there are a number of authors (Gelder, 2011; Gitlin, 2012; Writers for the 99%, Bauer, Baumgarthuber, Bickman, & Breecher, 2012) who frame the occupy movement as having changed everything, three years later I would argue for a more sober

assessment: that the movement has accomplished very little, if anything, of its aim of shifting neoliberal economic policies.

A third challenge is one of developing solutions. The challenge is one of creating and developing solutions that are both implementable and able to tackle the underlying sustainability issues. Many times, in this challenge, plans are watered down so that key parties will agree, fake remedies are created that do not address the underlying issues, or solutions are developed that fail to be implemented. The Kyoto protocol process exemplifies how difficult this challenge of finding a joint solution is.³¹ The leadership task is primarily one of creating a strong enough holding environment that allows the group to stay together through a process of conflict and creativity where not only solutions are developed, but also communicated to the constituencies of the stakeholders involved in such a way that they are also mobilized to support, or at least not oppose, the implementation of the solutions. The Kyoto protocol is a good example of failing (Prins & Rayner, 2007) at this challenge.

Finally, if we are fortunate, implementing the plan requires less leadership and more competent application of managerial authority. However, most often, when we move into the implementation of the plan many new issues arise that we did not foresee or expect. In these cases the leadership challenges of activist, coming together, and developing solutions repeats itself, hopefully at a smaller scale. This reality illustrates why Heifetz et al. (2009) argue that the most effective leadership interventions are those that create and support an adaptive culture. An adaptive culture results when a group, organization, or possibly even a society develops norms and practices that more effectively engage and makes progress on adaptive challenges, and therefore thrive in a changing world.

5.1.4 The pitfalls of authoritative expertise

Sustainability challenges are of two natures: those that are mainly technical and can be addressed with authoritative expertise, and those that are mainly adaptive and require leadership. Type I and II sustainability challenges are well addressed by the substantive body of knowledge and competencies

³¹ In chapter 3 I give a number of reasons why the Kyoto protocol is problematic as the main process for addressing climate change. The example of the Kyoto process in the context of this chapter exemplifies the difficulties of developing solutions when there are diverging stakeholder worldviews.

that we have amassed over centuries as a society. Experts and scientists, and the organizations they work for, are well positioned to exercise their authoritative expertise to solve many of the type I and II sustainability challenges that we face.

We have to be careful with the confidence that comes with authoritative expertise, so that we do not overreach, and with certainty apply technical solutions to adaptive challenges. Unfortunately, this is one of the most common reasons why we fail to address the more complex type III and IV challenges (Heifetz et al., 2009). Type III and IV challenges are adaptive problems that require leadership, yet commonly we confuse expertise and authority with leadership (Bradford & Cohen, 1998; Heifetz, 1994; Le Bon, 1896). When facing a novel problem, people look to those in authority for answers (Thompson et al., 1998); yet if they are adaptive challenges the work of the authority figure is to drive difficult learning, not come up with solutions and implement them (Heifetz, 1994).

In my experience, this is difficult to accept for experts and scientists that are accustomed to the informal authority they enjoy as holders of knowledge and expertise. This is even harder for politicians who enjoy positions of formal authority precisely because they provide solutions to their constituents. Not many politicians, or experts and scientists, are comfortable with some of the tasks of leadership such as disorienting current roles, orchestrating conflict, and challenging norms (Heifetz, 1994).

On the contrary, there is no lack of politicians, and to some degree experts and scientists, who gain power and prestige because they provide people with answers to their difficult problems. As I have stated in chapter 3, I am very skeptical of sustainability discourses and individuals who provide solutions to adaptive challenges. Heifetz illustrates the danger of this approach with the following quote: “That is the mightiest mission of our [sustainability] Movement, namely, to give the searching and bewildered masses a new, firm belief, a belief which will not abandon them in these days of chaos, which they will swear and abide by, so that at least somewhere they will again find a place where their hearts can be at rest” (Adolf Hitler, quote from: Heifetz, 1994, pp. 65–66). And leadership, if ill-constructed and understood, can easily become one more problematic “solution” to our sustainability problems.

There is no doubt that we need answers to the many difficult sustainability challenges that we face, and science and experts have a role to play in developing those answers. However, I feel we have a long way to go before as a society we have the competencies needed to mobilize the type of learning needed (Argyris, 1999), and therefore are more able to adapt and thrive anew in a rapidly changing world. This I

see as a task of leadership, which in many ways is fundamentally different than authoritative expertise (Heifetz, 2002). In short, making progress on the most challenging sustainability challenges requires leadership. In the next section I will argue that our educational systems must innovate to help us develop those competencies.

5.2 Teaching and learning sustainability leadership

In this section I explore the topic of teaching and learning sustainability leadership from three perspectives. First, I discuss why higher education's focus on explicit knowledge creates a challenge if the goal is to also educate practical and embodied skills, which are essential for the practice of sustainability leadership. Second, I make the case that educating sustainability leadership requires transformative learning and teaching approaches, and discuss some of the difficulties that come with it. Finally, I explore the question if leadership can actually be taught and learnt in a classroom environment.

5.2.1 Learning from the stance

In section 5.1, defining sustainability leadership, I explicitly avoided a literature review and discussion of leadership theories for two reasons. First, a simple search of leadership books on amazon results in over 160,000 books, a more refined search of sustainability leadership results in over 2,000 books. One of the challenges in leadership studies is that there is no conceptual framework that is agreed upon (Rost, 1991), and therefore what has been written about leadership is as diverse as the authors themselves. Second and more importantly, learning *about* leadership is very different than learning *how* to practice leadership. In this dissertation I am more interested in the question of learning and teaching *how* to practice leadership, and less so on learning *about* the myriad leadership frameworks that exist. The question of learning and teaching *how* to practice leadership is addressed in section 5.2.3, whereas in this section I argue that learning and teaching *about* sustainability falls short if our higher education systems aspire to prepare students to tackle the sustainability challenges we face.

5.2.1.1 For sustainability leadership know-what is not enough

There is no doubt that sustainability leadership requires knowledge *about* the social, ecological, and economic imperatives that we face. Reviewing the literature on sustainability and the courses offered at universities, one can easily see that there is an abundance of courses that fill the gap in knowledge about *what* we should do; albeit and as I discussed in chapter 3, depending on your worldview you will

have a different answer of *what* should be done. However, it is far less common to find literature and courses that drop the need to have or find answers and instead support understanding and developing the skills needed to mobilize change; not from the perspective of heroic leadership, possessing a vision, goals, and strategy, but from a place that leads with questions – not answers.

This distinction that I am making is not new. More than 15 years ago, the American Council on Education (ACE, 1996) brought attention to the lack of flexibility and skills of recent graduates in key areas such as: “listening, communicating, defining problems, leveraging the skills of others in teams, and functioning effectively in ambiguous, complex, and rapidly changing environments” (p. 8). More recently, a study (Arum & Roksa, 2011) of 2,300 students enrolled at a range of four-year colleges and universities found that 45 percent of students did not demonstrate any significant improvement in learning during the first two years of college, 36 percent of students did not demonstrate any significant improvement in learning over four years of college, and the improvements that students did show were only modest. The authors define learning not as an increase in knowledge, but as gains in higher level skills such as critical thinking, problem solving, written communication, and analytical reasoning.

Unfortunately, many university graduates lack the practical know-how skills needed to diagnose, coordinate, and cultivate the profound changes and transitions that we need to prosper as a society (ACE, 1996; Arum & Roksa, 2011; Pascarella, Blaich, Martin, & Hanson, 2011). Schön (1983) would argue that the reason for this is that a large part of our educational system is tightly bound to the positivist view of the sufficiency of technique applied to problems and does not take into account or train students well for the messy world of practice, which Flyvbjerg (2003) characterizes as the world of complex human patterns of behaviour, power dynamics, and uncertainty of cause and consequences of actions. Sustainability courses taught at universities mainly focus on achieving subject mastery; be it in geography, engineering, business, forestry, or other related fields. Their main educational objective is to provide students the *know-what* of sustainability issues. The know-what is abstract, logical, conceptual, and objective. However, most university degree programs are weaker at developing the *know-how* skills and *know-who* awareness needed for sustainability practice (Astin & Astin, 2000). Know-how is about the practical skills of mobilizing change, and know-who is about growing the meaning-making structures that we use to understand ourselves and the world around us.

The lack of know-how skills and know-who awareness in those attempting to solve sustainability challenges is apparent in a recent review (S. A. Black, Groombridge, & Jones, 2011) of the effectiveness

of conservation programs. Below is a list of the ten most common problems that were identified across institutions delivering conservation programs:

1. *Unachievable goals in terms of scope, time scale, or assumptions*
2. *Excessive bureaucratic structures or functional divisions*
3. *Not sharing information in a timely manner*
4. *Poor decision making, slowed by hierarchy, risk aversion, or uninformed decision making*
5. *Ideologically driven staff who do not commit to or agree with the culture of the program*
6. *Methodological dissonance across the program, including different technical preferences in a team*
7. *Spending too much time on unsolvable issues outside the direct influence of the program*
8. *Stifling innovation by adherence to procedure and protocol*
9. *Failure to learn or seek advice, or conversely, inappropriately delegating decisions to outsiders*
10. *Rigid people management and a failure to play to people's strengths within the team. (p. 331)*

Not one of the above ten problems are related to a gap in know-what knowledge; instead they illustrate the challenges of practice and the need for education in know-how skills and know-who awareness.

Know-how is about the concrete, embodied, and lived experience. It is about the skills and capacities to act in a way that furthers sustainability for oneself, others, and society. Know-how skills are typically learned through a life of practice; of being in the world (Aristotle, 1950, p. 1142a; Dreyfus & Dreyfus, 1980). Yet, to a point, many of these lived know-how skills can be taught in a university setting.

Know-who is about deepening an individual's knowledge and understanding of themselves, so they can more rapidly learn-in-action (Argyris, 1991). Many sustainability scholars refer to know-who development as increasing or shifting to an ecological consciousness (Berry, 1999; Fromm, 1976; Korten, 2006; Orr, 2004; Podger, Mustakova-Possardt, & Reid, 2010). However, there is no standardized definition of what consciousness means in an ecological context (Rodman, 1995). For this dissertation know-who refers to an individual's meaning-making structure, and developing know-who is about increasing an individual's ability to see, hold, and take responsibility for more complexity (Kegan, 1994). At its core, know-who is the skill of studying the self, and as Zen Master Dogen [1200-1253 C.E.] said "to study the self is to forget the self" (Dogen, 2013, p. 30). The continuous process of forgetting the self creates space for humility, compassion, and awareness.

5.2.1.2 *Explicit and tacit knowledge of sustainability*

In the 1960s, Polanyi (1962) introduced the idea of *tacit knowledge*, arguing that “we know more than we can tell” (p. 612). The concept of *tacit knowledge* is now widely used in the field of knowledge management and it is distinguished from *explicit knowledge* (Nonaka & Takeuchi, 1995). Nonaka and Takeuchi (1995) define *explicit knowledge* as knowledge that can be articulated in formal language, characterized as knowledge of rationality (mind) , sequential (there and then), and digital (theory) knowledge; and define *tacit knowledge* as knowledge that is hard to articulate, characterized as knowledge of experience (body), simultaneous (here and now), and analogue (practice) knowledge.

The *know-what* of sustainability is the *explicit knowledge* that can be taught in a sequential manner, easily communicated, and systematized and formalized in writing (Fleck, 1997). Know-what knowledge is “(1) subject to quality control by editors, peer review and debate and (2) given status by incorporation into educational programmes, examinations and courses” (Eraut, 2000, p. 114). On the other hand, the *know-how* and *know-who* is the *tacit knowledge* of sustainability that is “difficult to codify, standardise and transfer” (Howells, 1996, p. 103), and is not easily taught, as it is “not ... readily articulable and therefore not easily communicable or tradable” (Fleck, 1997, p. 388).

Nonaka and Takeuchi (1995) argue that Westerners tend to emphasize explicit knowledge at the expense of tacit knowledge, especially in educational contexts. Differences in what knowledge is considered valuable and how it is acquired seem to be culturally determined. Nisbett (2010) argues that there are profound cognitive differences between Westerners and East Asians that cross multiple domains. Domains such as science and mathematics, attention and perception, casual inference, organization of knowledge, and reasoning are all affected by our socio-cultural background. Table 5-1 draws from Nisbett’s work and situates it in the context of explicit and tacit knowledge.

Table 5-1: Explicit and tacit knowledge

	Explicit Knowledge	Tacit Knowledge
Philosophical focus	Linearity, reductionism, objectification, and elimination through contradiction.	Circularity, holism, and an acceptance of contradiction.
Goal of philosophy	Discovery of truth.	Discovery of what works.
View of the world	Fundamentally static and unchanging. The world is in principle objectively knowable.	Constantly in flow and changing. Know thyself to know the world.
Composition of the world	Mainly made of objects.	Mainly made of relationships in context.

	Explicit Knowledge	Tacit Knowledge
Focus of thought	Focus on attributes of an object and turning these into abstract, unchanging properties.	Discourages abstract speculation. Appreciation for contradiction, change, and the need to see things as a whole.
Organize the world	Emphasize categories.	Emphasize relationships, stories, and metaphors.
Method for analysing	Exclusive focus on understanding an object independent from the rest, with no attention paid to the possibility that some forces outside of the object might be relevant.	The world is consisting of continuously interacting substances, so an attempt to understand it needs to orientate to the complexities of the entire 'field', that is, the context or environment as a whole.
Causality	Attention is place on the objects.	Attention is placed on the 'field'.
Modes for resolving conflict in knowing	Focus on logic. Resolve contradiction by logical correctness of the argument. Mode of communication is rhetoric – debate.	Focus on dialectics. Resolve contradiction by transcending it or finding a middle way. Mode of communication is dialogue.

Nonaka and Takeuchi's (1995) book on how to create organizations that produce continuous innovation and thrive in a changing world has had a large effect in the field of education, management, and industry, and has been cited over 28,000 times.³² The authors argue that Westerners overemphasize the importance of explicit knowledge and recommend that we "need to pay more attention to the less formal and systematic side of knowledge and start focusing on highly subjective insights, intuitions, and hunches that are gained through the use of metaphors, pictures, or experiences." (p. 11)

Though Nonaka and Takeuchi's recommendation for some may seem exaggerated and out of place for North American education systems; Astin and Astin (2000), two westerners from the prestigious W.K. Kellogg Foundation (WKKF), argue that the failure of higher education in providing know-how skills has played a major role in the decline of Americans' ability to effect positive social change. The authors state that the problem lies, again, in the overemphasis that higher education places on explicit, know-what knowledge:

A major problem with contemporary civic life in America is that too few of our citizens are actively engaged in efforts to effect positive social change. Viewed in this context, an important 'leadership

³² Metric obtained from Google Scholar in April 2014

development' challenge for higher education is to empower students, by helping them develop those special talents and attitudes that will enable them to become effective social change agents... If higher education is indeed such a central player in shaping the quality of leadership in America, then one might reasonably ask, where have we gone wrong? The short answer to this question is that the concept of leadership and the educational goals of leadership development have been given very little attention by most of our institutions of higher learning. In the classroom, faculty continue to emphasize the acquisition of knowledge in the traditional disciplinary fields and the development of writing, quantitative, and critical thinking skills, giving relatively little attention to the development of those personal qualities that are most likely to be crucial to effective leadership: self-understanding, listening skills, empathy, honesty, integrity, and the ability to work collaboratively. (pp. 2-3)

These findings are echoed in a recent survey (González & Wagenaar, 2008) of academics, students, and employers that asked after the most important topics for student education. The survey found that academics deemed of highest priority teaching 'basic general knowledge', but it was ranked 12th by both employers and students. On the other hand academics ranked 14th the importance of 'interpersonal skills', but it was ranked as 5th most important for employers and 6th by students. Clearly there is a gap between the knowledge and skills that are deemed important in society and what mainstream higher education believes it should provide.

Donald Schön (1983) identified this problem more than 30 years ago and concluded that the root cause is the doctrine of 'technical rationality'; where academics, who see themselves as the creators of knowledge, understand worldly professional practice as instrumental and mainly consisting of "adjusting technical means to ends that are clear, fixed, and internally consistent" (Schön, 1995, p. 29). Schön (1995) argued that "the new scholarship requires a new epistemology" (p. 27), where practice is realigned with theory and research, and the notion that practice is secondary and a derivative of research is turned on its head. Practice should not be seen as the place where knowledge is applied, but one of the sources of knowledge. However, 12 years after identifying the problem, Schön (1995) warned that creating such change in "higher education means becoming involved in an epistemological battle. It is a battle of snails, proceeding so slowly that you have to look very carefully in order to see it going on" (p. 32). If Schön is correct then maybe one day education institutions will realize that the best education that they can provide is one where they teach individuals not only about things (explicit knowledge), but also how to skillfully apply their knowledge in practice, as well, as know themselves (tacit knowledge) .

Expanding the educational environment from focusing mainly on know-what, or explicit knowledge, towards including more of the know-how and know-who, or tacit knowledge, naturally calls into

question how teaching and learning happens in a classroom. As the focus of education expands from mainly a world of observers to include the world of participants, what is learnt expands from the outside of an individual to include the inside of an individual. The theory and practice of transformative learning and teaching provides a good entry point on how to engage in this more expand educational approach.

5.2.2 Transformative learning and teaching

What we know, both explicitly and tacitly, is shaped by how we construct meaning (Kegan, 1994). Our know-what knowledge and know-how skills are to a large extent defined by how much complexity our know-who awareness is able to hold. As I have argued in chapter 2, the way we construct meaning shapes how we make sense of ourselves and the world around us; this is in essence what the term know-who awareness refers to. In this section I clarify how transformative learning is defined in the context of this dissertation and introduce two additional constructive-developmental frameworks that help explain how we understand ourselves and the world around us at different stages. This is followed by a description of teaching approaches and pedagogies that support growing our know-who awareness, followed by best practices and areas of research focus in transformative learning, and lastly some ethical considerations when engaging in transformative teaching approaches.

5.2.2.1 Transformative learning

The concept of developmental learning began with Piaget's (1954) original distinction between children's assimilative and accommodative process. In assimilative learning the child's new experience is shaped by existing and previously developed meaning making structures, in Piaget's (1970) words: "assimilation is the integration of external elements into evolving or completed structures"(p. 706). Whereas, in accommodative learning the child's meaning making structures change to adapt to the new experience; and in Piaget's (1970) words accommodation is "any modification of an assimilatory scheme or structure by the elements it assimilates" (p. 708).

Kegan (2009), continuing in the constructive developmental tradition of Piaget, distinguishes between informational and transformational learning. I introduced this distinction in chapter 2, and I will briefly summarize here. Informational learning represents "[l]earning aimed at increasing our fund of knowledge, at increasing our repertoire of skills, [and] at extending already established cognitive structures" (p. 42). For Kegan informational learning deepens our knowledge within an existing meaning making structure. "Such learning is literally *in-form*-ative because it seeks to bring valuable new contents

into the existing form of our way of knowing” (p. 42). On the other hand, for Kegan, transformational learning encourages growth of the meaning making structure or form, it is “learning aimed at changes not only in *what* we know but changes in *how* we know” (p. 42). Such learning is trans-*form*-ative because it “puts the form itself at risk of change (and not just change but increased capacity)” (p. 42).

For Piaget (1970), assimilative and accommodative types of learning are two sides of the same coin of adaptive learning. Similarly, for Kegan (2009) “[i]nformational and transformational kinds of learning are each honorable, valuable, meritable, dignifiable activities. Each can be enhancing, necessary, and challenging for the teacher to facilitate” (p. 44). Informational learning can support a “change in behavioral repertoire or an increase in the quantity or fund of knowledge” (Kegan, 2009, p. 41), but no matter how useful, it does not encourage a growth of our meaning making structures. In contrast, transformational learning changes the way an individual experiences themselves and sees the world (Clark, 1993).

The concept of transformative learning was introduced in 1978 by Jack Mezirow. Since then, many books and hundreds of papers and dissertations have explored the topic of transformative learning (Mezirow, 2009). This growth in scholarship of teaching and learning in transformative education has been of great service to both educators and students, but it has also spawned its own problems. Primarily, the idea of transformative education has become so appealing that to some degree its meaning and distinctions have been widened to a point that any kind of change is called transformative learning (Kegan, 2009).

Brookfield (2000) argues that the word transformation has been misused to refer “to any instance in which reflection leads to a deeper, more nuanced understanding of assumptions” (p. 139). Newman (2012) goes further and strongly critiques the term *transformative learning*, suggesting that the concept might only exist in the realm of theory with no real grounds to it. He argues that transformative learning is just “good” teaching, and that the term transformative learning should no longer be used as it creates a distinction that does not exist in reality. Furthermore, Newman critiques the ever expanding theorizing, or in his words “the exposition of the theory has become increasingly unwieldy” (p. 50), in how the field of transformative learning theorizes on the ‘form’ that trans-forms. What Newman does not acknowledge is that the field of transformative learning is still in the early stages of research (Merriam & Kim, 2012), and that the construct of what ‘form’ transforms is elusive and difficult to study.

To address the challenge of better defining and measuring the ‘form’ that transforms, King (2009) has developed a transformative learning survey. However, the survey has shortcomings. I agree with Newman (2012) that, given the survey’s structure of eliciting self-assessments, it does not guarantee validity. Taylor & Snyder (2012) state that “there is no statistical evidence demonstrating its validity and reliability” (p. 48). Furthermore, Tisdell (2012) argues that King’s survey, which is the most popular instrument used to measure transformative learning in the field “seems to lack construct validity, which raises the question of whether inferences can be legitimately made between what has been operationalized in the survey and the theorized psychological constructs associated with transformative learning theory” (p. 47). Kegan (2009) also argues that for the field of transformative learning to prosper it needs to be more rigorous in defining what ‘form’ transforms, and suggests that the field of transformative learning could benefit by using constructive-developmental distinctions and methods.

In this sense, the challenges of construct validity, methodological instrument legitimacy, and inter-rater reliability have to a large degree been clarified in the constructive-developmental field.³³ For example, Loevinger’s (1997) sentence completion test is arguably the most researched maturity and developmental psychology instrument in use today (Lilienfeld, Wood, & Garb, 2000), and in the empirical literature there is substantial support for both Loevinger’s theory and the instrument used to measure the constructs (Manners & Durkin, 2001). Therefore, in the context of this dissertation, transformative learning is defined as learning that fosters developmental growth as defined by constructive-developmental theory (Cook-Greuter, 1999; Kegan, 1994; Loevinger, 1966). The next section summarizes the constructive developmental frameworks that are used in the course case study.

5.2.2.2 *Knowing at different orders of mind*

In this section I will briefly introduce Loevinger’s (1966), and Cook-Greuter’s (1999) and Torbert’s (2004) constructive developmental frameworks, as they provide background to the methods used in the next

³³ This is true for most stages, except the higher ones where there is disagreement between theorists regarding validity of the constructs. For example Cook-Greuter’s constructs of higher stages challenge Loevinger’s findings of higher stages (Cook-Greuter, 1999). Nevertheless, as we humans continue to develop these higher stages will likely always generate discussion and disagreement until the constructs are studied in sufficiency and the field comes to agreement on them.

chapter's case study.³⁴ Table 5-2 compares stages from Kegan (1994), Loevinger (1997), and Cook-Greuter (2004) and Torbert (2004). Each of these theories provides a slightly different lens through which to view recurring patterns that researchers have found regarding how we construct meaning as we progress on the journey of development. The three theories just mentioned use a holistic view of how we develop; meaning that they include multiple dimensions underlying how we construct meaning, such as cognitive, affective and interpersonal. Others (Gardner, 1999; Wilber, 2000) have focused more narrowly on understanding particular aspects, dimensions or intelligences within an individual, such as spiritual (Fowler, 1981), moral (Gilligan, 1977; Kohlberg, 1981), cognitive (Commons & Rodriguez, 1993) and personal needs (Maslow, 1968) development.

Before continuing, I want to clarify three points. First, the theories I present below portray large generalizations of how we construct meaning at each stage. These are broad brushstrokes of an infinitely detailed landscape of individual human growth, and many subtleties are lost. Second, stages are not binary categories with clear demarcations between them, but fluid and dynamic. It is not uncommon for individuals to be constructing meaning from two stages at once, generating an internal tension in how they experience themselves and the world. Finally, context matters; under stress we are likely to devolve to simpler ways of constructing meaning.

Table 5-2: Constructive developmental stages

Kegan	Loevinger	Cook-Greuter/Torbert
2nd Order: Self-sovereign Mind	Self-Protective(E3)	Opportunist
3rd Order: Socialized Mind	Conformist (E4)	Diplomats
	Self-conscious (E5)	Experts
4th Order: Self-Authoring Mind	Conscientious (E6)	Achievers
	Individualist (E7)	Individualist

³⁴ Cook-Greuter and Torbert's frameworks were adapted from the work of Loevinger and applied in an organizational context. Cook-Greuter and Torbert have published separately many times, however they use the same framework: the Leadership Development Profile.

Kegan	Loevinger	Cook-Greuter/Torbert
5th Order: Self-Transforming Mind	Autonomous (E8)	Strategist
	Integrated (E9)	Alchemists

In Loevinger's (1997) ego development theory the ego is a holistic construct, or 'master trait', that has four interwoven domains: cognitive reasoning, impulse control, interpersonal mode, and conscious preoccupation. Cognitive reasoning represents the level of developmental conceptual complexity, with a similar conceptualization and structures as measured by others (Commons & Rodriguez, 1993; Fischer, 1980; Kitchener, 1983). Impulse control represents an individual's moral development, with similar initial stages as described by Kohlberg (1981). In later stages the parallels between Kohlberg's moral stages and Loevinger's ego development stages are harder to draw (Loevinger, 1997). Interpersonal mode refers to how one understands relationships with another person, similarly as to how Selman (1980) has described these stages. Finally, conscious preoccupations refer to where an individual focuses his conscious thoughts and behaviours. Table 5-3 provides a summary of each stage.

Table 5-3: Loevinger's stages of ego development – source (Manners & Durkin, 2001)

Loevinger's stages of Ego Development	
Self-Protective (E3)	Wary; complaining; exploitive; hedonistic; preoccupied with staying out of trouble, not getting caught; learning about rules and self control; externalizing blame.
Conformist (E4)	Conventional; moralistic; sentimental; rule-bound; stereotyped; need for belonging; superficial niceness; behaviour of self and others seen in terms of externals; feelings only understood at banal level; conceptually simple, 'black and white' thinking.
Self-Aware (E5)	Increased, although still limited, self-awareness and appreciation of multiple possibilities in situations; self-critical; emerging rudimentary awareness of inner feelings of self and others; banal level reflections on life issues: God, death, relationships, health.
Conscientious (E6)	Self evaluated standards; reflective; responsible; empathic; long term goals and ideals; true conceptual complexity displayed and perceived; can see the broader perspective and can discern patterns; principled morality; rich and differentiated inner life; mutuality in relationships; self critical; values achievement.

Loevinger's stages of Ego Development

Individualistic (E7)	Heightened sense of individuality; concern about emotional dependence; tolerant of self and others; incipient awareness of inner conflicts and personal paradoxes, without a sense of resolution or integration; values relationships over achievement; vivid and unique way of expressing self.
Autonomous (E8)	Capacity to face and cope with inner conflicts; high tolerance for ambiguity and can see conflict as an expression of the multifaceted nature of people and life in general; respectful of the autonomy of the self and others; relationships seen as interdependent rather than dependent/ independent; concerned with self-actualization; recognizes the systemic nature of relationships; cherishes individuality and uniqueness; vivid expression of feelings.
Integrated (E9)	Wise; broadly empathic; full sense of identity; able to reconcile inner conflicts, and integrate paradoxes. Similar to Maslow's description of the 'self-actualized' person, who is growth motivated, seeking to actualize potential capacities, to understand her/his intrinsic nature, and to achieve integration and synergy within the self.

Cook-Greuter's (1999) framework expands on the last stages of Loevinger's ego development theory and with Torbert (2004) extends Loevinger's theory to professional and organizational contexts. Similar to Loevinger, Cook-Greuter (1999) states that the ego developmental theory is a psychological system composed of three interrelated dimensions: behavioural, affective, and cognitive. The behavioural dimension represents the function of 'doing'; what needs we act upon, what ends we move towards, and what we see as the purpose of life. The affective dimension represents the function of 'being'; our awareness, emotions, and experience of being in the world. Lastly, the cognitive dimension represents the function of 'thinking'; our conceptions, knowledge, and how we interpret the world and ourselves. Each stage of ego development arises out of a synthesis of doing, being, and thinking.

Table 5-4 draws from Cook-Greuter's (2004) work applying ego developmental theory in the workplace, and summarizes three important aspects that influence individual behaviour at each stage. 'Main focus' refers to the principal concern, or place of attention, an individual focuses on in the workplace. 'Respond to feedback' is in reference to an individual's most common behavioural pattern of response to feedback or critique. And 'method of influence' refers to how an individual tries to affect, change or alter a situation involving other people. Table 5-4 gives a general overview of *know-who* awareness at each stage and how differently individuals can understand themselves and the world around them.

Table 5-4: Ego development in the workplace – source (Cook-Greuter, 2004)

Stage	Main focus	Response to feedback	Methods of influence
Opportunist	Own immediate needs, opportunities, self-protection	Reacts to feedback as an attack or threat	Takes matters into own hands, coerces, wins fight
Diplomats	Socially expected behavior, approval	Receives feedback as disapproval, or as a reminder of norms	Enforces existing social norms, encourages, cajoles, requires conformity with protocol to get others to follow
Experts	Expertise, procedure and efficiency	Takes feedback personally, defends own position, dismisses feedback from those who are not seen as experts in the same field	Gives personal attention to detail and seeks perfection, argues own position and dismisses others' concerns
Achievers	Delivery of results, effectiveness, goals, success within system	Accepts feedback, especially if it helps them to achieve their goals and to improve	Provides logical argument, data, experience, makes task/goal oriented contractual agreements
Individualist	Self in relationship to system; interaction with system	Welcomes feedback as necessary for self-knowledge and to uncover hidden aspects of their own behavior	Adapts (ignores) rules where needed, or invents new ones, discusses issues and airs differences
Strategist	Linking theory and principles with practice, dynamic systems interactions	Invites feedback for self-actualization, conflict is seen as an inevitable aspect of viable and multiple relationships	Leads in reframing, reinterpreting situation so that decisions support overall principle, strategy, integrity and foresight
Alchemists	Interplay of awareness, thought, action, and effects; transforming self and others	Views feedback (loops) as a natural part of living systems, essential for learning and change, but takes it with a grain of salt	Reframes, turns inside-out, upside-down, clowning, holding up mirror to society, often behind the scenes

I think one of the most important insights from constructive developmental theories is that, as we develop, our capacity to learn increases (McAuliffe, 2006). As our capacity to learn increases, so does our interest in what we want to learn about. Berger (2012) has applied Kegan's framework to the workplace, and she has discovered that as our minds grow we become interested in new questions. The questions that we ask, or focus on, powerfully shape our experience because they frame where we place our attention. Table 5-5 lays out questions that most commonly arise at each order of mind.

Naturally, individuals at any order of mind can ask themselves all of the questions in Table 5-5, but the point that Berger makes is that we generally tend to ask ourselves the same set of questions over and over again because they are familiar territory for us; and in her experience Table 5-5 delineates the most common questions at each stage. By asking different questions we start exploring a new world, and in the journey of exploration ideas move from subject to object allowing for new thinking (Berger, 2012).

Table 5-5: Questions most associated with particular forms of mind – source (Berger, 2012)

Form of mind	Classic questions
2nd Order: Self-sovereign Mind	What's in it for me? Do others have to do exactly this same thing? What are the consequences of this for my getting more of what I want in the future? What are others doing that will affect me? Who is in charge and enforcing things here? What are the rewards for something that meets (or exceeds) the standards? What is the consequence for something that does not meet the standards?
3rd Order: Socialized Mind	What will others say? How will this change my standing in my core group/role (in which I am embedded)? Is it the appropriate thing for me to be taking on given my role/experience/education? Am I doing this right? Are others doing this right? Who can tell me whether I've done it right or not? How will I know?
4th Order: Self-Authoring Mind	How does this forward my bigger goals/values/principles? What contribution do others make to this? With whom do I need to coordinate or collaborate? How do I know that this is the right thing for me to be doing? Have I really thought hard enough about this? Is it within my scope to do it? Is it a good problem to take on? How might I interact with others on this? How do I develop the standards to judge my success?
5th Order: Self-Transforming Mind	What can I learn from this? What assumptions about the world underpin my actions or opinions about this? The actions or opinions of those around me? Is the framing of this issue compatible with the way I see the world? How does it connect to the other things I am working on and care about? How do I work with others to shape and reshape this issue? How does this issue shape and reshape us? What is lost if I succeed here? What is gained if I fail?

The idea of growing our ways of knowing may appeal to the reader; however the process one undergoes in transformative learning environments are many times challenging, both cognitively and emotionally. In the next section I briefly describe the conditions that best support us to engage in this type of learning.

5.2.2.3 *Conditions that facilitate transformative learning*

Transformative learning is hard. It is disorientating, anxiety producing, risky, and to some degree frightening (Daloz, 1986), which is why each of us has “created a very effective anxiety-management system, and that system is [our] immunity to change” (Kegan & Lahey, 2009, p. 48). Boyd and Meyer (1988) argue that ‘grieving’ is the most critical phase of the growth process, as an individual has to realized that old patterns are no longer relevant and that new ones need to be established. Because transformative learning is to some degree threatening, Kegan (1994) states that fostering developmental growth requires two conditions: challenge and support. I introduced these two requirements in chapter 2, and I will briefly summarize them below.

The first step to overcoming our immunity to change is encountering a challenge that we cannot address given our current ways of constructing meaning (Kegan & Lahey, 2009). A challenge has to create dissonance (Festinger, 1962; Tavis & Aronson, 2008), both emotionally , in our feeling system, and cognitively, in our knowing system (Kegan & Lahey, 2009). Challenging experiences can be self-generated, like going into therapy, or be triggered by events outside of our control, like the death of a loved one. How we feel, or experience, a challenging situation will be different for each one of us, and to some degree shaped by our order of mind (Berger, 2012).

Support is a critical and necessary condition for fostering growth. If not, “[t]he experience of challenge without support is painful. It can generate feelings of anger, helplessness, futility, or dissociation” (Kegan, 1994, p. 43). What constitutes adequate support is to a large degree dependent on the personality of the individual and the predominant order of mind from which he or she is constructing meaning (Berger, 2012). There is no formula for the correct mix of challenge and support, Kegan (1994) states:

If I were asked to... summarize my reading of centuries of wise reflection on what is required of an environment for it to facilitate the growth of its members, I would say this: people grow best where they continuously experience an ingenious blend of support and challenge; the rest is commentary. Environments that are weighted too heavily in the direction of challenge without

adequate support are toxic; they promote defensiveness and constriction. Those weighted too heavily toward support without adequate challenge are ultimately boring; they promote devitalisation. Both kinds of imbalance lead to withdrawal or dissociation from the context. In contrast, the balance of support and challenge leads to vital engagement. (p. 42).

The type of learning that I have been describing so far is in regards to the *know-who* of sustainability leadership. However, not all teaching approaches support the growth and development of know-who awareness. In the next section I provide an overview of approaches to teaching that span the know-what, know-how and know-who of sustainability leadership.

5.2.2.4 Approaches to teaching

Miller and Sellers (1985) have done a thorough review of the literature on teaching and learning and suggest that three major perspectives exist: transmission, transaction, and transformation. Each perspective comprises a variety of more specific approaches to teaching and learning. Below I will briefly summarize each perspective on teaching and learning.

The principal function of teaching in the *transmission* mode is to convey attitudes, facts, and skills to students. Teachers are viewed as possessing the desired attitudes, facts, and skills, while students are both lacking and in need of them. Education is uni-directional with an emphasis on controlling and predicting the learning process. The approach to learning is based in behavioural psychology, where knowledge and skills can be broken down into discrete units and organized into a hierarchy. The educator's task is to linearly transmit and build up the learner's attitudes, facts, and skills, and evaluate the degree to which the learner has absorbed them. This is the traditional academic mode of education, and the work of Gagné (1979) is an example of this perspective. Freire (1970) calls this type of education the 'banking' model, where students are empty vehicles waiting for teachers to deposit knowledge.

The transaction mode of education is rooted in Dewey's (1916) educational philosophy where the learner is seen as purposive and intentional. The central tenant is that the learner interacts with the curriculum, and engages in dialogue with the educator and other students. Knowledge is constructed by the students as they reorganize previous knowledge and accommodate new knowledge. The purpose of education is to increase the learner's ability to problem-solve in a social context, as this is seen as an essential skill of a 'democratic citizen'. The curriculum tends to be broad, as seen in liberal arts colleges, and the focus of evaluation is less focused on content and more on the processes of thinking and inquiry. Problem based learning pedagogies are a good example of this mode of educating.

The transaction mode acknowledges and includes a constructive developmental approach to knowledge. However, it mainly focuses on the development of cognitive reasoning skills. Its main focus of study is *explicit knowledge* (Nonaka & Takeuchi, 1995), and therefore it mainly relies on Piaget's (1970) and Commons' (Commons, Trudeau, Stein, Richards, & Krause, 1998) theories of cognitive development. Their theories describe how each time we develop more complex reasoning skills as we go from concrete, to abstract, to systematic, and later meta-systematic abilities to understand and construct knowledge.

Finally, the transformational mode of educating draws from the ecological paradigm of interdependence, and the curriculum focuses more on personal growth and social change. Knowledge is seen as fluid, interconnected, and multifaceted. Education is approached holistically by studying both outer and inner worlds. The inner world includes aesthetic, moral, physical, and spiritual dimensions and has a focus on cultivating emotional maturity, development of intuition, and deepening of insight. The development of inner knowledge strengthens the way students approach and further learn about outer world problems. The curriculum is organized around broad themes of social issues that are of concern to the learner. The outer world study of social issues is focused less on understanding the substantive aspects of the problem, as is the transactional mode, and more focused on understanding the socio-political roles, structures, and norms that give rise to the problem. The focus of evaluation is similar to the transaction mode, but extends into students' ability to identify issues, organize themselves, and mobilize social action to address the problems. Table 5-6 summarizes each perspective.

Table 5-6: Summary three educational perspectives – source (J. P. Miller & Seller, 1985)

	Transmission	Transaction	Transformation
Aims-Objectives	Behavioural Content-oriented	Complex intellectual skills	Integrated objectives (e.g., cognitive and affective)
Content	Knowledge viewed atomistically as "objective and Content should reinforce traditional values	Knowledge is related to mental processes and cognitive frameworks Social content focuses on public policy questions	Personal knowledge is as important as public knowledge Social content stresses identification and resolution of pressing social concerns
Teaching strategies	Structured teaching approaches Transmission of facts and values	Focus is on problem solving and analysis Teaching strategies are matched to students developmental frameworks	Focus on connecting inner life of students to outer worlds Divergent thinking is encouraged

	Transmission	Transaction	Transformation
Organization	Subject-centered Hierarchical	Problem-centered Developmental	Learner-centered Integrative

The transactional and transformative approaches to teaching have many critics that argue that problem-based, discovery, experiential, and constructivist teaching procedures produce sub-optimal learning (Kirschner, Sweller, & Clark, 2006; R. E. Mayer, 2004; Sweller, 2008; Talburt & Boyles, 2005). However, empirical evidence suggests the contrary (Jones & Abes, 2004; Kłaczyński, 2000; D. Kuhn, 1999; Olsen, Bekken, McConnell, & Walter, 2011; Schommer, 1993; Trautwein & Lüdtke, 2007). I agree with Miller (1988) that the three perspectives on teaching and learning are interrelated and therefore can be seen as one inclusive framework. For example, Miller (1988) says: “the transaction position would include the transmission position focus on knowledge retention and would apply it to problem-solving. In turn, the transformation position with its holistic emphasis would incorporate the cognitive thrust of the transaction position within a broader, more inclusive context” (pp. 6-7). Similarly to how I discussed the four worldviews of sustainability in chapter 3, Miller and Sellers’ (1985) three approaches to learning and teaching can all be seen as valid. Which mode is more appropriate depends on the context and subject of study. For example, in the first years of an engineering program a student will probably have to learn linear algebra, and in the later years they might have a course on community service or leadership. Teaching linear algebra with a transformational approach would be foolish, in the same way that teaching leadership with a transmission approach would be patronizing and disempowering for the learner. However, this flexibility of thought applied to educational approaches is far from common, and unfortunately the transmission approach is still the predominant mode of teaching across the curriculum (Baxter Magolda, 2004; Collay & Cooper, 2008; D. Kuhn & Weinstock, 2002; McInerney, 2005).

Chapter 6 presents a case study of the sustainability leadership course that I taught. For the course I utilized a transformational pedagogy for teaching and learning, and I will argue in section 5.2.3 of this chapter that such an approach is appropriate for a leadership development course as it explicitly aims at growing an individual’s meaning-making structure. In this next section I discuss best practices in transformational teaching and learning, as well as what research areas are deemed important in the field of transformative learning.

5.2.2.5 Best practices and areas of research in transformative learning and teaching

Best practices in education are normally equated with notions of effectiveness and efficiency; in other words, what teaching approaches and innovations produce better/deeper learning (Allen & Field, 2005). Research that focuses on understanding how to better improve teaching strategies to address a problem or situation is generally referred to as the work of *scholarly teaching* (Richlin, 2001). The result of this research generally leads to the development of best practices that can be applied by others. In the field of transformational learning there are a number of scholars (Daloz, 1999; Mezirow, 1991; K. Taylor et al., 2000) who have reflected on their teaching approaches and derived best practices that, in their view, support transformative learning. I find that McAuliffe's (2006) ten professional education guidelines for transformative teaching capture adequately the numerous recommendations in the field. In summary, they are as follows:

Guideline One: Personalize. *Promote interactions among all participants in the learning environment. Make connections between subject matter and students' personal experiences.*

Guideline Two: Vary the structure. *Provide more direction and advice to support non-constructivists while also challenging them and others with more amorphous tasks.*

Guideline Three: Promote experience. *Instigate activity through case study, illustration, role play, interviewing, team projects, and data collection.*

Guideline Four: Emphasize multiple perspectives. *Ask students to examine each case from several angles.*

Guideline Five: Encourage meta-cognition. *Model and require reflection on actions and cases. Ask students to monitor their responses to clients—emotional and cognitive, personal and culturally based.*

Guideline Six: Question categorical thinking. *Challenge labels and conclusions. Recognize the fluidity of cultural constructions. Emphasize the story of the client over essentialist diagnosis.*

Guideline Seven: Recognize that conflict is the norm. *Engage dialectical thinking. Identify contrasts in ideas and interpersonal tensions.*

Guideline Eight: Show commitment in the face of doubt. *Model action based on deliberation and judgment on the weight of evidence.*

Guideline Nine: Value approximation over precision. *Encourage tolerance for ambiguity and the emergence of ideas in progress over premature judgment and closure.*

Guideline Ten: Encourage "metalogue" or interpersonal process awareness. *Note the scripts, games, manipulations, power dynamics, and patterns enacted in relationships. (p. 481)*

These recommendations capture what the field of transformative learning has already learnt on how best as an instructor to engage students in transformative learning. However, as I mentioned before, the

field of transformative learning is in many ways still in its infancy, which leads us to the topic of important research areas in transformational learning and teaching.

Taylor (2007) and Taylor and Snyder (2012) have performed a thorough review of transformative learning research from 1999 to 2010. They found that there are four areas that are receiving most attention in the field. First, is the emerging use of quantitative survey research designs to better gauge transformative learning. In section 5.2.2.1 I discussed the shortcomings of the main instrument used in the transformative learning field, the Learning Activities Survey (King, 2009), and the reason for choosing in this dissertation to use survey instruments from constructive-developmental theory (Hy & Loevinger, 1996). Second, the field is beginning to expand beyond the dominant perspective of using Mezirow's (1991) definition and methods of transformative learning. This dissertation is a testament of this trend as it relies on constructive-developmental theory (Kegan, 1994) to better understand transformative learning. Third, there is inquiry into the social nature of transformative learning; in other words, what role student peers can play in the process of individual transformative learning. Some of the findings of the case study discuss this point (see section 6.3.2.1.2). Fourth, the field continues to look into what implications the advances in knowledge about transformative learning and teaching have for curriculum and pedagogy. This leads us to the broader questions that are addressed by the scholarship of teaching and learning as a general field; that is, not focused specifically on transformative learning.

The scholarship of teaching and learning (SoTL) aims to place the teaching interventions used in scholarly teaching into a greater context (Richlin, 2001). In other words, SoTL sees the innovations of teaching interventions as means to the larger question of "what are the ends that the contemporary university serves through its teaching practices and curriculum? and, more importantly, are these the same that it should serve?" (Kreber, 2012, p. 89). Kreber (2012) argues that SoTL involve inquiry into the following three domains:

1. **Curricular knowledge:** what do we consider to be meaningful goals and purposes of higher education?
2. **Psychological knowledge:** what do we know about student learning and development in relation to these goals?
3. **Instructional knowledge:** how can we promote such learning and development?

So far in this dissertation I have engaged with these three questions: (1) I have argued, that given the substantive sustainability challenges that we face, the goal and purpose of higher education should more fully focus on educating the know-how and know-who of sustainability leadership; (2) that to educate the know-how and know-who of sustainability leadership students should be supported to grow developmentally, as defined by constructive-developmental theories; and (3) that the best ways to facilitate this type of learning is to use transformative learning pedagogies.

5.2.2.6 *Ethical considerations of transformative education*

Last, but not least, ethical considerations need to be addressed regarding teaching that aims at transformative education. Baumgartner (2001) gets to the point by asking “[w]hat right do instructors have to encourage transformational learning?” (p. 21). Mezirow (1991) focuses on the aspect of risk by asking if it is unethical to “[f]acilitate a perspective transformation when its consequences may include dangerous or hopeless action” (p. 201). I will explore the ethical considerations from three perspectives: student-centered, student-teacher dynamics, and teacher-centered.

For Mezirow (1996) the ideal values of transformative learning are “trust, tolerance, education, openness, and caring” (p. 170). These values shape seven conditions that Mezirow argues a learner should have the right to, and the capacity to engage with: “(a) have accurate and complete information; (b) be free from coercion and distorting self deception; (c) be able to weigh evidence and assess arguments as objectively as possible; (d) be open to alternative perspectives; (e) be able to critically reflect upon presuppositions and their consequences; (f) have equal opportunity to participate (including the opportunity to challenge, question, refute, and reflect and to hear others do the same); and (g) be able to accept an informed, objective, and rational consensus as a legitimate test of validity” (pp. 170-171).

In a university setting I would add a few extra considerations to Mezirow’s points that are needed from the learner’s perspective. First, most courses in higher education institutions that apply a transformative approach should be optional or electives, not mandatory. As discussed, in most higher educational institutions the educational culture and norms are principally from the transmission mode (J. P. Miller & Seller, 1985), and that mode of teaching embodies the implicit social contract that exists between students and instructors. Transformative modes of teaching do not honour the traditional implicit social contract and therefore it would be unethical to force such an approach onto a student without prior consent. In some universities, colleges or programs a transformative approach to education is explicitly

stated; in those contexts students willingly sign-up, knowing that they will be challenged more than just cognitively, and therefore courses with transformative modes of teaching can be a mandatory part of the curriculum.

Second, students that participate in transformative education courses should be aware and cognisant that the experience in the course will likely produce strong emotions; potentially including anxiety, sadness, anger, grief, and fear. These strong emotions could also be felt collectively, which may intensify the individual experience of the emotion. Third, students should also be aware that they might be spending extra time outside of official class time processing and debriefing their experience. This is an important consideration for students that have a full course load, as it could be detrimental to their performance in other courses. Finally, students should have ample support, not only for the subject being studied, but also regarding the emotional turmoil that might arise through the course experience. Using the metaphor of the course as a journey may help to frame the experience.

Regarding the second ethical perspective, of student-teacher dynamics, Robertson (1996) argues that in transformative education we should shift from the traditional image of a teacher as disseminator of knowledge and adopt the image of a 'helping relationship'; more akin to a professional-client relationship like social work, nursing, coaching, psychology, and so forth. Robertson (1996) says that a helping relationship "is based on the trust of the teacher by the learner and on the care for the learner by the teacher" (p. 42).

Helping relationships are more intimate and complex than the traditional teacher-student relationships, and therefore involve new professional challenges. Robertson (1996) mentions the well known and complex dynamic that may occur in helping relationships of transference and counter-transference (Freud, 1905); where unconscious feeling and attitudes are projected from one person onto another, and create an emotional entanglement between the two. Transference and counter-transference become more predominant in environments where there is more anxiety or vulnerability on one or both sides of the relationship (Hughes & Kerr, 2000). Therefore, transformative educational approaches are very susceptible to such dynamics, and Robertson (1996) states that these dynamics have "ethical, legal and efficacy considerations" (p. 44) in teacher-student relationships.

To address these dynamics in transformative education, Mezirow (1996) argues that we should lessen power imbalances between teacher and students. However, I could not disagree more with Mezirow on

that point. As long as the teacher has some knowledge, skills, or competencies to teach, including skilful facilitation, this will undoubtedly create authority dynamics; because as the students place their trust in the teacher, the teacher gains informal authority and the powers and challenges that come with it. Whether these authority dynamics lead to issues of transference and counter-transference is another matter, but we should not ascribe to a utopian dream of making authority dynamics disappear within groups of humans; if we do they will likely just hide and heighten. Furthermore, in a higher education context, where teachers actually have formal authority because they are the holders of power over grades, authority dynamics are ever present. I would suggest that teachers acknowledge and explicitly work with the authority dynamics that are always present in a class. Interestingly, authority dynamics in transformative learning environments also develop between students, which could potentially also lead to issues of transference and counter-transference between students that need to be addressed.

Finally, the ethical considerations from a teacher's perspective are about how we can skilfully discern the right behaviours and attitudes for a given situation. Mezirow encourages creating teaching environments that uphold values of "freedom, justice, democratic participation, and equality" (p. 170), which supports more authentic and undistorted relationships between teacher and student. However, no matter how much trust, tolerance, and caring is present in the relationship between student and teacher, in the process of transformative learning, "the learner may begin to resent that teacher and feel angry with him or her. Often, learners feel a complex love-hate for the teacher" (Robertson, 1996, p. 45). And, as I discussed previously, the entangled emotional and attitudinal dynamics are generally unconscious and unstated. How does a teacher navigate such dynamics?

Robertson (1996) proposes that teachers should develop a code of ethics for the field of transformative education, and at the same time acknowledges that "the value of such a code pales in comparison to having ongoing critical reflection and conversation among participants in adult education" (p. 49). To my knowledge, all professional fields, traditional and helping ones, have a code of ethics and I see no harm in developing or borrowing one from another field. For example, Corey, Corey, and Callanan (2011) stated that there are seven common themes that emerge in the helping professions, which are:

1. *Promoting the welfare of consumers*
2. *Practicing within the scope of one's competence*
3. *Doing no harm*
4. *Protecting client's confidentiality and privacy*
5. *Acting ethically and responsibly*

6. *Avoiding exploitation*
7. *Upholding the integrity of the profession by striving for aspirational practice (p. 6)*

Point two of the code of ethics singles out one of the main challenges of encouraging transformative education in a university setting. As I discussed previously, transmission mode (J. P. Miller & Seller, 1985) is the prevailing educational culture and philosophy of universities and colleges. This probably is because as students, in a traditional educational environment, become professors they tend to recreate similar learning environments for the next generation of students. Moore (2005) questions whether higher education is equipped for engaging in transformative education, and states “that many students are comfortable with subject-oriented learning and become uncomfortable when alternative models for learning are proposed in classrooms. Many professors are not trained as educators, and transformative learning is a complex teaching method that entails a great deal of time and energy” (pp. 83-84).

From my experience, the competencies a teacher needs to engage in transformative education are very similar to the leadership skills required for mobilizing change. In essence, the barriers to change facing a business unit are not that different from the barriers facing a cohort in a class. However, a class, as a learning environment, might be a slightly easier group to work with simply because of the shared collective purpose of learning that can be used to strengthen the holding environment.

I do not think that the skills needed for transformative education can be learned through book-learning, as neither can the leadership skills required to mobilize change in groups. No matter how much the broad field of transformative education strives at documenting best practices, I have serious doubts if all that knowledge is of any use to someone who has not experienced firsthand transformative learning environments, as well as being coached on how to teach in such a manner. In the literature there are many best practices and guides for transformative education available, as for example Cranton’s (1994) guide; but we see that a few years later Cranton (1996) stated that “[i]t is much easier to write about the educator’s roles in transformative group learning than it is to implement them in practice” (p. 31). Furthermore, there is evidence in the literature (Cochran-Smith & Lytle, 1990; Schön, 1983) that teachers learn best when reflecting on their personal experience, be it as a teacher or as a student-participant in a course on transformative learning pedagogies. Kreber (2012) points out that the research regarding how teachers improve their teaching shows that theoretical knowledge is “more or less *irrelevant or worthless* as it cannot be directly *applied* to practice” (p. 92).

If the reader can accept that the skills needed for transformative teaching are similar to the skills required for mobilizing change in groups, then an important concept of leadership is pertinent for teaching, which is: you cannot lead alone! In traditional educational contexts the norm is one-to-many: one teacher, many students. I do not think this is a valid approach for transformative teaching. No matter how well practiced and developed a teacher is, he or she will always have blind spots, especially when working in the complexity of groups. A teacher needs partners in the class that can help them reflect on individual and class dynamics. A partner can be another teacher or a well-practiced teaching assistant. The difficult issues of transference and counter-transference can be dealt with much better when there is a third person, as the problematic dual-relationship can be interrupted by a third person who is skilled at such matters. Finally, a partner is an invaluable aid in deciding on difficult matters, such as whether the fine line between education and therapy has been crossed and a student should be recommended to a therapist.

The last point I want to address on ethical concerns from a teacher centered perspective is that the know-who awareness of the teacher fundamentally affects the type and quality of the educational experience for the students. Parker Palmer (2007), in his book *The courage to teach*, addressed this point eloquently:

Teaching, like any truly human activity, emerges from one's inwardness, for better or worse. As I teach, I project the condition of my soul onto my students, my subject, and our way of being together.... When I do not know myself, I cannot know who my students are. I will see them through a glass darkly, in the shadows of my unexamined life – and when I cannot see them clearly, I cannot teach them well... The work required to 'know thyself' is neither selfish nor narcissistic. Whatever self-knowledge we attain as teachers will serve our students and our scholarship well. Good teaching requires self-knowledge: it is a secret hidden in plain sight. (pp. 2-3)

5.2.3 Can leadership be taught?

In this section I engage with the topic of teaching and learning leadership by building on and drawing from previous sections. I begin by questioning whether leadership can be taught, and if so what the best pedagogical approach would be. Then I discuss why one of the root skills of leadership practice is the ability to learn and reflect-in-action (Schön, 1983), and expand the argument by stating that Schön's reflection-in-action capacity only becomes readily available at higher orders of mind. I conclude the section with an overview of the research on leadership abilities at different orders of mind.

5.2.3.1 *Leadership education, a misnomer?*

Can leadership be taught? Can it be learned? Given the vast amount of professional and higher education programs teaching leadership one would assume the answer is yes. The intellectual understanding of what leadership is and if it can be learned has evolved. In recent history one of the first publications on leadership was Carlyle's (1841) Great Man theory, which basically argued that leaders are born, not made. In the early 1900s psychologists started studying leadership and by the 1930s psychologists had identified numerous traits that leaders possessed (Cowley, 1931), which substantiated the assertion that leaders are born, not made. By the end of the Second World War, and with the birth of professional managers, behavioural theories of leadership (Blake, 1964; McGregor, 1960) developed arguing that leaders are made, not born. With this shift in belief, that leadership can be learned, educational programs spread. In the following decades theories of leadership continued to evolve from contingency (1960s) to transactional (1970s) to transformational (1980s onwards) (Rost, 1991), but the belief that leadership can be taught and learned has not changed since the 1950s.

Personally, I have no doubt that leadership can be learned. However, I am skeptical that formalized leadership courses and programs can teach it. Notwithstanding my skepticism, and given the enormous sustainability challenges that we face, I do believe that higher education has a role to play; if not one of directly teaching leadership, then in preparing individuals to more readily learn how to better exercise leadership. The challenge that higher education institutions, and for that matter most professional programs (Bolden & Gosling, 2006; Carroll, Levy, & Richmond, 2008; Conger & Ready, 2004), face in leadership education is moving from a mainly external behavioural lens, or competency focus (Jokinen, 2005; Spendlove, 2007; Yukl, 1999), to one that addresses the interiority of leadership (Fairholm, 2001; Jaworski, Flowers, & Senge, 1996; Joiner & Josephs, 2007b; Koestenbaum, 1991) in their educational programs and courses.

The external behavioural lens, or competency focus on leadership education, from now on referred to as *leadership training*, aims to impart knowledge and sometimes skills *about* leadership. In leadership training courses leadership is normally studied from the outside, a 3rd person phenomenon that we can analyze and discuss. We learn about leadership frameworks, styles, traits, and competencies; contrasting and comparing between them, discussing which is better in a given situation. Many times case studies are used to analyze the action somebody took in a certain situation, and discuss what could have been done differently or better. This approach privileges *explicit knowledge over tacit knowledge*

where the subject matter can be organized into categories, and there is a sense of clarity and consistency of what is being taught.

Conger and Ready (2004) argue that the leadership training approach is ubiquitous because it offers three critical benefits to organizations, and I would add higher education institutions, which are “clarity, consistency, and connectivity” (p. 43). For a topic as vague and complex as leadership, which invites discomfort in the paradigm of modernity (Townley, 2002), *clarity* is a good antidote for those who privileged rationality, control, and simplicity when having to deal with leaderships’ imprecise and ambiguous nature. *Consistency* in leadership training is needed in organizations so they can communicate, measure, and track over time and across location the competencies of their managers (Conger & Ready, 2004). In higher education the grading system requires that we apply principles of logic, accuracy, and fairness which can only be done if there is *consistency* in the subject matter. Finally, in organizations, a leadership training approach is valued because it provides many metrics that allow for *connectivity* across human resource processes (Townley, 2002). In higher education, educational programs are built out of successive courses; knowledge is gained linearly and hierarchically, and for that purpose *clarity* and *consistency* are prerequisites so that courses have *connectivity* between them.

On the other hand, an educational approach that takes into consideration the interiority of leadership, from now on called *leadership development*, engages with leadership from the inside-out, from a first person lived experience. This educational approach emphasizes leadership-as-practice and the development of *tacit knowledge* (Antonacopoulou & Bento, 2011; Carroll et al., 2008). As an example, Benner’s (1984) influential study of how nurses go from novice to experts had a revolutionary impact on nursing education (Rabkin, Horvath, & Brykczynski, 2003). Benner interviewed new graduate nurses, senior nursing students, and experienced nurse clinicians to understand the difference between how they practiced. She found that Dreyfus’ (1979) Model of Skill Acquisition describes accurately the differences between novice to expert nurses. Briefly, Dreyfus’ model claims that in the process of gaining and developing a skill we go through five stages of proficiency: novice, advanced beginner, competent, proficient, and expert.

The transition from novice to advanced beginner happens when the individual is able to go from adherence to rules and procedures to noticing patterns in-context that provide clues of what to do. The advanced beginner becomes competent when they can notice relevance and prioritize which patterns are most important to address. The shift from competent to the proficient stage is quite radical as now

the practitioner no longer assesses the context analytically, but holistically. This means that the individual 'sees' only what is important to address, in other words, only the most salient patterns arise in the practitioner's awareness. There is no longer an analytical process to assess the situation. Finally, an individual becomes an expert when their decision making is no longer rational but intuitive. Benner (1984) describes that for an expert it is not that the rules and formulas have become internalized, she states that at that level there are no rules and formulas. Experts can at ad-hoc rationalize their decision, but in the moment they rely on intuition and just act without any rationalization or conscious decision making.

Leadership educational approaches that focus on developing *explicit knowledge* can only aid in the development of a novice proficiency in Dreyfus' model. This includes the common case-study approach to leadership studies, where individuals learn to apply a set of models, tools, concepts, and frameworks to historic cases. Developing higher proficiencies requires practice, support, and coaching on developing *tacit knowledge*, which does not mean that *explicit knowledge* is no longer needed; it is just not enough. The problem with leadership education is the lack of awareness regarding this matter. As Roger Gill said: "Most MBA programs have concentrated on cognitive learning, management models, and the use of management tools and techniques. In spite of this, they're still turning out what BusinessWeek 20 years ago called 'highly skilled barbarians'" (quoted in Bisoux, 2002, p. 28). Frohman and Howard (2008) articulate what they think is actually needed for effective leadership: "I believe that learning how to lead is more in the nature of cultivating personal wisdom than it is of acquiring technical skills... And the most essential things about it cannot really be taught — although, in the end, it can be learned." (p. xiv)

What Frohman and Howard describe is the sort of 'quantum leap' required in Dreyfus' model for developing skills beyond the competent level. Meaning, that to develop to the proficient stage requires dropping a reliance on concepts and frameworks; and further, moving to the expert stage requires dropping the 'self', that is, there is no longer a separation between the expert and the practice. The awareness of the individual goes from being *on* the field, to *becoming* the field (Dreyfus & Dreyfus, 1986). Benner (1984) discovered that if "experts are made to attend to the particulars or to a formal model or rule, their performance actually deteriorates" (p. 37).

If we fully accept Dreyfus' model and Benner's research then there is a certain amount of humility required from leadership educators, by admitting that advanced levels of leadership cannot be articulated in terms of guidelines, principles or theories. And without these concrete pieces of

knowledge there is nothing to teach beyond the competent skill level, in the sense that further skill acquisition can only be gained through practice and mentorship (Benner, 1984). However, as I will discuss in the next section, there is a caveat to this framing in the context of leadership education.

To summarize, Table 5-7 provides a brief overview of the educational differences between leadership training and leadership development approaches. Leadership training educational approaches rely mainly on Millers and Seller’s transmission mode, with some use of transactional modes of educating. Leadership development approaches rely mainly on the transformative mode with some use of the transactional mode of teaching and learning.

Table 5-7: Leadership training vs development – adapted from Carroll et al. (2008)

Leadership training	Leadership development
Rooted in objectivism	Explicitly constructionist
Individual level of analysis	Inherently relational and collective
Quantifiable and measurable	Discourse, narrative, and rhetoric
Unanchored in relationship and context	Situated and socially defined
Privileges reason	Privileges lived or day-to-day experience
Assumes intellect predominant	Incorporates embodiment and emotion

5.2.3.2 *Leadership as a practice of learning*

Although I draw parallels between educational practices in the nursing profession to the education of leadership I think there is one fundamental difference between the two. Nurses and doctors principally deal with technical challenges. No doubt the medical challenges they work with are extremely complex. However, they are technical in the sense that we already possess the knowledge and competencies for addressing these challenges. Acquiring an expert skill level as a nurse means one has developed authoritative expertise on the matter of nursing. On the other hand, leadership is required when facing adaptive challenges, meaning we do not know how to address them; as I have discussed in chapter 3. In the practice of leadership, the interventions we make to mobilize change are more likely to fail than succeed (see chapter 2 and 3). Imagine if this was the case for a doctor or nurse; very likely they end up

unemployed. Therefore, Dreyfus' Skill Acquisition Model is not 100 percent valid for understanding leadership practice. If we accept Dreyfus' model and Benner's research then the highest levels of practice cannot be articulated, reflected upon, and shared as they arise holistically and intuitively.

In my experience, individuals that effectively exercise leadership would agree with the Dreyfus model that they mainly function intuitively and perceive the situation holistically. However, they would also agree that they have to articulate and reflect on their interventions to continually learn both from those interventions that failed and those that succeeded. And as Heifetz et al. (2009) suggest, this is best done with the support of partners, allies, and confidants. Therefore, one of the core practices of leadership is the ability to continually learn, even at the highest levels of practice; this is what Schön (1983) calls reflection-in-action. Supporting this claim Antonacopoulou and Bento (2004) argue that leadership is learning:

Leadership is learning (Vail, 1996, p. 126). Whatever else leaders do, their primary role is to keep learning and to facilitate the learning of those around them... In this sense, the crucial question in leadership development is not just what to learn, but how to learn how to learn... 'Learning leadership', therefore, is not the 'learning about leadership' that characterized the teaching paradigm. Rather, it is an approach to leadership that is rooted in the transformational paradigm, where leadership is a process of becoming, and learning is a way of being... This ability to learn, however, requires a leader who is willing to feel the vulnerability implicit in not knowing... Ironically enough, these are not qualities that are valued in the teaching paradigm, where not knowing is perceived as a weakness, and 'incompetence' is a dreaded state. (p. 82)

What Schön does not address is that *what* we are able to reflect on depends on the order of mind from which we construct reality. According to constructive developmental psychology we are not actually able to reflect until we have developed the ability of abstract thinking (Commons, Richards, & Kuhn, 1982; Piaget, 1954). In Kegan's theory abstract thinking develops in the transitions from 2nd to 3rd order of mind (Kegan, 1980). Table 5-8 summarizes how our ability to reflect expands not just the capacity to reflect, but *what* we can reflect on. It seems that Schön's reflection-in-action requires an individual to have the capacity to at least *observe* abstract generalizations alongside values, roles, and inner states. This capacity seems to only become readily available once we have grown to a 4th order, self-authorizing mind, which is able to generate and construct one's own beliefs, values, and loyalties instead of inheriting them from external sources like the socialized mind. "Self-authoring individuals take internal and external responsibility for their thinking, feeling, and acting. In addition to seeing themselves as the creator of feelings, they can internally reflect on and hold conflicting or contradictory feelings rather than being subject to these changing emotions" (Boes, Baxter Magolda, & Buckley, 2010, p. 4) .

Table 5-8: Increasing ability to reflect – adapted from Kegan (1994)

Dimensions of reflection C: Cognitive E: Interpersonal A: Intrapersonal	Kegan's order of mind	Subject (Self) What one is identified with/operates from/perceives as Self	Object (Other) What one can see & reflect upon/operates on/perceives as Other
Pre-abstract thinking (<i>No ability to reflect</i>)	1st order	C: Perceptions and data E: Social Perceptions A: Impulses	Movement and sensations
	2nd order	C: Inferences E: Point of view A: Needs & preference	C: Perceptions and data E: Social Perceptions A: Impulses
Abstract thinking (<i>Growing ability to reflect</i>)	3rd order Traditionalist	C: Values, generalizations E: Role & mutualism A: Inner states	C: Inferences E: Point of view A: Needs & preference
	4th order Modernist	C: Ideology (value system) E: Multiple roles consciousness A: Identity & individuation	C: Values, generalizations E: Role & mutualism A: Inner states
	5th order Postmodernist	C: Trans-Ideology (Paradox) E: Interpenetration of Self and Other A: Inter-individuation	C: Ideology (value system) E: Multiple roles consciousness A: Identity & individuation

Kegan (1994) argues that often educators assume learners have such capacity to reflect-in-action. He describes this common assumption as the hidden curriculum whereas students we are expected to "take initiative; set our own goals and standards; use experts, institutions and other resources to pursue these goals; take responsibility for our direction and productivity in learning" (p. 303). However, Kegan argues these capacities require a self-authoring mind, and only 16%-40% of the adult population construct reality from a self-authoring mind.³⁵ Rooke and Torbert (2005) argue that most graduate degrees such as MBA and MSc tend to promote and reinforce a 3rd order, socialized mind.³⁶ If this is true it is problematic because from a 3rd order of mind our ability to critically reflect and learn from practice is limited. This is especially problematic in leadership education.

³⁵ From (Cook-Greuter, 2004; Kegan, 1994)

³⁶ Their study shows that MBAs and MSc promote Achiever and Expert action logics which equate to Kegan's 3rd order socialize mind.

To some degree, exercising adaptive leadership as described by Heifetz requires the agility of what Kegan (1994) calls 'higher orders of mind'. Kegan and Lahey (2009) state that "[t]he field of 'leadership development' has over-attended to leadership and under-attended to development" (p. 5). They argue that leadership development programs should focus on the process of personal development, and be less concerned with the knowledge that they usually address. Kegan and Lahey make a point of the incredible lack of personal development in leadership programs. This echoes what I have argued before about the over-emphasis on know-what knowledge to the expenses of know-how skills and know-who awareness.

What the above scholars argue is that a leadership development approach requires creating educational situations that challenge students cognitively and emotionally (Kegan & Lahey, 2009). If these situations are well crafted, the challenges placed on the students are not resolvable from their current meaning making structure. Pushing them, with adequate support, to generate new, more complex and diverse meaning making schema that can better address the challenges posed to them. This challenging environment can be created independently of the particular leadership skills, such as observing, interpreting, or intervening, that are being practised and developed. In the next section I will briefly review the literature on how higher orders of mind affect the practice of leadership.

5.2.3.3 Leadership at higher orders of mind

What does leadership look like at higher orders of mind? Kegan (1994) describes how, historically, different orders of mind have arisen to meet the new societal demands of the era. He ascribes the third, fourth, and fifth orders of mind respectively to the traditionalist, modernist, and postmodernist eras.³⁷ These three eras are present today throughout the world and it can be clarifying to review each of these societal forms of organization, and consider the societal demands it places on those in positions of authority, as well as what it means to exercise leadership at each stage.

³⁷ The distinction of these three eras clearly has an Eurocentric connotation. That said, I find it useful as a distinction since this dissertation is primarily centered within the North American context.

Humans have been able to survive and thrive throughout much of history because we have been able to place the survival and needs of the group above our own. Therefore, traditionalist societies demand that its people be loyal and able to juxtapose the community above the self. Traditional forms of being and organizing are present throughout our world: we see them in the many ethnocentric identities that we all have (family, sport club, religion, culture, nationality). By ethnocentric I mean a strong group identity that gives shape to 'us and them'. From this perspective individuals look upon people in authority (religious, political, healers or doctors, captains or CEOs, caregivers or professors) for the Right answers to many of our problems. It is from this perspective that we normally equate authority with leadership, as from this vantage point they are the same. As well, the notion of heroic leadership discussed in chapter 5 stems from the high value we place at this order of mind on those who sacrifice themselves for the group by taking responsibility for protecting us from others and managing conflict, providing guidance of what tasks we should do, and shaping norms of what is right behaviour.

With the rise of modernity individuals became more mobile, communication reached across the globe, and people's identities started to expand from ethnocentric to world-centric. Society no longer trusted an individual in authority to provide answers; instead modern society placed its trust on Big Ideas: freedom, truth, science, democracy. In the modern world there is a diversity of opinions and truths with no single source of authority to provide us with answers to what is Right and how to live. This era places a demand on individuals to negotiate their own truths on raising children, being in relationship, taking ownership over their careers, and behaving as citizens. Therefore, calling on a 4th order, self-authoring, mind to meet these societal demands. No longer do we equate authority with leadership, as we have realized the limitations and failings of people in positions of authority. We have become disillusioned, as heroes are mere mortals with many shortcomings and flaws. In modernity, leadership is no longer a position or role, as much as it is an activity and practice of improving our lives and those of others.

Over time we have come to experience a disillusion with the Big Ideas and come to realize their limitation, which has given rise to the postmodern era where we have come to realize the incompleteness of even our internal truths. Our identities expand beyond world-centric and we are able to see our own theories and beliefs in perspective. We can see how all perspectives, theories, and conceptual frameworks are partial; allowing us to hold contradictory systems in our awareness. Society at large is still far from being postmodern; in many areas we are still struggling with modernity, and therefore we do not see postmodern demands placed on our daily mundane lives. However, many of

the global challenges that we are facing do require people in authority and those willing to exercise leadership to be able to see beyond the philosophical and discursive dichotomies that surround us and are within us. From a 4th order of mind we see the relativism of Ideas, yet are still held by, and have a strong preference for one end of the dichotomy. At the 5th order we move past holding on to one side of the dichotomy and projecting the other side onto our adversary, and move toward the ability to see the underlying system that unites them. We move away from seeking perfect Ideas and instead favour the transformative process that gives rise to novelty and change. From a self-transforming order of mind, leadership is the distributed process that places pressure on a human system to adapt to the changing environment. From this vantage point, leadership is more about orchestrating and facilitating a process of change than directing it.

Analyzing the effectiveness of leadership practice using Cook-Greuter's (1999) framework provides a similar prognostic. Rooke and Torbert studied thousands of executives over 25 years in many well know organizations. Working closely with Cook-Greuter they found that the internal action logic of the individual was a better determinant for performance than personality, management style or philosophy of leadership. Their findings of how action logics affect leadership are summarized in Table 5-9. A notable finding from their research is that consistently organizations with below average performance had leaders functioning from an opportunist, diplomat or expert level, which equates to a 3rd order of mind or below (see Table 5-2). On the other hand, organizations that had leaders function at the individualist, strategist or alchemist level consistently innovated and successfully transformed their organizations.

Table 5-9: Leadership at different stages – source (Rooke & Torbert, 2005; Torbert, 2004)

Action Logic	Key Characteristic	Focus of attention
Opportunist	Wins any way possible. Self-oriented; manipulative; "might makes right".	Short term horizon; focus on concrete things; deceptive; rejects feedback; externalizes blame; distrustful; fragile self-control; possibly hostile humor or "happy-go-lucky"; views luck as central; views rules as loss of freedom; punishes according to "eye for eye" ethic; treats what they can get away with as legitimate. Seeks personal advantage: takes an opportunity when it arises.

Action Logic	Key Characteristic	Focus of attention
Diplomat	Avoids overt conflict. Wants to belong; obeys group norm; rarely rocks the boat.	Observes protocol; avoids inner and outer conflict; works to group standard; speaks in clichés and platitudes; conforms; feels shame if they violate norm; avoids hurting others; seeks membership and status; face-saving essential; loyalty is to immediate group, not distant organization or principles. Attends to social affairs of group and individuals. Provides supportive social glue.
Expert	Rules by logic and expertise. Searches for improvement and rational efficiency.	Is immersed in the self referential logic of their own belief system, regarding it as the only valid way of thinking. Interested in problem solving; critical of self and others based on their belief system; chooses efficiency over effectiveness; perfectionist; accepts feedback only from "objective" experts in their own field; dogmatic; values decisions based on the incontrovertible facts; wants to stand out and be unique as an expert; sense of obligation to wider, internally consistent moral order. Consistent in pursuit of improvement. Strong individual contributor.
Achiever	Meets strategic goals. Delivery of results by most effective means. Success focused.	Effectiveness and results oriented; long-term goals; future is vivid, inspiring; welcomes behavioral feedback; feels like initiator, not pawn; begins to appreciate complexity and systems; seeks increasing mutuality in relationships; feels guilt if does not meet own standards; blind to own shadow, to the subjectivity behind objectivity; seeks to find ways around problems in order to deliver, may be unorthodox. Adopts rather than creates goals.
Individualist	Innovates processes. Relativistic position with fewer fixed truths. Self, relationships and interaction with the system.	Focus on self and less on goals; increased understanding of complexity, systems operating and working through relationships; deepening personal relationships; takes on different role in different situations; increasingly questions own assumptions (part of rise in self absorption) and assumptions of others; attracted by change and difference more than by stability and similarity; increasingly aware of own shadow.
Strategist	Creates personal and organizational transformations. Links between principles, contracts, theories and judgment.	Recognizes importance of principle, contract, theory and judgment - not just rules and customs; creative at conflict resolution; process oriented as well as goal oriented; aware of paradox and contradiction; aware that what one sees depends upon one's world view; high value on individuality, unique market niches, particular historical movements; enjoys playing a variety of roles; witty, existential humor (as contrasted to prefabricated jokes); aware of dark side of power and may be tempted by it - may misuse their own abilities and manipulate others. Post conventional.

Action Logic	Key Characteristic	Focus of attention
Alchemist	Generates social transformations. Interplay of awareness, thought, action and effect. Transforming self and others.	Seeks participation in historical / spiritual transformations; creator of events which become mythical and reframe situations; anchoring in inclusive present, seeing the light and dark in situations; works with order and chaos; blends opposites, creating "positive-sum" games; exercises own attention continually; researches interplay of institution, thought, action and effects on outside world; treats time and events as symbolic, analogical, metaphorical (not merely linear, digital, literal), involved in spiritual quest, often helps others in their life quests.

A word of caution—developing higher orders of mind does not mean that we will naturally develop leadership competencies; there are plenty of highly developed people who have no skill or interest in exercising leadership. Additionally, as I have mentioned before, higher orders of mind do not mean ‘better’ in a moral sense. This assumption is what Stein (2010) has called the growth-to-goodness assumption, conflating higher orders of mind with commitment to moral values. Yet, the quality of leadership changes as we grow from and into each order of mind. What I am suggesting is that the leadership skills that I have briefly outlined in section 5.1 challenge most, if not all humans, in our abilities to observe, interpret, and act with more freedom from our habitual ways. More complex ways of knowing allow us to *look at* what before we could only *look through*. The mismatch between our current habits of mind and what adaptive leadership calls for creates a pull to develop, which in turn requires that we look directly at what holds us ‘frozen’ in certain habitual patterns.

5.3 Conclusions

This chapter addressed how sustainability leadership is defined in this dissertation and provided a background to teaching and learning sustainability leadership within a university context. I discussed the importance of distinguishing when authoritative expertise is needed and when leadership is needed in complex sustainability challenges. In regards to sustainability education, I argued that the development of authoritative expertise in sustainability aligns itself well with the teaching and learning practices that support explicit knowledge, or *know-what*. However, supporting the development of sustainability leadership skills requires teaching and learning practices that support tacit knowledge, or *know-how* and *know-who*.

I argued in this chapter that transformative learning and teaching approaches are required to support the development of know-how skills and know-who awareness of sustainability leadership. Importantly, I discussed ethical considerations when engaging in transformative learning and education, such as, the reasoning for why transformative pedagogy courses need to be electives at traditional learning institutions like UBC, as well as the importance that courses that apply a transformative pedagogy be taught by more than one instructor given the complex transference and counter-transference student-teacher relationships that could arise.

Finally I discussed the challenges of 'leadership' as a topic of teaching and learning, and the predominance, in formal education, of studying leadership from a removed third-person perspective. On this point, I argued about the importance of teaching and learning approaches that address the interiority of leadership practice, and support the development of 'knowing' at different orders of mind. The next chapter is a case study of a sustainability leadership course that I taught in 2011 that focused on creating a learning environment that both challenged and supported students to develop sustainability leadership skills and more complex meaning-making structures.

Chapter 6. Case study – Sustainability leadership course

6.1 Introduction

The objective of sustainability is now firmly installed in mainstream business, governmental, and social discourses. Much has been achieved since the Bruntland report (WCED, 1987) in both awareness building and in achieving a better understanding of the technical dimensions of sustainability issues. However, there has been considerably less research in regards to the practical aspects of how to mobilize groups, departments, organizations, and societies to begin implementing the various technical solutions and policies that from a sustainability viewpoint are necessary. This gap can be construed as, in essence, a leadership challenge.

There is also a gap, sometimes substantial, between being familiar with leadership theories, and actually having the concrete embodied leadership competencies and capabilities. This gap is the challenge that the current study tries to address. The case study in this chapter is the centerpiece of the dissertation. Here I describe the methods and impacts of applying an innovative teaching approach to a course that aimed at supporting transformational learning and sustainability leadership development. The course was titled ‘sustainability leadership’ and was taught at the University of British Columbia in the fall term of 2011. I was the principal instructor of the course, Carissa Wieler was teaching assistant, and I received general support from Dr. Meitner. The course was open to all undergraduate and graduate students at UBC, everyone who enrolled was accepted. In total 26 students from 16 different disciplines completed the course.

This chapter includes a research question and methods section with a description of the course design, the exercises performed, and the methods for assessing students’ transformational learning and leadership competencies. The bulk of the chapter is dedicated to presenting the findings and discussing the impacts of the course on students, as well as including my reflections on the challenges of teaching the course.

6.2 Research questions and methods

This case study explores the following research question ‘What impacts on students does a course have that fosters cognitive understanding of sustainability leadership diagnostic abilities, encourages deeper

awareness of themselves and the complexities of change, and provides embodied leadership skills for mobilizing people?’

This section describes how the course was developed and its design. I discuss the course structure and the importance of creating both challenging and supportive experiences to facilitate transformative learning. Each of the experiential exercises used in the course is described in detail, as well as how students learning was monitored and evaluated throughout the course. The last part of this section describes the research methods used to evaluate the impacts of the course on students.

6.2.1 Foundations of the course

The first step in developing the course was to perform a literature review and web search of courses teaching leadership within the context of social change, and fifteen courses were identified. At the time (2010 and early 2011) I only found one university (Cambridge) offering a program on leadership and sustainability, which it had launched in September 2010. None of the courses and programs reviewed offered an explicitly transformative learning environment, and only one (Heifetz course at the Kennedy School in Harvard University) offered a course that implicitly used a transformative learning pedagogy. Furthermore, most of the courses offered an overview of leadership theories and used a case study pedagogy. I wanted to create a course that offered ample opportunity for practice and that was based on participant’s experience, not on third person case studies methods. My scope was also of delivering only one course and not a series of courses as part of a program similar to what Cambridge offered in their leadership and sustainability program. Therefore, most of the reviewed courses did not meet these criteria, except for Heifetz course at Harvard.

To develop the syllabus of the course I used as a starting point Heifetz’s course “Exercising Leadership: The Politics of Change” as taught at the Harvard Kennedy School of Government. In the process of adapting Heifetz’s course both to my specific aims and to the UBC context I received support from Heifetz and consulted with one of his teaching assistants, Diego Rodriguez, who generously supported my project. I chose to base the sustainability leadership course on Heifetz’s course for a number of reasons. First, I was already familiar with Heifetz leadership approach, which I continue to find well suited for supporting the development of competencies and capabilities that are necessary in individuals and groups to mobilize progress on sustainability challenges. Second, the adaptive leadership framework is originally Heifetz’s work, and it makes sense to use his course as a model when aiming to

teach a course based on his material. Third, the Adaptive Leadership framework is well suited to applying what the SoTL and/or transformative pedagogy literatures recommend. Furthermore, Heifetz uses a transformative learning approach similar to the Tavistock method (Sher, 2012). Fourth, Heifetz's course is ranked highly by students at the Kennedy School. Since 2008, the SLATE (Strengthening Learning And Teaching Excellence) initiative at Harvard Kennedy School surveys 5-year alumni to nominate the course that alumni thought was the most influential in their post-Kennedy School career. Every year, since 2008, Heifetz's Exercising Leadership course has won the SLATE 'Most Influential Course Award'. Lastly, a number of researchers and academics from the conservation sciences argue that an Adaptive Leadership approach is well suited for the sustainability challenges that we face (S. A. Black et al., 2011; Manolis et al., 2009)

I made a number of adaptations to the course. First, I substantially adapted the reading list for the course to be more applicable to sustainability. Second, I shortened and adapted the case and film questionnaires to better fit a younger audience. Third, I added an extra film analysis to the course titled 'Made in Dagenham' that addressed the challenges of leadership from a position of limited formal authority. Fourth, I modified the syllabus to fit younger students better, placing more focus on the study and practice of exercising leadership from a position of limited formal authority. Lastly, I added six experiential exercises to the course, but kept the original music exercises.

6.2.2 Details of the course

The course was offered as an elective for both undergraduate and graduate students. In the advertisement for the course and in the syllabus I explicitly mentioned that the course would delve into difficult emotions and that it would challenge students cognitively and emotionally. I knew that, given the transformative approach of the course, students would end up spending considerably more time outside of class processing the experience of the course than what they were accustomed to in other three credit courses. Therefore, in the course advertisement and syllabus I included warnings that the course demanded a substantial time commitment. I wanted to avoid a situation where students would be stretched too thin because of committing to many other courses at the same time. Students participated in the course by choice and had the first three weeks of the semester to drop out of the course without any consequences on their academic standing.

The course was advertised via email and poster postings throughout UBC (see Appendix A). During June and July 2011 I contacted student services for most faculties, departments and programs at UBC and requested they send out an email notifying students of the course. I also placed posters throughout the UBC campus.

Regarding the course design, it can be split into the following components: course purpose, learning objectives, and experiential design.

Course purpose

The overall course purpose was to learn about the practice of leadership in the context of sustainability. Each week we focused on a specific topic and guiding questions that related to the larger purpose of the course. See Table 6-1 for a brief syllabus of the course (Appendix A contains the full course syllabus and schedule).

Table 6-1: Course syllabus

Week	Topic	Focus questions
1	Introduction	<ul style="list-style-type: none"> • What does it mean to be a sustainable society? • What does it mean to practice leadership?
2	Solving tough problems	<ul style="list-style-type: none"> • How does a group/society make progress on tough problems? • How does social change happen?
3	Group dynamics	<ul style="list-style-type: none"> • What role does conflict play in social change? • What are the main patterns in group dynamics? • Do individuals have ultimate control over determining what they say, think, and do in groups?
4	The courage to experiment	<ul style="list-style-type: none"> • What is needed from us to create a new reality? • How does innovation happen? • How can one intervene to shift group dynamics?
5	Leadership with authority	<ul style="list-style-type: none"> • Why do we obey authority? • What are the limits of authority?
6	Leadership without authority	<ul style="list-style-type: none"> • How can you relate productively with authority? • What freedom to lead do you have by NOT having authority?
7	Orientating in the midst of chaos and conflict	<ul style="list-style-type: none"> • How do you know that you are leading in the right direction? • What questions can you lead with to bring clarity to the challenge you face?

Week	Topic	Focus questions
8	Listening and presence	• How can you use yourself as data to what is happening in the larger system?
9	Design effective interventions	• What makes a good intervention? • How do you know if it was effective or not?
10	Inspire people	• How do you inspire people? • What are the dangers of inspiration?
11	Acting politically & orchestrating conflict	• Can you lead by yourself?
12	Thriving as a leader	• What do you need to renew yourself? • What is your growing edge, what do you need to support it?
13	Transitions	• How do you face and mobilize people through losses?

Learning objectives

The learning objectives are broken down into three spheres of enquiry: know-what knowledge, know-how skills and know-who awareness.

Know-what relates to a third person, removed and objective understanding of course content, both relating to sustainability and leadership. The leadership content and theory was well defined, whereas the sustainability content was not. The reason for this was that I expected students to come versed in sustainability issues and frameworks, but not in leadership ones. By framing the course purpose as learning sustainability leadership, I expected that sustainability content would arise naturally out of the leadership challenges that the students presented to the group. The outcomes related to this assumption will be discussed in the findings section.

The know-how learning objective refers to a second person, relational knowledge of group dynamics. In this case the individual is never separate from the group they are attempting to influence and practice leadership in. This learning objective is focused on looking at the group challenge through the eyes of the multiple factions and stakeholders, including one's own. This type of knowledge can be categorized as knowing about: group dynamics and change, resistance to change, how to intervene and mobilize a group to address the 'what'. This includes such skills as: building the container, ripening the issue, pacing the primary process, engaging across factions, and so forth.

Finally, know-who awareness focuses on the 'I', the first person experience of sustainability leadership. In essence it seeks to develop more self-awareness, including awareness of one's own emotions, longings, aspirations, ambitions, limits, and fears. In undertaking to help each participant develop more self-awareness I also aimed to develop an individual's ability to sense how others are doing and how they perceive them. I will expand more on this point below in the experiential design.

Experiential design

The course was designed to create learning experiences that engage the whole person (e.g., 'hands, hearts, and heads'). The purpose of creating these experiences was threefold. The first purpose was to learn and derive concepts from the experience. By creating structured opportunities to reflect (pen and paper) or debrief (live with others) the students had the opportunity to discover for themselves many of the concepts and theories of the course. This approach also permitted novel ideas or concepts pertinent to each individual and not previously defined as a learning objective of the course to spontaneously arise. This method allows the instructors to better meet the student at their learning edge, exploring and supporting that edge with the student.

The second purpose of an experiential pedagogy is to create opportunities for students to discover the edge of their competencies, which mainly occurs as a process of experiencing some dilemma and/or frustration as they participate in the quandary of group life (Kegan, 1994; Mezirow, 1991). This creates a fertile terrain to support transformative learning in the students. The process of transformative learning is not only a cognitive matter; it requires that students engage their minds, hearts, and hands in the messy work of growth (Kegan & Lahey, 2009).

The third purpose of creating experiences is to gain a deeper somatic awareness (Goldman Schuyler, 2010; Ladkin & Taylor, 2010). The aim was to increase the students' capacities for being present to and working with difficult emotions. Participating in group projects typically gives rise to many conflicting emotions, such as anxiety, rejection, frustration, aggression, and fear (Bion, 1961). By providing opportunities for students to experience these emotions with more awareness and supporting them to develop a friendliness towards them as opposed to jumping into action, we create space for more possibilities of diagnosis and action (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990). Most of us are hijacked by our amygdala when we experience anxiety and fear; we bypass our frontal cortex, our rational mind, and function from our habitual defensive routines that are rarely conducive to learning

and resolution of difficult situations (Goleman, 2011). Expanding our somatic tolerance for difficult emotions not only helps students better deal with conflict, it also translates to an increased capacity to remain present and engaged in ambiguous and paradoxical situations (Goldman Schuyler, 2010). Many of the most difficult challenges that leaders face require that we stay open and work within an experience of not knowing (Antonacopoulou & Bento, 2011), which for most of us is incredibly difficult to practice as we tend to jump to ready-made solutions that give resolution to our anxieties.

Deeper somatic awareness also includes those emotions we might associate with more positively like empathy, compassion, and love. For many people fully experiencing such emotions is difficult and they tend to shut these emotions down. However, allowing these emotions to run through our bodies opens us to the possibility of being more authentic and real (B. Brown, 2012). When we move skilfully with these emotions we are generally more able to communicate, inspire, and mobilize people (Redmond, 1985; Stiff, Dillard, Somera, Kim, & Sleight, 1988). It also allows us to be more attuned to what is happening to others, as we are more able to feel another's concern. One could argue that for the practice of authentic listening one does not necessarily need to *understand* another perspective, but one needs to be able to *feel* their concern so that their experience is one of being fully heard.

Finally, an expanded somatic awareness allows a person to start distancing themselves from the role they are playing in a given situation. By having more space to see emotions arise and not being consumed by them, we start to notice a separation between the self and the experience that is being created by the role that we are currently in. This expanded freedom allows a person to take on a more experimental mindset as they are less likely to be hijacked by the amygdala (Goleman, 2011). A term that refers to this capacity is 'self as instrument' (Smith, 1995). This not only refers to the distancing and awareness that develops, allowing us to more skilfully apply ourselves to the cause, but also to the capacity of using our bodily sensations to understand what is happening in the group we are working with. As we develop somatic awareness we start working with our sensations as clues to what is happening in the field. For example, if we experience dullness or excess anxiety in a group conversation it may be possible that other people are having this experience, which can give us insight into a group dynamic that needs to be shifted in one way or another to be more productive.

The key to creating experiential learning opportunities is to aim for optimal conflict in the group (Kegan, 1994; Kegan & Lahey, 2009), where there is a dynamic interplay between challenging and supportive experiences. Given that each participant's bandwidth and personal tuning are unique, not to mention

the added complexity of individuals coming together giving rise to novel dynamics, this becomes a far from trivial task. In my experience, this is a continuous experimental process where instructors and facilitators are constantly gauging the disequilibrium in the group as a whole and of each individual and are always taking corrective action from our previous intervention, either to raise the disequilibrium or lower it. To avoid having the group limited by individuals with the least capacity for disequilibrium we need to focus most of our support on those limiting individuals both inside and outside of the classroom.

6.2.3 Creating challenging and supportive experiences

As I have discussed in chapter 6, providing both a challenging experience and a supportive environment is fundamental for fostering transformational learning. There is no formula for how to best to do this. To a large degree it depends on individual personality and the chemistry that arises in the group. In my experience creating an emotionally challenging experience just for challenge sake is senseless. Each emotionally challenging learning experience needs to have a clear purpose of what it is trying to teach. That said, I have found that it is quite hard to create challenging learning experiences that are applicable to a wide range of students, as naturally each individual has different life experiences and what they find challenging is many times not the same. Therefore, the course needed to have multiple exercises that would create an opportunity for students to find themselves challenged.

From my experience, I assumed that the stronger the supportive environment was, the more likely it would be that students would choose to take on challenges and risks. The supporting environment was created by fostering bonds of trust between students and instructors, and bonds of trust between the students. The course structure had many elements of challenge by choice, how much students were willing to risk and expose themselves was up to them. I will discuss the course structure and its challenging aspects in the next section. Before proceeding I will first layout the five supportive mechanisms that were built into the course.

1. *Detailed and personalized feedback on their reflective papers:* Students had to submit one or two papers per week that asked them to reflect on their learning, on student interaction, and course content. The written feedback that course instructors would provide was at times as long, or longer, than what students would write. It was not uncommon to spend between 30 and 60 minutes per student paper in providing written feedback.

2. *One-on-one meetings:* With most students the instructors met multiple times during the course period to discuss a wide variety of challenges that would arise, for example: assisting with the difficulties on selecting a personal leadership failure case, providing assistance to better understand a course concept, and supporting them on the personal leadership challenges they were experiencing outside of class.
3. *Three instructors, representing a diversity of knowledge, age, and gender:* Students had multiple options regarding whom they could approach if they needed further support. For example, Mike, who has a counselling background, was approached a number of times by students who were struggling with personal issues that at times surfaced in the class.
4. *The course had a structure where more supportive classes where interspersed with more challenging ones:* For example, watching and analyzing films provided a degree of structure that students enjoyed, as they felt it supported them to learn the concepts as well as creating a space that was more emotionally at ease. Similarly, the Thursday case debriefs provided structure in the more traditional manner of university courses, and students found themselves more at ease in those learning environments.
5. *Instructor brief and debrief:* The three instructors would brief an hour before the course would start to discuss a number of topics. One of them was to discuss any particular concern for a student. If we thought that a student needed more support we would either engage and support them more in the class or ask to meet with them after class to check-in with them and see if our concerns were valid or not. The three instructors would also debrief for an hour or more after class to discuss a number of topics, again including potential concern for students that might need more support.

6.2.4 Course structure

The course was designed with structures that support student learning by creating both challenging and supportive experiences. The five main structures of the course were: large class meetings, small group consultations, large group case debriefings, led exercises, and individual questionnaires. I will discuss each of these formats below.

Large class meetings

The class gathered once a week for 1.5 hours in an auditorium style room. During this period I utilized a case-in-point teaching methodology that was refined by Heifetz and Linsky at Harvard (Parks, 2005). The method is based on the teaching approach developed at the Tavistock Institute in UK and the A.K. Rice Institute in USA, both with roots stemming from Wilfred Bion's work on group dynamics (Bion, 1961, 1970).

In essence, case-in-point uses the here-and-now dynamics happening in the classroom setting as the focus of study. For example, one possible intervention that the instructor can do to help elucidate the dynamics of authority is by sitting down in a class. The class quickly comes to experience their longing for the services that authority provides, such as direction, order, and protection. In this classroom context, the practice of leadership is about mobilizing participants to tackle the difficult challenge of learning something that is not easily teachable. This creates an opportunity for all participants to both learn and practice leadership. The approach forces participants to engage with the topic, as they themselves and the dynamics between them are the unit of analysis.

This approach combines both didactic and experiential learning opportunities. In the midst of the class dynamics a participant (instructor or student) can call for a stop to the action and ask or provide an interpretation of what just happened. When the instructor stops the action, she can opt to provide an interpretation of what is happening in the group and link it to the key learning concepts and theories of the class. These are didactic opportunities that arise organically from what is occurring in the group dynamics.

The class has a syllabus that moves through the key learning concepts and readings of the course, and each week the intent is to explore a specific aspect of sustainability leadership in depth. However, it is not uncommon for opportunities to arise in the group dynamics that require the instructor to jump ahead or go back to the scheduled content. This keeps the instructors on their feet as they need to link any aspect of the course content as it organically arises in the moment.

The large class meetings are generally challenging for students because many of the expected norms of how a university class should function are broken. Even students who have previously participated in classes structured around dialogue or experiential learning become bewildered by many of the interventions or lack thereof from the primary instructor. Many students, even those who have

participate in dialogue and experiential learning, unconsciously expect the instructor to provide direction, protection, and order, and when the instructor purposefully does not fill those expectations the students are challenged. These experiences are, for example, an opportunity to poignantly illustrate the complex authority relationships within which each of us is always embedded.

When the instructor senses that the class is reaching its threshold of tolerance for disequilibrium, he or she intervenes in a way that supports the students. This can be as simple as voicing recognition of what most people are probably feeling and acknowledging the difficult work that they are engaged in. Sometimes this is not enough and the instructor needs to provide interpretations and make connections for the students. The instructor walks the fine edge of challenging students through posing questions, making challenging interpretations or simply not meeting the expected role of the instructor, and on the other hand supporting students through acknowledging them and praising the work they are engaged with, providing interpretations and supporting conclusions they might reach on their own, and finally by providing mini-lectures that lower the disequilibrium.

Small group consultations and individual questionnaires

The class was broken down into small groups of 6 or 7 students. These groups met outside of class once a week. The task assigned to them was to present a case of personal leadership failure to their small group in 10 to 20min, then have the group consult with the case presenter for the rest of the time. The purpose of the consultation was for the group to collectively explore and analyze the case and, if possible, identify new diagnostic and/or action possibilities that the case presenter could have taken.

The small group consultations were carried out without the instructors present. Once the consultation was over each student had to fill out a structured reflective questionnaire. The questionnaires delved into both the case analyzed and the group dynamics experienced while consulting on the cases. The questionnaires were structured in a progression of learning regarding three main practices: observations of group dynamics, interpretations, and actions. The timing to shift from one questionnaire to the next depended on the group's progress on the previous questionnaire.

Both challenging and supportive experiences were structured into the small group consultations. For example, for most students talking about a personal failure is a challenging task, and further still opening up the failure experience to the scrutiny of the small group. The group dynamics that arise in the conversations are also challenging too many students. This challenging experience is countered by

providing a supportive structure each week, such as a guide on how to carry out the consultation, and assigning a designated authority from the group participants with the task of providing direction, protection, and order.

The questionnaires also had a mix of challenge and support. The instructor and teaching assistant provided detailed feedback to each questionnaire submitted by the students, supporting students in the learning and understanding they had developed so far and providing further insight into their weaknesses or blind spots. Sometimes one-on-one meetings with the instructors and students would take place outside of class time to support and coach them on a particular difficulty they were having. These sessions were varied and difficult to navigate as there were times that we had to navigate a thin line between the role of a university instructor and that of a therapist; I will expand on this in the findings and discussion section.

Large group case debrief

During the 3 hour labs, the class devoted about 60 to 90 minutes to collectively debrief a student's failure case from that week. Randomly one of the four groups was chosen and the case presenter for that week was invited to come to the front of the class and provide a description of their case to the class, as well as describe what occurred in the small group. If the student or group was not comfortable presenting to the class they could pass and another group would be randomly chosen. Once the presenter had finished laying out the case, other group participants were invited to comment on the case and the findings that the group had achieved in their consultation. Finally, the case was opened to the whole class so they could explore the case further.

Similar to the large class meetings, these group case debriefings utilized a case-in-point methodology. The difference was that the task was more clearly defined, so students struggled less with the fluctuating experience of lacking direction, protection, and order from the instructors. These sessions were normally challenging as students hit the boundaries of their competencies, and experienced a level of frustration when not able to make progress on the cases. Those were useful moments to point out the experience of working on tough challenges in a complex world that rarely fits into the students' existing theories and knowledge. I also used these opportunities to introduce and clarify concepts that the students had difficulty understanding. For example, many of the concepts regarding theories of change introduced in Part 1 of the dissertation would naturally and organically arise to help explain a

difficulty or resistance that the case was presenting. These concepts were not linearly laid out as they have been in Part 1, they were spread out in the readings. I aided the students in weaving these concepts together with the purpose of helping them see more options for diagnosing and intervening in a particular case. In this way I and the other instructors tried to model flexibility and creativity of thought, not relying on a single diagnostic method or theory of change. Even further, students were able to see that one approach and set of concepts that clarified a case one week did not necessarily help to understand a case presented a week later; and the group as a whole had to work together, bouncing between ideas and different ways of framing the challenge, to come up with some interpretation that would help to better understand the case difficulties.

Movies and led exercises

During the second half of the labs students either watched a movie or were led through a structured exercise. Four movies were presented to the students during the semester, each one of them focused on illustrating a particular set of leadership concepts. To aid students in their analysis, a structured questionnaire was provided to them before each movie, which they were required to hand in a few days later. Similar to the small group consultation questionnaires, the instructors provided detailed feedback; both supporting and challenging the students.

Led experiential exercises

A total of eight led exercises were conducted with the students, these included: a sustainability simulation, a voice dialogue session, a structured circle enquiry, two music exercises, two movement practices, a reflective immunity-to-change exercise, and a life boat exercise. I will describe each in the next section.

6.2.5 Experiential exercises

All of the led exercises were experiential, with the aim of eliciting heightened awareness and embodiment around different course concepts. The pattern of support and challenge was present in all exercises, and a structured debriefing period was conducted after each exercise to support students to derive and discover for themselves concepts and theories of the course.

6.2.5.1 Sustainability simulation

The sustainability simulation lab is based on the work I have done in Costa Rica and partially reflected on the case study of chapter 4. Using the modeling and simulation software Stella (*Stella*, 2010), I developed a simplified model of the socio-ecological system of one of the watersheds in Costa Rica that faces multiple, complex, and interdependent challenges. I then turned this into a computer simulation of multiple stakeholders interacting with each other and the environment.

The simulation offers an immersive experience of cross-sector tensions and conflicts between industry, tourism, small producers, and environmental groups. The simulation plays out over a 30 year time period in a region experiencing variability in rainfall patterns due to climate change. Participants are required to diagnose, decide, and act. Each group faces unique organizational challenges. There are no easy answers as the decisions taken by each organization influence the whole in complex and novel ways. Representatives of each group are brought together through community forums to create an opportunity of cross-sectorial dialogue, and possible collective planning and action to realize organizational and societal concerns.

Participants are placed into one of eight stakeholder groups and given a detailed handout explaining the overall context, organizational realities, and objectives (see appendix D for an example of a handout). For each given period each group writes down the decisions of how to carry forward their organization on pre-established sheets which are entered into a Stella model. Once all decisions are entered into the model, it is run, and the impacts of their decision are presented back to each stakeholder individually through print-outs. The simulation takes about 150 minutes to complete. Common to all experiential exercises, one of the most important aspects is the debrief that followed the simulation in the next class.

The learning objectives of the simulation are twofold. The first and most important one in the context of the course was to give students a fun and dynamic group experience where they could start building the bonds of trust that would later be conducive for carrying out the more challenging exercises. The second objective is common to many simulations, that is; to learn about the complexities of socio-ecological systems and the difficulties of exercising leadership.

6.2.5.2 Voice dialogue

The voice dialogue technique was developed by Hal and Sidra Stone in the late 1980s (Stone & Stone, 1993). The technique is used primarily in counselling and psychotherapeutic environments. However, Genpo Roshi (Merzel, 2007) expanded this technique in two ways. First, he used it in group settings, where the facilitator explores the voices with the whole group. Second, he applied the technique to explore non-dual or transcendent voices.

The theory behind the practice of voice dialogue is that our psyches are composed of at least three parts: primary selves, disowned selves, and the aware ego. The primary selves contain many individual selves that give rise to each person's unique personality. In brief, the voices are created as we shape our personalities from birth to adulthood. We are born vulnerable in the world, and early on we start developing a self that Hal and Sidra have termed the Protector/Controller that makes sure that the vulnerable Inner Child self is not damaged. Over time other selves arise, such as the Pleaser, Pusher, Inner Critic, and so forth. Theoretically, there are infinite selves that can exist within us. The process of voice dialogue aims to isolate one self and speak to it directly to gain from its wisdom and concerns. What we notice through the process is that some voices are stronger than others, while some or many are even disowned; meaning that we cannot find them within.

Generally speaking the psychological process of splitting and projecting gives rise to the disowned voices. We tend to either relate negatively and judgmentally to a person that displays qualities of our disowned voices or, on the other hand, we look up to and praise them. This normally depends on whether we associate the disowned voice with a positive or negative trait in a person.

The purpose of the process of speaking to these voices is to first distance ourselves from them. This is what Kegan (1994) would call a subject-object shift. We begin to see the voices as separate from our core self. This core self is what Hal and Sidra call an aware ego, and the process aims to increase the ego's awareness of both the habitual primary voices that mainly drive our behaviour, and surface the disowned voices that limit our range of possible actions and ability to empathize with others.

In the course I explored the following voices with the students, in this order:

1. Protector
2. Controller
3. Skeptic

4. Do-er
5. Power
6. Damaged self
7. Victim
8. Innocent playful child
9. Vulnerable child
10. Apex: power & vulnerability

The progression of voices I selected aimed to explore first the voices that enable us to be assertive in life, second to explore the voices that enable us to be open, connected, and feel life. The last voice utilizes Genpo's (Merzel, 2007) technique to transcend the dual nature of these voices, and seeks to establish an integrated, free-functioning, aware ego that has access to both vulnerability and power. The theme of vulnerability and power will continue through the rest of this case study, and I will build on it as I introduce new material and students' experiences.

The learning objective of this exercise was to provide students with an opportunity to experientially and in an embodied way develop more awareness of who they are. It also enabled them to experience what aspects of themselves they have free access to, and in what aspects they are more limited. This exercise also provides a technique that can be used after the exercise is complete to create some distance between an experience and the self, and therefore be able to reflect on it.

6.2.5.3 Music

The music exercise was conducted similarly to how Heifetz conducts his music exercises in the Harvard course on leadership (see Parks, 2005). Briefly, the exercise consists of asking students ahead of time to select a passage of significance to them. This could be a poem, part of a story, a letter received, and so forth. No further instruction or purpose is given.

On the day of the exercise a volunteer is randomly selected from the group. A podium is placed at the front and center of the class where the student stands in front of the class. The initial instructions given are along the following lines:

- Stay with the audience. Read it to them, and be with them as they listen.
- Make each word count. Give people time to listen.
- Allow for silence.

The instructions to the audience is to listen and at the end not to clap, to let the silence linger.

Normally the student struggles to deliver the speech powerfully. The instructor then asks the student to try again, and from then on the instructor's role is to coach the presenter. This can continue for many rounds as the three parties (presenter, audience, and instructor) work through the difficulties of being present, authentic, raw, vulnerable, and powerful in front of an audience.

Once the student has made progress, the next task is for the presenter to deliver the same passage but, instead of speaking, to make up a song using only the vowel Aaa. In other words, the presenter is asked to transmit the essence of the passage just using the vowel Aaa. The instructions are:

1. Use no words, just the A sound.
2. Start with AAA and see where it goes.
3. If you notice that you are singing a tune that you know move out of it.
4. Hold your audience, make each sound count, and allow for silence.
5. Do not try to figure this out analytically, just lead from where you are now and naturally the next tone will follow.

Once the song is completed the instructor opens it up to the class; asking for comments, insights, and connections to the course material. This process is repeated with as many students as the time allows, or when it becomes clear that the room has had enough.

The learning objective of this exercise is to explore aspects of leadership such as inspiration, listening, and partnerships. The exercise also continues to create an opportunity for students to experience emotions of vulnerability and power within themselves and others.

6.2.5.4 Enquiry circle

I derived the enquiry exercise from my personal experience participating in many transformative education workshops and courses. I had the following five themes in mind when developing the exercise: (1) develop greater awareness of personal tuning, and how and when our strings get plucked when others speak; (2) develop the capacity to listen to both the words, and the emotions under the words; (3) practice somatically creating a holding environment for others to express themselves authentically; (4) develop inner awareness of arising conflicting emotions and discursive thoughts while

in the presence of another; and (5) create a space where individuals could practice letting go, stepping into unknown territory, and innovating; inspired by the metaphor of leadership as art.

The exercise is as follows. Participants are placed into two concentric circles seated facing each other. Everyone should have a partner, if a person does not have a partner one of the instructors fills in. One person in the dyad will voice a sentence stem (see below for examples) and allow the other person to complete the stem with whatever comes to mind. The person who asks the question then stays silent and is invited to retain eye contact, staying present to the other person and to their own thoughts and emotions, while at the same time reducing as much as possible any outer signs of validation towards the speaker.

The speaker is given 90 seconds of silence to respond, and can stay silent if they so wish. After 90 seconds the facilitator rings a bell and the person presenting the sentence stem repeats it again. This is done for three successive rounds. After the third round is complete the speaker and listener switch with no verbal exchange, and three more rounds follow with the roles inversed. Once each dyad has had the opportunity for speaking and listening for three consecutive rounds the dyad is given 30 seconds to appreciate each other in an open verbal or non-verbal exchange. This sequence is considered one round of enquiry that should take about 10 minutes to complete.

Once a round of enquiry is complete the participants are asked to stand up and move towards their right. They should now be seated in front of a new person, and a second round begins. How many rounds complete the exercise is left to the discretion of the facilitator, who should be reading the energy in the room. Similarly to all other exercises a closing debrief is facilitated by the instructor. In this case I facilitated an open circle that was not to be broken for 30 minutes: even if everyone had completed sharing, we would all sit in silence in the circle until the 30 minutes were complete.

I had prepared the following list of questions, and only used the first four questions:

- I stop being curious when
- I am here because
- I feel most challenged when
- I feel most present when
- When I am criticised
- Being with other people

- My main problem is
- I block my feelings by
- It is right to block my feelings when
- I disconnect when/I tuned out when
- I connect when
- Fear arises when
- I get in the way when
- I find my center when

6.2.5.5 Movement

I developed the movement exercise in collaboration with a musician with extensive experience in transformative educational environments. The purpose of the exercise is to use the body to explore listening to others. The exercise builds on the enquiry exercise, but moves away from using words and concepts to communicate. The same five themes mentioned in the enquiry exercise are applicable to this exercise, yet the listening and speaking are now in reference to bodily non-verbal communication.

Music is used throughout this exercise. The selection of music styles was done very purposefully to induce different emotions and ways of communicating. Each individual will naturally interpret and give meaning differently to each music style. However, the intention was to choose music that would invite a diverse set of emotions, from love to anger, from joy to conflict. The music had to also meet the criteria that it was not easily identifiable to avoid individuals recognizing the music and eliciting a previous memory.

Given the cultural resistance and individual difficulties of using the body in public I chose to begin with an ice breaker. For the ice breaker I chose a music clip that is rhythmic, given that in my experience in Canada people feel more comfortable moving when the sound is more rhythmic rather than emphasizing the melody or harmony. The music also slowly builds its pace towards what would be considered 'dance music'. In essence, you could describe the first music track as electro-pop music.

The chairs in the room were organized in a big circle and students invited to be in the circle. The instruction was to first walk around the space, connecting to the music with their bodies. As the music became more danceable I invited them to move to the rhythm of the music. Given the difficulties some

people were having I told them not to make eye contact to alleviate some of the social anxiety present in the room. I also invited them to feel the anxiety present both collectively in the room and within most individuals. I invited them to see if they could befriend the anxiety and relate with it from a different perspective. As the anxiety present in the room lessened, with the help of the other two instructors, we slowly closed in the chairs and made the circle smaller. This intensified the experience and made it more intimate. About 15 minutes into the exercise I changed the tempo and had students relax for 30 seconds in silence without making eye contact.

As part of the ice breaker I asked them to turn to the person nearest to them and be in dyads. I played another track that is more melodic and instructed that one person should move to the sound of the music while the other person copies their movement. After about 90 seconds I had them switch, and after another 90 seconds I instructed them that they should continue copying each other but now there is no leader and follower. They should improvise. I trust that the reader is able to see how all these activities are related to communication and the five themes I introduced in the enquiry circle exercise.

Once the ice breaker was completed I had students relax, seated or standing, and introduced the instructions of the movement exercise, which are as follows. Through a counting game, students were placed in groups of three, and then within the group of three each person was assigned a number from 1 to 3. Person assigned number one would close their eyes and start moving with the music, they were told that the music would change styles 4 times and last about 6 minutes. The person with the eyes closed had to keep them closed for the full six minutes and move however they felt comfortable. The other two people in the group were assigned to copy the movement as best as possible of the person with their eyes closed. After the music, a bell would ring and person number two would close their eyes and another set of music would be played with similar themes. This would be repeated once more for the third person.

Before proceeding, I discussed communication and the purpose of the exercise: (1) individuals copying are invited to connect physically with how that person with eyes closed is interpreting / understanding / feeling the music; (2) individuals copying are invited to suspend their judgments of what the right interpretation of the music should be; (3) individuals copying are invited to notice how they would like to move and instead make an effort to connect with the other person's pattern of movement, noticing the tension it creates internally; (4) listen empathically, feel and experience what that person with their eyes closed is hearing through your own body; (5) the person with the eyes closed is invited to feel the

anxiety of not knowing what is happening around them, and instead explore and trust themselves as they are able to authentically connect to their unique individual expression of how the music should be embodied.

Once the exercise was completed we sat in a circle and collectively debriefed the exercise.

6.2.5.6 Immunity to change

The immunity to change exercise was conducted very similarly to how Robert Kegan conducts his workshops on immunity to change. For a detailed description of the exercise please refer to chapter 9 of the Immunity to Change book by Kegan and Lahey (2009). A short example of the exercise can be found online in the magazine Harvard Business Review (Kegan & Lahey, 2001).

6.2.5.7 Life boat

The life boat exercise (D. Hamilton, personal communication, 2011) is based on the modifications that Diane Musho Hamilton and Michael Mugaku Zimmerman made to the more common life boat exercise where people argue for their case to stay on the boat and/or role play different characters that are generally stereotyped and kicked out of the boat. The purpose of this life boat exercise is to connect more deeply with our mortality, our longings and aspirations. It draws from Buddhist principles of impermanence, interdependency, and emptiness. This is a very challenging experiential exercise to facilitate. This exercise was purposefully placed at the end, for two reasons. First, the content of the exercise is about endings, which was in line with the topic of termination outlined in the syllabus, and in line with the class finishing soon. The second reason to place the exercise towards the end is that to successfully accomplish the exercise the class needs to have developed a deep level of trust, in themselves, their peers, and with the instructors.

Process:

1. Ask who wants to participate. Maximum of 12 people in the center
2. Tell story of origins of the story based on the court case: United States v. Holmes in 1842 (see Teuber, 2006)
3. Describe the exercise
 - a. It is different from how some of you might have done it in school.
 - b. Create two concentric circles facing in. The center can be up to 12 people.

- c. Instead of deciding by drawing of lots, we will flip it around and let every person decide their own fate. To sit with the question of life and death, and take a decision autonomously.
- d. Explain the holding environment: the container to keep us together through this exercise will be created by:
 - i. Three principles or ground rules (see below),
 - ii. Outer concentric circle: similar to other exercises where they practiced, somatically holding people as they allow themselves to become vulnerable, honest, and authentic to themselves and to others,
 - iii. As in the other exercises you will get out of this exercise as much as you put into it,
 - iv. Nobody can leave the room unaccompanied. If an emergency comes up talk to one of the other instructors.

Exercise

The 'Life Boat' scenario is that a ship has gone down in the middle of the ocean and there is only one life boat with supplies to sustain only half of the people in the boat. The other half of the people have to go. Traditionally this exercise is very competitive and about choosing who should stay based on a person's value to the group and society. High value people stay, low value people go. This life boat exercise flips the traditional exercise around and instead of drawing lots, or voting for who leaves, it places the responsibility on each participant to decide on their own fate.

In the boat there can be a maximum of 12 participants. Ask for volunteers and have them sit in a circle facing in. The rest of the class sits in an outer circle. The facilitator places half the amount of stones as participants in the middle of the inner circle. Choosing a stone signifies that you are willing to surrender your life. The instructions are to go around in circles until all the stones have been removed from the middle. Participants are invited to share their thoughts of why they choose to pass or pick up a stone. There is a strict rule of no conversation. The facilitator sits with the inner circle group but is not a participant in the exercise. The focus of the facilitator is to hold the group somatically and be present to what is arising in both the inner and outer circles. The facilitator only intervenes if the situation requires it.

Three principles

For this lifeboat there are 3 ground rules based on Buddhist philosophy:

- Life and Death are one and the same.
- Be true to yourself in the present moment.
- Whatever you decide you will be loved.

Awareness instructions

Instruct that there are multiple perspectives that observers and participants can engage with:

- 1st person: be present to what is coming up for you in the moment. Be in that center and observe what is coming up for you
- 2nd person: notice when you want to engage or communicate. Maybe the story that somebody shares speaks to you and you want to relate with that person
- 3rd person: observe almost dispassionately what is arising

Debrief

Once all stones are removed from the circle, thank participants for their sincerity and open up the conversation to the observers so they can share their experience of what they observed. In my experience it is common that the outer circle observers have a stronger emotional experience and sometimes reaction than the actual participants in the inner circle. Keep them focused on the purpose of the exercise and ask them to only judge their own experience and not that of others. Notice when a person no longer speaks from an 'I', first person experience, and invite them to return to speaking from a first person experience.

6.2.6 Course assessment of student learning

Student learning and progression during the course was assessed both formally and informally. The formal assessments included 14 questionnaires and one final paper. The informal assessment was continuous through class time and in one-to-one meetings with students throughout the semester.

There were three types of questionnaires. Two of the fourteen questionnaires were primarily self-reflective with the main focus of guiding students through questions to reflect on previous or current experiences. Three of the fourteen questionnaires were based on films that were watched in class, and the questionnaires aimed to help students distinguish patterns of human functioning within different

leadership contexts and authority dynamics. Nine of the fourteen questionnaires were based on the small group consultation sessions. These questionnaires were broken into three successive types of questionnaires with a focus on observation, interpretation and action. The first few weeks of class the focus of the questionnaires aimed to support students in developing their observation skills, and example of question used was “How did you introduce yourself? (What did you reveal? What didn’t you reveal? Why? Did the environment, an event, or person hinder or facilitate your revealing?)”. About midway through the course the small group consultation questionnaires aimed to elicit both observations and interpretations, and example of question used was “Describe one or two moments when the group granted informal authority to some member(s). What services did they seem to provide that may have caused them to gain power in the group?”. Finally, towards the end of the term the questionnaires elicited reflection on actions, their own and others, and example of a question used was “Give an example of an intervention by someone else in the group that generated work avoidance or no response at all. What made that intervention ineffective?”

The small group questionnaires were due four days after they met in their small groups. Carissa, the TA, and I provided feedback and graded the questionnaires. We each had two groups, there were four small groups in total, and aimed to return our comments to the students before they had their next weekly group meeting so they could reflect and integrate our comments in the next session. We provided detail feedback on each question and assigned a grade from 1 to 3, with (plus) and (minus), as an indicator of how well we thought they were reflecting on their observations, interpretations and actions. If a student received a 2(minus) or less we requested the student coordinate a time to meet with us one-on-one so we could coach them on how better reflect on their experience. Carissa, Mike and I met four times a week, and one of the things we discussed and shared in these meetings was the questionnaires, examining the areas of observation, interpretation and/or action where students were struggling.

The informal assessment happened in each class as we observed students interact with each other and the instructors, as well as in the one-on-one meetings. The instructors briefed and debriefed each class session to compare our observations and interpretations, and discuss what actions were needed from us to continue to facilitate the student learning. A common theme was to identify students that were struggling, for example with a concept, an action they took, or emotionally, and decide how best to support this student’s learning. The regular instructors’ meetings during the week proved to be invaluable in helping us better support the students.

The final paper was the last assessment used to evaluate student learning. Given that by the time the final paper was due the course had completed, the focus of the assessment was on gauging how much know-what knowledge students had acquire during the course, and less so on helping them reflect on their know-how practice and know-who awareness that were part of the weekly questionnaires. The reason for this was mainly that given that the final paper was a large part of the grade I felt that I could be more 'objective' by academic standards in providing a grade if the focus of the final paper was mainly on how well they understood the course content.³⁸

6.2.7 Research assessments of learning

This section describes the research instruments used to measure the impact of the course on students. The challenge with any assessment instrument is that we are only able to see what the instrument's methods are intended to measure. Every single instrument, its methods and underlying theories, foreground some aspects of reality and background many more. To partially address this challenge and given the complexities of measuring transformative learning, leadership, and overall impacts of the course on students' lives I used a multi-trait, multi-method approach (D. T. Campbell & Fiske, 1959) where traits are the transformative learning and impact criterion, and methods are differing means to evaluate them.

6.2.7.1 Purpose of assessment

The overall purpose of the case study was an exploratory investigation into the confluence of sustainability, leadership, and transformative learning. With this purpose in mind I selected a variety of methods that would help me better understand this confluence, or territory being explored.

To explore the territory of transformative learning I utilized three instruments, two of them were quantitative and one qualitative. These methods are described in detail below, in summary; for the quantitative instruments I used Loevinger's Sentence Completion Test (SCT) (Loevinger, 1966; Loevinger & Wessler, 1970), which is highly accepted within the field of constructive-developmental psychology

³⁸ I graded all the final papers. Carissa, the TA, was not part of this evaluation.

(Cohn & Westenberg, 2004). The second quantitative instrument was an Emotional Intelligence (EI) test (Wong & Law, 2002) created for the study of leadership in groups. This test is not based on constructive-developmental theories. Qualitatively, I used a longitudinal semi-structured interview method to explore the transformative learning impacts over a period of time.

To explore the territory of sustainability and leadership I utilized two exit surveys, one mandatory, that is used as standard practice at UBC, from which I gained interesting quantitative information, and a second one designed by me and administrated three months after course completion. Finally, the same longitudinal semi-structured interview used to explore transformative learning was also used to explore the students' learning around sustainability and leadership.

6.2.7.2 Transformative learning assessment

To gauge transformative learning I used two standardized tests and performed a semi-structured longitudinal interview one year after the course was offered. The three instruments are described below.

Sentence completion test (SCT)

The Washington University Sentence Completion Test (WUSCT), or sentence completion test (SCT) for short, measures ego development and was developed by Loevinger (1966). Loevinger's Ego Development Theory (EDT) is a continuity of constructive developmental research that began with Barbel Inhelder and Jean Piaget in Switzerland and Lawrence Kohlberg and James Mark Baldwin in the United States. The EDT constructs the ego as a 'master trait' (Loevinger, 1997), which holistically represents the underlying structure of a person's personality. It involves cognitive, affective, and operative components that construct meaning from life experiences.

The WUSCT is arguably the most researched maturity and developmental psychology instrument in use today (Lilienfeld et al., 2000). In the empirical literature there is substantial support for both Loevinger's theory and the WUSCT (Manners & Durkin, 2001). The WUSCT uses 36 sentence stems to elicit responses from subjects. Each stem is analyzed and then combined using an algorithm giving a final score that equates to a stage (Hy & Loevinger, 1996). For a summary of each stage see Table 5-3 in chapter 5.

There are a few variations of the WUSCT (Hy & Loevinger, 1996) and modifications to it (Barker & Torbert, 2011; Cook-Greuter, 1999). The two alternate short forms of the WUSCT (form 81) were used as pre and post-test. Novy and Francis (1992) have empirically supported that the alternate short forms have a strong correlation between the forms and have strong internal consistency. The stems were graded using Loevinger's latest manual (Hy & Loevinger, 1996) and complemented with Cook-Greuter's (1999) additions for grading higher stages. The short forms were scored by two scorers. The inter-rater reliability between scores was calculated using Krippendorff's alpha coefficient (Krippendorff, 1970). The pre and post sentence stems used can be found in appendix B.

Loevinger's ego development stages are comparable to Kegan's (1994) orders of mind. Table 5-2 in chapter 5 compares stages for Loevinger, Kegan, and Cook-Greuter (2004) and Torbert's (Rooke & Torbert, 2005) stages.

Emotional intelligence test (EI)

Emotional intelligence (EI) is not a constructive-developmental method and therefore does not allow us to measure transformation as I have been defining it so far. However, I thought it would be a useful measurement instrument because EI has become one of the most popular social effectiveness constructs (Pfeiffer, 2001). It has been found that higher EI correlates with transformational leadership abilities (Rubin, Munz, & Bommer, 2005), leadership effectiveness and improved team outcomes (Prati, Ceasar, Ferris, Ammeter, & Buckley, 2003), and work place performance (Rosete & Ciarrochi, 2005). It has also been found to correlate with life satisfaction and social network size and quality (Austin, Saklofske, & Egan, 2005), moderates the effect of work-family conflict on career commitment (Carmeli, 2003), and job satisfaction and performance (Sy, Tram, & O'Hara, 2006).

There are numerous EI assessment instruments (Dawda & Hart, 2000; Goleman, 1995; J. D. Mayer, Salovey, & Caruso, 2004; Schutte et al., 1998). I selected Wong and Law's (2002) instrument because it is a short assessment, and has been used in the context of leadership teaching in university settings (Ashkanasy & Dasborough, 2003). The instrument uses a seven point Likert scale for 16 questions that gauge the following four aspects of emotional intelligence: self-emotional appraisal, others' emotion appraisal, use of emotion, and regulation of emotion. The scale also includes 5 more questions that gauge the subjects' perceived need for emotional intelligence in their job. The same instrument was used in the pre and post assessment.

Longitudinal qualitative study (1 year)

I interviewed students one year after the course had ended using a semi-structured method (see appendix B for interview questions). The interviews lasted between 45 and 120 minutes. All of them were transcribed, and analyzed using nVivo software. The nature of the study was exploratory and therefore I was not seeking to prove or disprove hypotheses, or develop theories regarding transformative approaches to teaching and learning. The data was coded by looking for experiences that individuals believed to be meaningful for their personal and/or professional development.

6.2.7.3 Overall impact assessment (leadership and other)

To gauge the overall learning impact from the course, students completed two online surveys that had both quantitative and qualitative aspects to them and a longitudinal study one year later.

UBC exit survey

The UBC exit survey is the standard post course evaluation that all students complete. The questions can be found in appendix B, and the full results in appendix C.

Longitudinal quantitative survey (3months)

Three months after students completed the course an online survey was delivered that had both quantitative and qualitative questions. See appendix B for the full survey, and appendix C for the full results.

Longitudinal qualitative study (1 year)

Within the semi-structured interview and using nVivo software I searched for what concepts and skills learned in the course continued to be meaningful to the students a year later.

6.2.8 Self-inquiry and research-as-praxis

As the primary instructor in a course regarding leadership I was acutely aware, not only of the expectations students would have of me, but also of how critical it was that I could model what I taught. I knew I was going to make mistakes and therefore actively reflected everyday on my interventions in the course. Daily I wrote in a journal and used structured briefs and debriefs with the other instructors

to support me and them in the process of learning from our mistakes and intervening to make adjustments. This reflective process is known as self-inquiry and is part of critical praxis research (Kress, 2011), where the researcher in the process of conducting research is critically aware and examines their identity, context, and purpose. I complemented my daily self-inquiry method with Buddhist practices of samatha and vipassana meditation; these fostered my reflective capacity by supporting me in the cyclical process of contemplative ‘open attention’ and ‘focused attention’ (Zajonc, 2008, p. 39).

The approach taken in developing and delivering the course was one of research-as-praxis (W. Carr & Kemmis, 1986; Lather, 1986), where the research goal was not only to study the phenomena of teaching and learning sustainability leadership, but also to uncover and make visible the power dynamics of the phenomena being studied, in this case the teacher-student relationship. This approach to research is also known as a critical or emancipatory approach (Calhoun, 1995; Freire, 1973). The purpose of taking a research-as-praxis approach was to support students in realizing and redressing both the personally habituated behaviours and institutionalized norms that create unhealthy and sometimes oppressive authority relationships. This approach is in line with that of a long history of educators such as Paulo Freire, John Dewey, Donald Schön, and many others who have abandoned the “instrumental rationality” model of education (Giroux, 1988) that emphasis learning technique in a void of human and social dynamics. The instrumental rationality mode of education is inappropriate for the teaching and learning of sustainability leadership as it does not take into account or train students well for the real world where we are all embedded in a web of power dynamics and authority relationships.

6.3 Findings and discussion

This section merges findings with discussion, and is composed of four subsections. It begins by discussing student learning in three dimensions that the course was trying to affect: know-what knowledge, know-how competencies, and know-who awareness. I then proceed to explore different aspects and challenges of utilizing a transformative pedagogy. The third section presents findings and discusses, from the students’ perspective, the process of developmental growth and the impact it has had on their ability to learn beyond the scope of the sustainability leadership course. The last section includes my reflections on the merits of teaching the course. Before proceeding, I will mention the course composition, how many students participated in the evaluation, and give some general notes on how findings will be presented.

The course was composed of twenty-six students from 16 different disciplines. Table 6-2 summarizes the composition of male/female and undergraduate/graduate students.³⁹ The age of participants ranged from 19 to late 40s. A total of 20 students completed both of the pre and post quantitative surveys. The UBC exit survey was completed by 22 students and the follow-up survey was completed by 24 students. The longitudinal, one year follow-up, interview was completed by 23 students. Given that the course was an elective, and that students self-selected to enroll in it, the student composition does not represent a random sample of UBC students.

Table 6-2: Class distribution

	Male	Female	Total
Undergraduate	3	9	12
Graduate	8	6	14
Total	11	15	26

The qualitative findings will be presented using brief quotes from the student interviews, these quotes will either be inline or referenced in a footnote. To preserve student anonymity each quote is coded with a SubID number that reflects a student. Some of the quotes have been edited to ensure anonymity and to enhance readability by contextualizing the comment or, in the case of some ESL students, changing the word order or grammar. In all cases, effort was made to keep the remarks as close to the original as possible. Names of students have been replaced by pseudonyms.

6.3.1 Student learning

To understand student learning in context, one of the follow-up survey questions asked students to compare the usefulness of what they learned in the sustainability leadership course compared to other courses they have taken. Figure 6-1 below shows students' answers; illustrating how most students felt

³⁹ The initial composition of the course was 30 students and in the first two weeks of class four students dropped out. One student believed that the course was going to be too challenging. The other 3 students believed that the workload of the course would be more than they could successfully manage.

that the sustainability leadership course provided them with an opportunity to prepare themselves for their careers in a way that they were not receiving in other courses.

To delve into why students evaluated the sustainability leadership course substantially higher than other courses in preparing them for their careers this section explores three categories of learning: know-what knowledge, know-how skills, and know-who awareness.

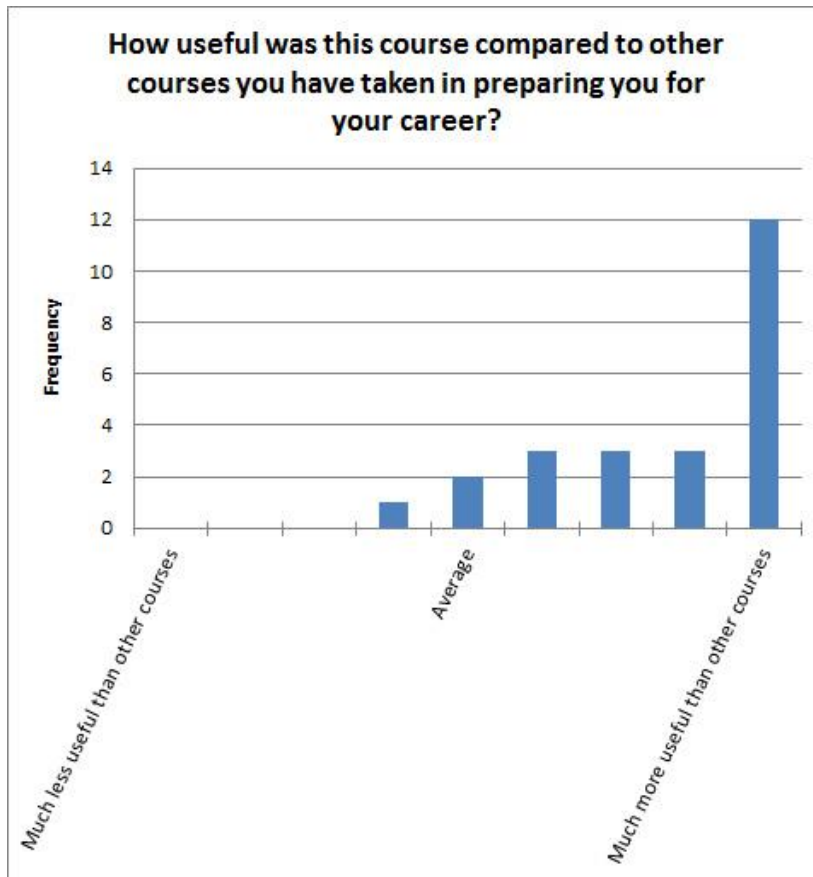


Figure 6-1: Exit survey question 24

6.3.1.1 Know-what knowledge

In this brief section I will share student comments and what I learned from the follow-up interviews regarding the *explicit knowledge* (Nonaka & Takeuchi, 1995) students retained one year after the course was completed.

6.3.1.1.1 Leadership learning

An opportunity to learn the know-what knowledge of leadership, such as frameworks and theoretical concepts, was provided through multiple readings and weekly written assignments where one or two of the reflective questions asked students to apply conceptual knowledge to a particular case. A lot of these concepts are quite complex and students struggled with them.⁴⁰

The final deliverable of the course was a final paper where students had to apply the conceptual frameworks learned in the course to their personal leadership failure cases. Most students accomplished this task very well and drew substantially from the concepts in the literature. A year later when I interviewed the students I found it interesting that the two main conceptual distinctions the course aimed to teach, which are authority vs leadership, and technical vs adaptive challenges, were not mentioned spontaneously by the students. If I probed and asked about them, most of them remembered the distinctions. Mainly students remembered the skills and practices, rather than the conceptual distinctions.

I expected that a year later students would more vividly remember these two fundamental distinctions, and hopefully some of the more nuanced concepts of how to diagnose complex challenges. Furthermore, in the follow-up interviews not many students mentioned the Thursday debrief sessions as being a place of high valued learning. The survey results also confirm this, as Figure 6-2 shows that the Thursday debrief sessions were the lowest ranked class format.

⁴⁰ See Quote 1 in Appendix E

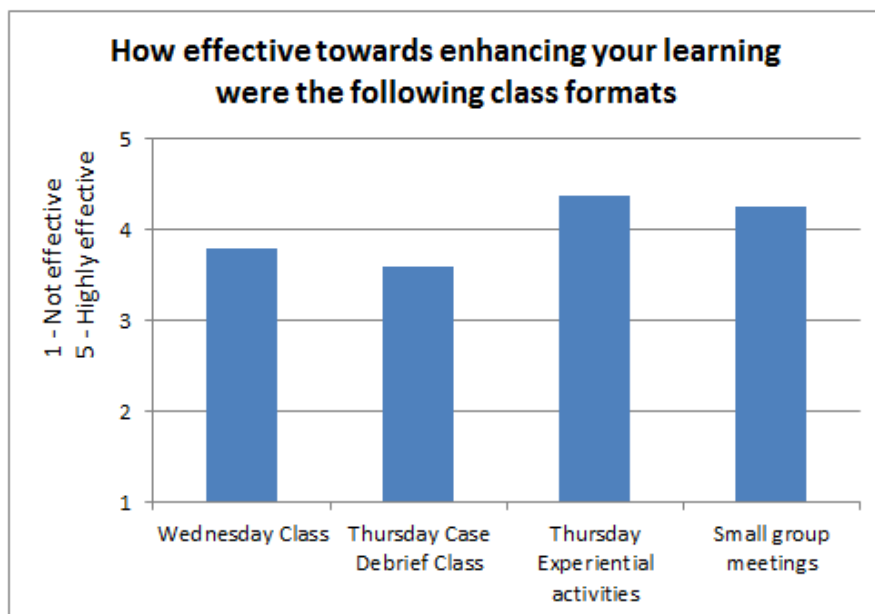


Figure 6-2: Exit survey question 3

I think these results are somewhat problematic in learning to practice leadership. When we face a challenging situation, it is more common than not to get stuck and only pay attention to the interpersonal aspect of the challenge. Typically this leads to right-wrong dynamics and factionalization in the group. To be able to move past these debilitating polarities we need to be able to diagnose the situation from a higher level of abstraction than where the conflict is situated. With this new awareness, we can then help the group re-frame the challenge from a higher order of abstraction that is able to embrace the either/or polarity that keeps the group stuck.

In my recollection of the Thursday debriefs, there were many student cases where one of the learning points was exactly about re-framing challenges. Yet, this specific skill of re-framing was not broadly mentioned in the follow-up interviews. Though students shared in the interviews that their ability to take greater perspective on the challenges increased, I think having developed a stronger grasp of the conceptual frameworks would have supported them further in their ability to diagnose. I see three possible explanations why students did not retain as much know-what knowledge as I expected. First, the course pedagogy or instructors skills possibly fell short of what was needed to help students learn and practice these skills to a point that they would be able to remember and apply them a year later. A second possible answer is that it is unrealistic for students to acquire a full grasp of the concepts in one term, especially as the concepts taught in the course were novel for most students. Finally, it could be possible that, given the lack of formal opportunities for students to explore emotions and relationships

before participating in the course, this created a void that the sustainability leadership course was not able to fill; at least not fast enough to allow students free attention for more abstract and complex concepts of leadership.⁴¹

It is likely that the lower than expected retention of know-what knowledge is due to a mix of the three factors discussed above. To support students in further developing their leadership knowledge and skills a larger strategy would have been needed of how to continue to challenge and support the students after the course finished. As Figure 6-3 illustrates, many students wanted opportunities to continue learning and deepening the concepts of the course.

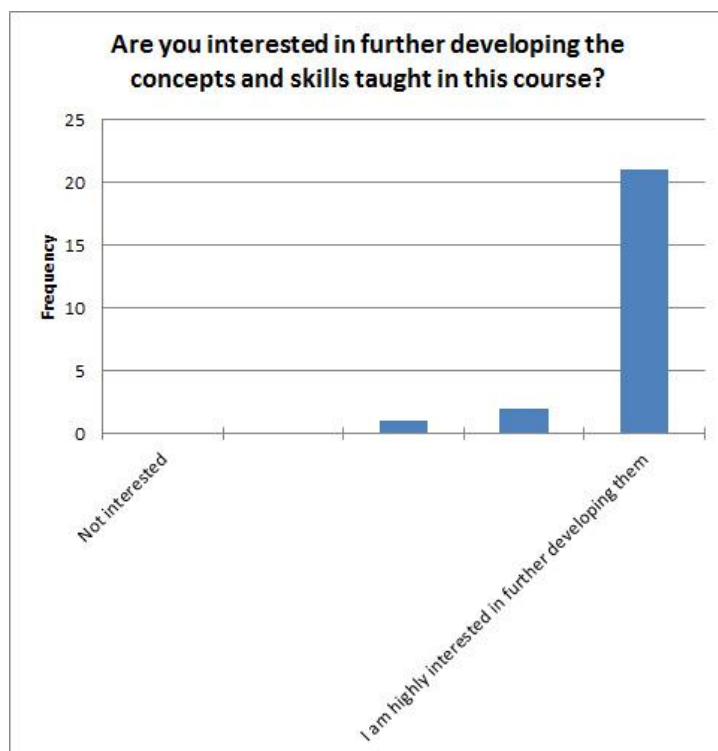


Figure 6-3: Exit survey question 26

The course was a one-off course, and students experienced it in that way. Unless students continue to be supported to develop these leadership skills, it is possible that they will return to their habitual ways

⁴¹ Quote 2 in Appendix E reinforces this view as to why students did not retain more know-what knowledge of leadership

of being.⁴² I see a few ways to continue to support students in their learning. The first and most obvious one would be to provide a follow-up course in the second term. A second option would be to work with other instructors at UBC to creatively explore how the courses currently offered could make use of the skills and concepts learned in the sustainability leadership course, and in a way have students continue to practice these. This would be easier to do in courses that have a group component or are problem-based.

Finally, a third option would be to develop an on-line learning platform where graduates of the course could continue interacting in a more structured way. The focus would be on developing a community-of-practice where graduates of the course could continue practising the skills learned in the small groups by consulting with each other on their current personal or professional challenges. The format would be similar to the practices developed in the small group consultation periods.

6.3.1.1.2 Reframing sustainability understanding

Though the name of the course started with the word *sustainability*, the emphasis of the course learning objectives were focused on leadership. I intentionally named the course sustainability leadership, for two reasons. First, I thought it would be the nexus or common ground for students taking the course from different faculties and disciplines. Second, it is the area of study that I have more knowledge and expertise in. To emphasize that the leadership conversation would be in context of sustainability challenges I placed numerous readings regarding sustainability problems and approaches in the syllabus. Many of the student leadership failure cases had elements of sustainability to them; however the conversations in the class in general did not focus on the substantive aspects of sustainability, but rather on the procedural aspects (Robinson, 2004).

The sustainability know-what knowledge of students did not increase as I did not teach any substantive aspects of sustainability and students did not spend time exploring these substantive aspects of sustainability in the class. However, how students understand sustainability has shifted. In the follow-up interviews with students some were disappointed that we did not address substantial aspects of

⁴² See Quote 3 in Appendix E

sustainability, but most students felt they gained a new perspective and way of seeing the collective challenges that we face in a more nuanced and complex way. Many students shared in the follow-up interview that they felt refreshed with a new way of seeing sustainability that shifts the focus from the external problems, be it water, energy, and so forth, to one of seeing the human patterns and dynamics that give rise to the challenge. Suddenly the problem shifts from being out there, to realizing that we are part of the problem. After the sustainability leadership course, students felt that the mechanisms for tackling these challenges are a bit more apparent to them.⁴³ One student, whose expertise is in the built environment, reflected on how she now sees a new social dimension to sustainability that she did not see before.⁴⁴ For another student the course was trans-disciplinary as it was able to bridge the multiple sustainability issues that he had previously learned and framed them in a new way of mobilizing change.⁴⁵ A number of students came to see and recognize the importance of one's character to be able to be of service in the world.⁴⁶ Another student felt a shift from an environmental way of understanding sustainability with simple ideas of implementation, to one where she has a better sense of how to mobilize change.⁴⁷ Finally, one student shared how the course has helped her shift her identity regarding sustainability, as well as expand how she understands the sustainability challenges that we face.⁴⁸

6.3.1.2 Know-how skills

Know-how skills are about the concrete, embodied, and lived experience. It is about the skills and capacities to act in a way that furthers sustainability for oneself, others, and society. Gauging how much students improved their know-how skills is a difficult, if not impossible (Lowry, 1995), task to accomplish within a one year longitudinal study of university students. I will begin by discussing this challenge and then proceed to share some of the general themes of the know-how skills that students felt they learned in the course.

⁴³ See Quote 4 in Appendix E

⁴⁴ See Quote 5 in Appendix E

⁴⁵ See Quote 6 in Appendix E

⁴⁶ See Quote 7 in Appendix E

⁴⁷ See Quote 8 in Appendix E

⁴⁸ See Quote 9 in Appendix E

6.3.1.2.1 Difficulties with gauging know-how skills improvement

There are at least four aspects to the difficulty of measuring the impact of the course on the ability of students to mobilize change. First, many participants of the course continued to be in university, where their main task is an individualistic one and rarely requires working with others to achieve a collective purpose. This poses a difficulty for this study because many of the students interviewed felt that since the course finished they have not had opportunities to apply the leadership skills learned in the course. Given the limited opportunities that students had for practice since completing the course, it is very hard to gauge if students actually learned the practical skills the course aimed to deliver.

Notwithstanding, students felt their skills improve in multiple ways. For example, a student comments on how he uses the observational skills he learned in other classes he has taken after the course.

Every now and then we're in a course, professors lecturing, certain people who everyday bring up their hand for a question or a comment, you can see that interaction more interestingly now, between the professor and those students. The social roles that everyone falls into. It's quite personal but it doesn't seem so to the untrained eye. Every now and then in the course you'd feel some awkwardness or some tension arising between the professor and student, maybe they're having a rough day or something, but they don't teach that great, and you can see inside that there's some personal turmoil not addressed that is affecting their teaching. SubID#13

The second challenge related to the first is that a one year longitudinal study is too short to measure leadership practice.⁴⁹ This is specifically true given that all course participants were university students. If the course would have been tailored to professionals and individuals already working, the leadership learning might be more apparent. The third challenge is differentiating what learning is about leadership, and what learning is personal development without an impact on an individual's ability to exercise leadership. For example, one student shared the paradox that he felt in the class: on one side he felt that he was there to learn about the practice of leadership and solving adaptive challenges, on the other hand, he felt that the course offered him and others the opportunity to grow emotionally.⁵⁰ There are many studies that correlate higher emotional intelligence with expanded leadership abilities (Carmeli, 2003; Goleman, 2000, 2013; Prati et al., 2003; Rosete & Ciarrochi, 2005; Wong & Law, 2002).

⁴⁹ See Quote 10 in Appendix E

⁵⁰ See Quote 11 in Appendix E

Yet, I do not believe it is a cause-consequence relationship, as there are plenty of individuals with high emotional intelligence who have limited leadership abilities.

Finally, the interview methodology utilized, being a self-assessment tool, is limited at gauging changes in behaviour and impacts of peoples' skills on mobilizing change. Unfortunately, the types of know-how skills that this study tries to gauge are inherently very difficult to measure (Lowry, 1995). Options exist (A. M. Black & Earnest, 2009; Gupta, MacMillan, & Surie, 2004; Gupta et al., 2004; Hazy, 2006; K. A. Lawrence, Lenk, & Quinn, 2009), however applying such methods was beyond the scope of this study. I will proceed to discuss the results of the know-how skills students learned.

6.3.1.2.2 Self-reported know-how skills acquisition

As I discussed in chapter 5, leadership practices can be broken down into skills of diagnosing and intervening. These two broad skills can be applied both externally and internally. You apply them externally as you try to better understand what is happening (diagnose) and take action (intervene) to address the challenge you observe. You also need to apply these skills internally to lead effectively (Heifetz et al., 2009), as you observe and reflect on your own attitudes and behaviours, so that you can better align them with what is needed.

Given the difficulties previously discussed of measuring the acquisition of know-how skills, in this section I will rely on what students' shared regarding their diagnosing and intervening skills applied both internally (self) and externally (system).

6.3.1.2.2.1 Diagnosing the self

We all have our default patterns of how we behave. Some or many of these default patterns have helped us succeed in life. However, they also limit us as we become conditioned to a limited set of attitudes and behaviours. In this section I share students' comments on the main areas where they felt an increase in internal diagnostic capacity.

A common theme was that students felt an increased space between the self and the ability to reflect on the self, in other words a greater self-reflective capacity.⁵¹ Students also felt that this capacity became active more often during the day, which gave them the ability to choose if the behaviours they were displaying were the most conducive for the situation they were in. A student shares on this point.

I monitor myself more. I look at myself whenever I'm reacting to something from a balcony point of view. I am more self-reflecting and I realized I can do things differently, and act in different ways. Since the sustainability leadership course in my other courses I was a totally different person. I was not my in my moon mood, like quiet — and that was because I tried to take risks more and I was more comfortable with everything. I definitely changed my role since the sustainability leadership course. SubID#24

The student below shares how the experiential aspect of the course permitted her to see her default habitual pattern of not engaging with the problems she faced. She would rationalize to herself that such behaviour was noble. Being able to see that default pattern, what Kegan (1994) would call a subject-object shift where we are now able to see what is influencing our behaviours, gave her a freedom to choose whether not engaging is the best option at a particular time.

The learning for me again is something that I kind of knew about in my head but I didn't realize it then. The idea of two options, and the best of an extreme example was engaging or not engaging. And that all of the time refusing to engage is seen as noble or romantic or something like that... It can be seen that way, but that the real challenge is to, the real hard work is to, continually engage and that opting out is not. I'm just realizing that it's not what I want, and that really not engaging is the easy way out... I think it takes us out of the success-failure binary. SubID#10

A common theme in the interviews was around how the course gave the students an opportunity to practice, reflect, and experience different forms of communication. For example, one student shared how one of the lab exercises brought new awareness to how she habitually judges what others are saying and then subtly interrupts them when they are speaking.⁵²

Conflict is a common experience in group life. We all have different ways of engaging with conflict (D. M. Hamilton, 2013). Many of the students in the course realized they were conflict adverse as each time

⁵¹ See Quote 12 in Appendix E

⁵² See Quote 13 in Appendix E

the tension would rise they would engage in work avoidance mechanisms to bring the group experience back to a level they felt comfortable with.⁵³ Conflict, if used skillfully, is an enormous source of group energy and creativity (D. M. Hamilton, 2013; Heifetz et al., 2009), and being habituated to avoid conflict highly limits an individual's ability to engage with others in mobilizing change.

When facing ambiguity and uncertainty many of us respond with a very powerful urge to find certainty and answers (Bion, 1961). Bion argues that, counter to the common assumption that most humans enjoy learning, we actually experience learning as threatening because we have powerful basic needs for security and protection that are placed at risk when learning unknown things. One of the main teaching focuses of the course was helping students develop more tolerance for experiences of uncertainty, so they could expand their capacity to learn in the unknown. For example, one student shared how after participating in the course she has more capacity to diagnose in a context of uncertainty.⁵⁴ However, a more threatening emotion than uncertainty is the experience of not being in control, and fundamentally not-knowing how to orient in a situation. The student below shares how one of the labs in the course triggered this experience for her: how she came to see the rawness of who she is without all the masks we generate to protect ourselves from others, and in essence, through a process of grieving she came out knowing she was ok; developing more self-trust and confidence in who she is at a much deeper level.

Public speaking, that's not a problem, but the movement lab, that letting go, not being in control, not being the one who knows everything, not knowing what to do, not knowing how to act, not feeling competent... I've really learned a lot about things I've failed at, and I just basically got kicked off my high horse completely felt I lost all dignity, all pride, like there was nothing left of me. And then found out that was okay. SubID#26

6.3.1.2.2 Diagnosing the system

What we observe, and how we interpret what we observe, influences the actions we take. If our observations and interpretations are faulty it is very unlikely that our actions will be successful at

⁵³ See Quote 14 in Appendix E

⁵⁴ See Quote 15 in Appendix E

accomplishing the changes we aim for. In this section I discuss the main areas where students felt an increase in external diagnosis capacity.

An essential skill of leadership is what Heifetz calls going ‘from the dance floor to the balcony’, meaning that we learn in the midst-of-action to observe the dynamics that are happening, instead of placing all our attention on the actions we are undertaking. For example one student shared how in conversations he is now able to take a larger perspective on what is happening so he can decide how to best continue.⁵⁵ Another student noted how she now gives herself the space to observe and interpret what is happening in the group dynamics beyond what we see at face value.⁵⁶ This skill is what Heifetz calls pay attention to the ‘song beneath the words’, meaning all that is meant but left unsaid. On the same theme of listening to the song underneath the words, a student shared his realization of the multiple meanings of how individuals use words, and the importance of being able to listen to the field (Lewin, 1997) not just the words.⁵⁷

In the course we applied one of Heifetz’s frameworks for understanding a situation from multiple levels of abstraction, from the immediate and personal, to the more distant and systemic. Incorporating the awareness that a challenge, though manifesting personally through conflict, might have more systemic roots has helped some students better diagnose the conflicts in the system.⁵⁸

When we are practicing leadership most of our interventions fail (Heifetz et al., 2009). The capacity to observe and interpret why our interventions fail is crucial so that we reflect, learn, and adapt by trying a different strategy. Unfortunately, many of us keep on trying the same action over and over again. The student below, who was very vocal in the class yet most of his interventions failed, shares how over the period of the semester he started refining his ability to observe the different mechanism that individuals used to resist the changes in direction he was trying to implement.

⁵⁵ See Quote 16 in Appendix E

⁵⁶ See Quote 17 in Appendix E

⁵⁷ See Quote 18 in Appendix E

⁵⁸ See Quote 19 in Appendix E

As you stood back and let us take the lead... my first instinct was like, 'Oh, okay here's my chance to prove what a leader I am' and so you might recall in the first weeks, maybe the first month or something I was kind of fairly loud, strident and forceful in trying to push the group in the direction that I thought was best, but ... nobody collaborated, and it was challenging because I was really feeling the resistance of others and feeling it in different ways. As the course progressed I became aware of the different ways of how people would resist. Some would just sort of stay silent. Some would just bring up other topics like seemingly irrelevant stuff. Some would attack me and some would resist in the manner I was expecting and sort of accustomed to. SubID#15

The assumption that more information and knowledge creates change is quite common (Barr, 2003; Finger, 1994; McKenzie-Mohr, 2000; Trumbo & O'Keefe, 2001); and I would emphasize especially in university students who are immersed in mainly learning explicit knowledge (Nonaka & Takeuchi, 1995). Though the concepts of explicit and tacit knowledge were not part of the content of the class one student discovered for himself that knowledge is not enough for mobilizing change.⁵⁹ And further, noticed how his peers who function from the belief that knowledge creates change give up when they experience pushback.

6.3.1.2.2.3 Intervening in the self

Intervening in the self relates to internal skills of how we experience a situation and act upon it internally; in the sense of the conscious internal actions we undertake to experience ourselves more fully, and therefore be able to act more skilfully. In this section I discuss the main areas students' felt an increase in internal skills of intervening.

The actions of mobilizing change will inevitably be met with some pushback, and we will likely experience this pushback personally, via a critique of what we are doing or maybe through a personal criticism. An expanded awareness of what is happening in our interiority allows us to create space in how we an emotionally charged conversation impacts us and therefore how we decide to respond.⁶⁰ The internal capacity of humility while displaying enough will to mobilize change is a very rare trait (Collins, 2006). The student below, who was very vocal and strong-willed in the class, shares how through the

⁵⁹ See Quote 20 in Appedinx E

⁶⁰ See Quote 21 in Appendix E

course experience he was able to develop a capacity for humbleness without deterring from his ability to act.

The course also handed some humility to me in terms of knowing, being more open to my incompetence and more open to respecting other people and their positions even if they don't make sense to me. It's trusting that there's some reason that it makes sense to them and it's more about understanding them... 'It's much easier to criticize someone than to understand them' and I think that's really something I really learned in the course. SulD#15

Another rare skill that is fundamental for the practice of leadership is the ability to suspend our thinking and pay attention to what another person is saying without simultaneously thinking and constructing what we will say in response, which is by far the most common way we listen (Scharmer, 2009). Furthermore, the weakness in our listening skills is manifested in how we tend to talk over each other, and the lack of awareness most of us have about this behaviour, which through the course became apparent to students.⁶¹ The student below shares how she realized not only her default way of listening, but also that if she is able to suspend judgment and actually fully understand the other person, then whatever the challenge is seems to be more workable.

From the course I learned the idea of true listening, and that has come up over and over for me because I'm not a good listener at all. I'm constantly thinking about other things, so being able to actually listen to what somebody else's perspective is was new to me, and I realized that by listening you might have her mind changed even if you don't expect it in the conflict. I realized that if you can understand each other's perspective, actually, you're probably going to make a lot of progress. SubID#1

A key internal skill for the practice of leadership is the courage to speak in difficult situations. This is especially true for people who consider themselves introverts. Such individuals normally have quite elaborate observational skills, but poor intervention skills because of the fear to engage with others. The course created a safe practice space that allowed students to develop the skills to speak up.⁶²

As some of the student comments above illustrate, the practice of leadership will inherently takes us into personal unknown terrain. There are a number of contemplative practices that can help us stay

⁶¹ See Quote 22 in Appendix E

⁶² See Quote 23 in Appendix E

grounded and connected to our purpose when we face these difficulties. Though I am personally informed by contemplative and meditative traditions, I never mentioned this during the course. However, during the course a number of students brought forward the idea that meditation and other contemplative techniques could be useful for the practices we espoused in the course. Therefore, I included one question in the follow-up survey to gauge students' interest in the subject. Surprisingly, Figure 6-4 illustrates that all students were interested in learning a contemplative practice, and more than half had no doubt they wanted to take a course in that subject.

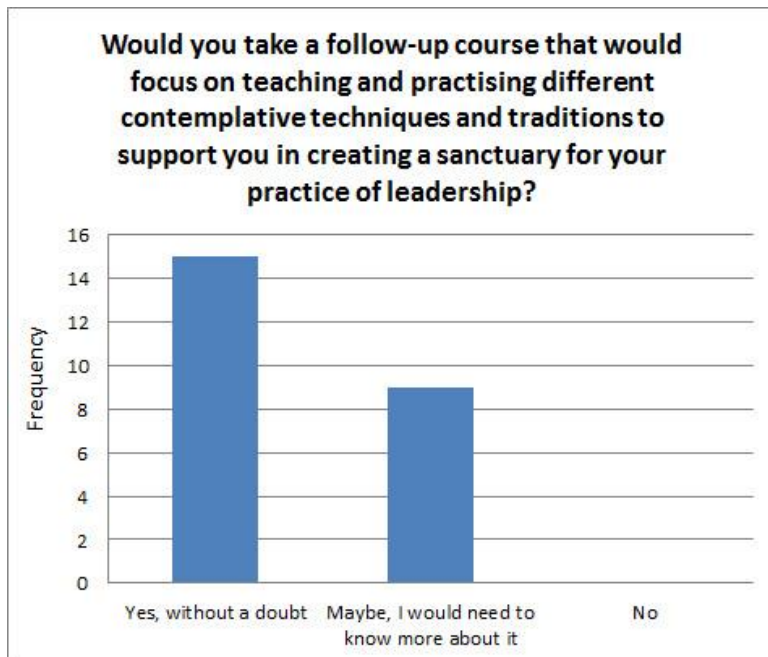


Figure 6-4: Exit survey question 28

In my experience, the main purpose of contemplative practice is not limited to many of the commonly promoted benefits, such as stress-reduction, better focus, reduced anxiety, more creativity, improved stamina, higher emotional awareness and stability, and so forth. For me these benefits are side effects of contemplative practices and not the end result that I seek in practice. And yet, these side benefits greatly support the practice of leadership, which requires focus, stamina, creativity, and emotional strength. More importantly, in contemplative practices and especially in some Buddhist traditions the vow of the practitioner is to awaken, or attain enlightenment for the benefit of all beings. Individuals who practice in these traditions are generally referred to as Bodhisattvas, and have taken the following four vows:

Sentient beings are numberless, I vow to save them.

*Desires are inexhaustible, I vow to put an end to them.
The [teachings] are boundless, I vow to master them.
The Buddha Way is unsurpassable, I vow to attain it.*

From our usual rational and discursive mind these four vows seem, not only paradoxical, but also unattainable. Yet, from a slightly shifted state of consciousness, where boundaries are more fluid and cognition less limited by the constraints of linearity, rationality, and time, one can experience the attainment of these four vows in the here-and-now. In relation to leadership, in my experience practicing with the aspirations of a Bodhisattva cultivates a number of important leadership qualities: a strong anchoring of purpose that guides us when the going gets tough; an emotional wisdom that naturally allows us to empathize even with those with whom we have most difficulty seeing eye-to-eye; a deep source of peace that permeates our experience, sometimes even touching others; a practical wisdom of realizing the immensity of the unknown, which nurtures humility in our actions; and finally, a natural longing to act, not out of fear or necessity, but out of a joy of embodiment, out of a compassionate connection to our own suffering and that of the world, and out of a spirit of generosity which sees that giving and taking are the source of life. My experience is consistent with the conclusions of those who argue that spiritual practices aimed at personal and social transformation is necessary, if not sufficient, to achieving social and environmental justice (Vokey, 2014).

No matter how important a Bodhisattva practice may be to supporting leadership development, and the apparent demand from students to learn such practices (as Figure 6-4 illustrates), I am hesitant to bring spirituality into the classroom, since I support the separation of state and religion. Contemplative practices are derived from religious traditions; which makes it very challenging for an instructor, with all the complex authority dynamics, to introduce a contemplative practice in the classroom without potentially strongly alienating or imposing on an individual or group. There is a move towards introducing contemplative practices into higher education (Gunnlaugson, Sarath, Scott, & Bai, 2014; Hart, 2004; Shapiro, Brown, & Astin, 2011), and it is argued that contemplative practices are a strong aid in supporting transformative learning (Tolliver & Tisdell, 2006). However, given the historical religious connection of most contemplative practices and the fact that violence between religions has been prolific in history (Harris, 2005), I believe caution is needed when introducing contemplative practices in formal education systems; which have formal authority dynamics, such as evaluation and grading. In the sustainability leadership course I erred on the side of caution and only engaged with the question of

contemplative practices if the student brought them up; and those who wanted to explore the practices I pointed to a number of resources and locations outside of the formal education environment.

6.3.1.2.2.4 Intervening in the system

The skillset to intervene in the external systems we are trying to mobilize is what is most commonly associated with the exercise of leadership. Figure 6-5 shows how students gauged the change in their abilities of diagnosing and intervening both in the self and the system. Below I discuss the main areas students' felt an increased capacity for working with the outer dimensions of the challenge.

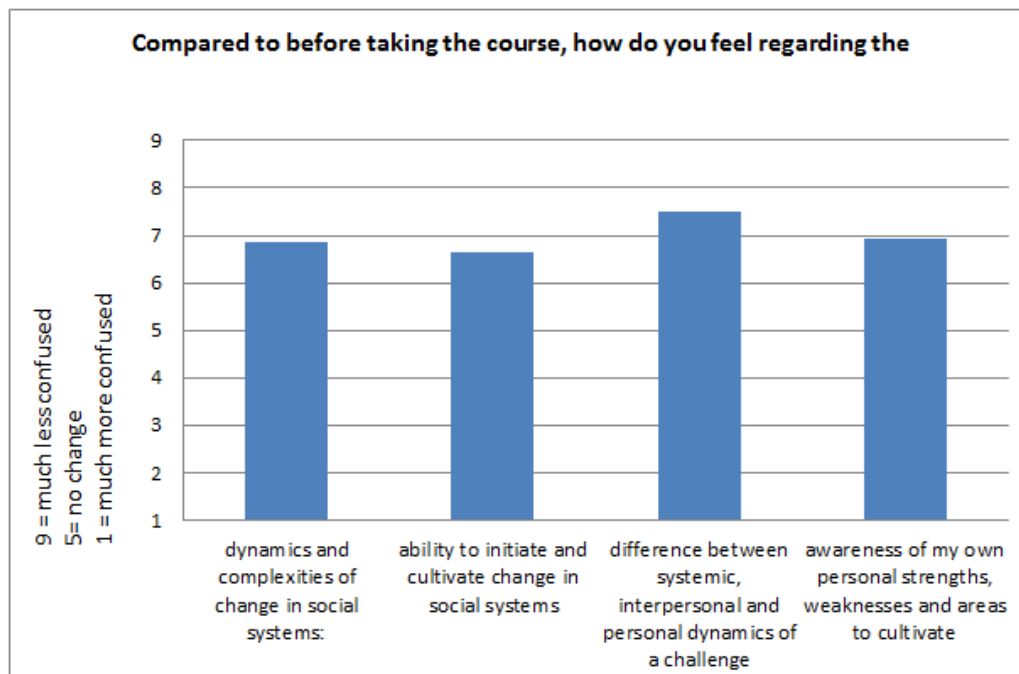


Figure 6-5: Exit survey question 2

The notion that we can lead alone seems quite pervasive, exemplified by the common image of leadership as “a knight charging in on a white horse” (Parks, 2005, p. 85). However, the practice of leadership requires partners (Heifetz et al., 2009), and through the course students discovered the skill of actively seeking out partners when facing difficult challenges.⁶³ As well as realizing the importance of

⁶³ See Quote 24 in Appendix E

coalition building to strengthen a faction's perspective and ability to influence change.⁶⁴ Some students found they could use this newly acquired skill in problem-based learning classes where they had to organize and mobilize collective action.⁶⁵

Another important skill in leadership is not being overly attached to the success of our interventions, and instead seeing them as instruments that can provide us with more information about the system so we can better tailor the next intervention (Heifetz et al., 2009). One student shared that he has gained the skill to understand his interventions as experiments in which he is more detached, objective and observant.⁶⁶

As I have already discussed, conflict is natural in groups trying to address a difficult challenge, and how we relate internally to conflict influences how we externally work with it. The student below shares how the course has helped her shift from her habitual pattern of fighting in conflict, to one that she feels is more productive in working through the difficulties she is experiencing.

I think for me, in my personal life, it's made me a lot less reactive to conflict when I face it, and I'm better at disengaging myself from it. Before I think I was a lot more defensive and I would engage in conflict and want to fight... I think now I'm a lot more able to be productive in conflict than I was before, and I think that happened just through the short term of the course, and I think that it just continued to improve since then. I think I handled my relationship breaking down because I was able to engage with that conflict in a different way, from just having completed the course. I find the best thing in my personal life is I am now able to be in situations where I am uncomfortable and know that there's something wrong, and now I am able to better articulate it and I am also better able to receive and engage with the other person. Also engage with the conflict in a way that it doesn't stay in conflict; that we can actually move beyond it and move through it, and so I think that's definitely a direct result of the course. SubID#23

Finally, a very difficult challenge in leadership practice is skilfully bringing closure to groups and individual relationships (Keyton, 1993; Van Steenberg LaFarge, 1995). Most of the time, the anxiety that giving closure produces causes us to ignore the difficult emotions that arise in terminating group life, but

⁶⁴ See Quote 25 in Appendix E

⁶⁵ See Quote 26 in Appendix E

⁶⁶ See Quote 27 in Appendix E

this does not need to be so. We can learn, as one student has, to gracefully move in and out of group life.⁶⁷

6.3.1.3 Know-who awareness

To gauge the growth of know-who awareness I draw on both qualitative and quantitative data. The qualitative data are the self-reflections that students shared with me in the interviews, and the quantitative data are the results from the sentence completion test and emotional intelligence tests. I will start by discussing the main experiences that students' had in the course that helped them grow their awareness. I then proceed with the quantitative results of the tests, and conclude with a discussion of the meaningfulness of the quantitative results.

6.3.1.3.1 Student comments: common themes of growing awareness

The range of experiences regarding growing awareness is wide. I will share here the most common themes.

The topic of an increased confidence in one's abilities was mentioned throughout the interviews. An increase in confidence allowed many students to become aware that they can actually influence the world.⁶⁸ Experiencing through the course that they can influence change was both empowering and freeing for them.⁶⁹ The student below shares how developing self confidence in functioning in larger group settings allowed her to later engage more fully in other group experiences, where before she felt limited.

I often felt paralysed in that large group in the sustainability leadership course. It was just easier to disengage, withdraw, and retreat. To kind of leave these ideas and feelings, but I think with me, I need a certain degree of exposure therapy and learning by doing and the more interventions I made, the more confident I became and the less scary it was. Also having some compassion for myself... I guess the biggest reflection that I have was how the course kind of set me up for what I did later that year... I think a lot of the hard work that I did in leadership course I reaped the benefits from in the next course I did in terms of building confidence and trust in myself and

⁶⁷ See Quote 28 in Appendix E

⁶⁸ See Quote 29 in Appendix E

⁶⁹ See Quote 30 in Appendix E

getting out of the role of observer and actually being a participant and leading. So I think a lot of the learning came through later experiences. SubID#7

Through the experiential learning process students started discovering both their weaknesses and strengths. Both their peers and the instructors acted like mirrors reflecting back what they could do, and where their challenges lay. When students realized that some ways of being that are not generally associated with leadership, such as introversion, had value they felt empowered and started discovering that their innate way of being brought them insights and strength.⁷⁰ Furthermore, as students started realizing the value of their innate way of being what emerged was a trustable sense of inner authority. The 3rd year student below shares her experience of becoming more aware of the power she has over her learning, developing more confidence to learn, and taking risks to improve her outcomes. This is what Kegan would call a self-authoring order of mind (Kegan, 1994).

One thing that was really good from this course was that I actually realized I have the power over my education, over my own learning. So I could try to learn more, and then I could not try and learn less. I could do that and I felt the difference because whenever I would engage I would come home with a lot of new things and whenever I wouldn't engage I wouldn't. And I actually realized that difference, and if you actually step in, you will learn more and if you don't you wouldn't... I learned how to take risks. SubID#24

The same student continues to share how dramatically the course shifted how she engages with other courses. How she has taken responsibility for her learning, where before it was situated in the expectations of her family. Again, here we can see a shift from a socialized order of mind, where the authority for what is best lies outside of us, to a self-authoring order of mind where we take responsibility for our choices.

My first two years at UBC was horrible. It was a mess. At first I came with this idea, 'Oh it's going to be great.' And then, the experience of first year science was really bad for me... And then, that summer, when I went back, it wasn't a good summer because I didn't do that well at university. Anyway, in second year I was trying to find out what to do, and I was thinking of quitting UBC, and I didn't because of the family pressure that you have to get a degree and all that. And then the third year, so basically that summer, the summer of my second year to third year was really bad... And then the year after was the sustainability leadership course and it was like I didn't have any purpose and I didn't know what it was. I was following the university's path, but I would only take

⁷⁰ See Quote 31 in Appendix E

courses to get credits and make the least minimal effort. But this course really showed me how I can take control of my own education and my own life. It really taught me that I can actually teach myself things and it came from a different way of teaching and that really helped me because in my case I can't learn with just looking at lines of words and just reading. That's not how I work. I need to experience things to learn things so this course was really experiential and that's how I learn better. Like being in a situation that I have to figure out who I want to be or what my role is. I think that's exactly what I needed. It helped me to figure myself out better and since then I can actually enjoy education which is weird... Now I have a better, a more positive view on things. I'm actually enjoying my courses. SubID#24

This shift of developing a trustable sense of inner authority also showed up in how students overcame the limitations of believing that leaders are born, not made; and throughout the course come to realize the immense potential one has to actually effect change on a large scale.⁷¹ This growing into a self-authoring mind was also present in how students orientated around the idea of learning, coming to realize how much more powerful it is to be one's own teacher, learning how to learn, and not just learning content.⁷² The ability to learn about learning is in essence the skills of a reflective practitioner (Schön, 1983) who has developed the awareness to reflect in the here-and-now about their actions as to engage in a process of continual learning.

Many students shared that they experienced difficult emotions at one moment or another in the course. The word fear came up in a number of conversations. However, given the supportive structure of the course the students were given a safe space to explore the roots of their fear. One student shared two experiences where she experienced fear in the course, and discussed how in one of the experiences she was able to realize that the root of her fear was that there was a voice inside of her that she never acknowledged or allowed herself to speak from, and when she tapped into that voice in one of the experiential exercises she was flooded with emotions of realizing how she was suppressing a valuable part of herself.⁷³

The last comment below on know-who awareness, speaks to one of the teachings of Zen master Dogen (2013), which reads "To carry the self forward and illuminate myriad things is delusion. That myriad

⁷¹ See Quote 32 in Appendix E

⁷² See Quote 33 in Appendix E

⁷³ See Quote 34 in Appendix E

things come forth and illuminate the self is awakening" (p. 29). This subtle distinction speaks to how we engage with the world, to the quality of our presence and awareness as we experience the world.

I now feel like I have the ability to listen with more awareness and to step back and consider the different players, the different stake holders, the different histories of each and why there's conflict. The course has inspired me to continue my learning of leadership through books, and through practicing it. Just daily awareness of how I talk to people or how other people speak to people, just sitting in a coffee shop and watching their behaviour. And to do this now without judgement at all, just to sit, and be still, and watch and learn. That's an incredible! That's a powerful tool for me, for my learning. SubID#23

6.3.1.3.2 Quantitative results of growing awareness

To gauge the impact of the course on transformative learning the study utilized two tests. The emotional intelligence (EI) test and the sentence completion test (SCT).

A one-tailed paired-samples t-test was conducted to compare pre and post EI categories. There was a significant difference in the scores for the 'others' emotion appraisal' (OEA) category between pre (M= 4.79, SD= 1.68) and post (M= 5.17, SD= 1.56) conditions; $t(62)=-1.66$, $p=0.05$, $r^2=0.04$. No significant changes were found on the other three categories: self-emotion appraisal (SEA), use of emotion (UOE), and regulation of emotion (ROE), see Table 6-3.

Table 6-3: Emotional intelligence results

EI Item	t-test (p values)	Difference in means
SEA	0.14	-0.23438
OEA	0.05	0.375
UOE	0.18	0.234375
ROE	0.31	0.140625

Table 6-4 displays the pre and post test scores of the SCT for the 20 students that completed both surveys. The surveys were ranked by two scorers and the inter-rater validity using Krippendorff's alpha (α) was 0.932 for the pre-test SCT scores and 0.875 for the post-test SCT scores. This means that there is a high level of agreement between the two scores; as social scientists commonly trust data with reliabilities of $\alpha \geq 0.800$, they consider data with $0.800 > \alpha \geq 0.667$ only to draw tentative conclusions, and discard data whose agreement between scorers measures are $\alpha < 0.667$. Out of the 20 students, 5 students showed no change, 15 students increased one stage, and one student displayed an increase of two stages.

A Wilcoxon (1945) matched pairs signed rank test was conducted to determine whether there was a difference between the pre and post SCT scores.⁷⁴ Results of the analysis indicates that there was a significant difference between the pre (M= 6.25, SD= 1.118) and post (M= 7.05, SD= 1.099) SCT scores, $z = 3.771$, $p = 0.000$, $r = 0.84$. The results indicate that the post SCT scores are significantly higher than the pre SCT scores.

The measure of effect size in the significant change of the OEA category of EI scores is low ($r^2 = 0.04$), meaning that the increase in EI is significant but of low gain. The measure of effect size in the significant change of the SCT scores is high ($r = 0.84$), meaning that the increase in SCT scores are both significant and high gains. However, the study did not have a control group and therefore cannot claim that these changes would not have happened naturally, without the intervention of the course.

Table 6-4: SCT pre and post scores

Subject	Pre score	Post score	Change
A	6	6	-
B	7	8	1
C	8	9	1
D	7	8	1
E	6	7	1
F	5	6	1
G	5	7	2
H	7	8	1
I	5	6	1
J	8	9	1
K	5	6	1
L	7	7	-
M	7	7	-
N	6	7	1
O	5	6	1
P	7	7	-

⁷⁴ This test is similar to the repeated measures t-test used on the EI data. However, the SCT dependent variable is measured on an ordinal scale (ranked data). The Wilcoxon test is used to test for significant differences between two conditions of an independent variable in an experiment where the same participants are responding in both the pre and post study.

Subject	Pre score	Post score	Change
Q	6	6	-
R	5	6	1
S	5	6	1
T	8	9	1

I find the results of the SCT scores quite surprising as I did not expect to see a change in stage within a three month period. Kegan (1994) states that “if a person’s order of consciousness changes from one year to the next it changes only very gradually” (p. 188). There are a number of possible explanations for this. First, is the possibility that the effort that students placed on filling out the post-test surveys was higher because they felt that the course was a meaningful experience to them and hence were more engaged in filling out the forms. However, it is unclear if the SCT scores are influenced by the subject being more motivated. Second, the difference might be due to errors in the scorers, however given the high inter-rater validity this is unlikely. Third, it could be that by the end of the course students were in a heightened, altered-state that induced higher scores. This would then qualify more as a state shift and not a stage shift (Combs & Krippner, 2003). Briefly, the difference between states and stages is that states are temporary shifts in our consciousness, whereas stages are more stable experiences. From a constructive-developmental viewpoint one could argue that an individual has a stable stage from which he or she constructs meaning, this is sometimes referred to as a center-of-gravity (Wilber, 2000). A given context and experience can create a state shift where an individual constructs meaning from a slightly lower or higher stage. Therefore, if the results from the SCT scores qualify as a state shift and not a stage shift, then with the passing of time students would regress back to the pre-test scores. Finally, it is possible that all individuals that experienced a stage growth came to the course already at the edge of their current stage and therefore more easily experienced a shift. Given the low sample size and the lack of a control group I cannot remark on the validity of this assumption.

In contrast, the emotional intelligence results showed only minor changes. There are at least two possible explanations for this. First, the EI test is a simple self-report Likert-scale instrument that does not have the same precision as the SCT. It is possible that the more precise SCT instrument can measure changes that the EI instrument cannot. Second, the EI instrument only focuses on a narrow aspect of an individual’s capacity, whereas the SCT instrument measures ego development by looking at a combination of behavioural, cognitive, and affective dimensions of an individual (Loevinger, 1997).

Therefore, it could be that the EI instrument missed some of the growth that happened outside of the emotional intelligence scope.

That said, the results show an increase in both the EI and SCT scores. I would qualify these as transformational changes in the students. I am enthusiastic about these results because I do believe that supporting individuals to grow developmentally is important given that today's demands on individuals and society are increasingly over our heads (Kegan, 1994). At the same time, my enthusiasm is qualified for three reasons. First, I am weary of the metric chasing that too easily happens when someone can 'prove' that they have supported transformational change in students. There are a number of institutions that market transformational courses and utilize SCT or similar test results to prove that they are effective. I believe that transformational change is a lot more mysterious than what a few metrics can gauge, and I am wary of using SCT and other metrics as unidimensional gauges of transformational growth.

Second, I am aware of the danger of confusing the territory for the map; that is, reducing the complex territory of transformational growth to the map of the SCT stages. A developmental metric is unable to capture the fullness of an individual's growth. This is dangerous because it can potentially narrow the educational approach to focus merely on those factors that will impact the test scores so we can 'prove' that the approach is successful.

Finally, I am cautious about the sometimes evangelical discourse about the merits of transformational growth as measured by such instruments. It should be apparent from all the arguments that I have made so far that I do believe that developmental growth is important to support individuals and society to tackle the ever growing challenges that we face. However, I also believe that there are many other aspects of an individual's character that are equally or more important than an individual's developmental edge. For example, courage is not captured in the SCT metrics, neither is compassion or commitment to truth. I would place my trust more readily on an individual of a lower SCT score, but who is more courageous, compassionate, and committed to truth than an individual lacking these but who scores higher on the SCT. This point underlines the initial point made in the methods section of how the significance of results obtained vary according to what method is used to gauge the impacts of the course, and the theoretical perspectives/world views of those interpreting the results.

6.3.2 Course pedagogy

On the third week, during a discussion on the (non)existence of free will, I made a comment to the class in reference to one of the students present:

He has never made a free choice in his entire life. He thinks he makes choices, but actually he is under the influence of the social system all the time. He is just a pawn.

As a response a water bottle was thrown at me by that student, which was a perfect case-in-point illustration of a counter-dependant relationship dynamic with the authority figure. When relating with authority most of us either behave in a dependant manner, not questioning authority, or in a counter-dependant manner; inclined to challenge or do the opposite of what an authority might request. The pattern of challenge-response of the throwing of the water bottle was almost textbook predictable, when an assertive male is challenged by another assertive male, and illustrated the lack of freedom in most of our daily behaviours. The teaching and learning topic of that day was group dynamics and the perceived sense of freedom with which most of us go about life.

The pedagogical approach used in the course was incredibly challenging, not only for the students, but also for the instructors. At its heart was a call to authenticity and congruency from the part of the instructors; where we were modelling all aspects of the learning, including learning publicly from our failures, and striving to demonstrate theory in practice. This was the first time that any one of us had tried to teach in such a way in a university setting. In this section I will discuss what I learned by teaching using this approach. These reflections are inspired by what students shared with me in the follow-up interviews, as well as from reflections captured in my daily journal during the time of the course. I will begin by discussing how students experienced the pedagogical approach and then delve into my personal reflections.

6.3.2.1 Student's experience of the educational approach

The interviews with the students yielded many insights regarding the teaching and learning approach used in the course, which can be classified into three main categories. The first is in regards to how students experienced the course and the type of knowledge they were learning. The second category speaks to the experience of being challenged both cognitively and emotionally, while at the same time feeling that they were supported in a safe learning environment. The last category is about student comments of Thursday's experiential activities. I placed these in a separate category because they

constantly came up in the interviews, and students, a year later, associated them with the moments in the course where they learned the most. As Figure 6-6 below illustrates, in general students found the overall teaching approach to be useful for their learning.

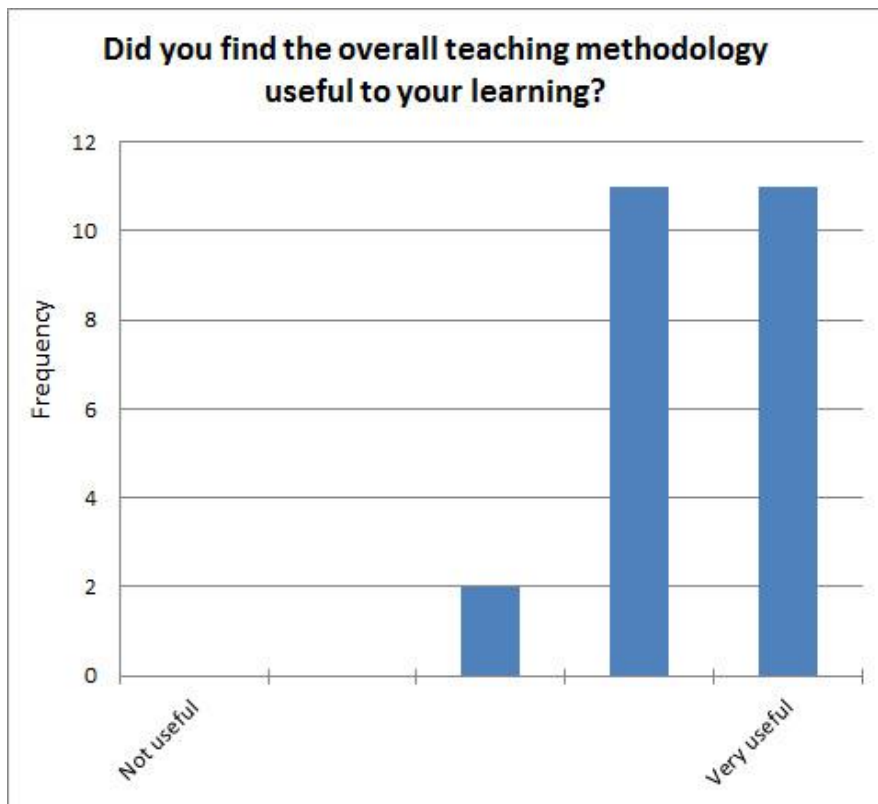


Figure 6-6: Exit survey question 12

6.3.2.1.1 Experiential approach and ways of knowing

For many, if not all, students the experiential teaching methodology used was unique, as they had never experienced such an approach to teaching and learning. The student below responds to the interview question: ‘how did you experience the sustainability leadership course compared to other formal learning environments?’

The format of the course is different, the subject of the course is different, and the way the subject matter is delivered is different. Everything is different and I can't think really of any similarities other than you have to do assignments and you get a grade at the end. Everything else is completely unlike any other course. SubID#20

In a similar tone this student shares how novel she found the teaching and learning to be, as well as how surprised she was by many of the experiential exercises that were part of the course.

The sustainability leadership course was so completely different and experiential. We also did things in our class that I've never done in a university class before and I never thought I'd be doing in a university class or in public. SubID#26

The approach to teaching and learning was also novel due to the type of knowledge that the course aimed to teach. As discussed in chapter 5, the know-what of sustainability is the *explicit knowledge* that can be taught in a sequential manner, easily communicated, and systematized and formalized in writing (Fleck, 1997). The know-how skills and know-who awareness is the *tacit knowledge* of sustainability that is not easily taught, as it is “difficult to codify, standardise and transfer” (Howells, 1996, p. 103). For example, one student struggled to place into words what she learned in the course because, as Fleck (1997) states, tacit knowledge is “not ... readily articulable and therefore not easily communicable or tradable”(p. 388).⁷⁵ Similarly, without knowing the terminology of explicit and tacit knowledge, a student shared with me that he realized that the traditional transmission approach (J. P. Miller & Seller, 1985) for teaching would be ineffective for a subject such as leadership.⁷⁶

The sustainability leadership course was not devoid of explicit knowledge; there were plenty of abstract frameworks, terminology, and interdependent concepts to learn. However, the teaching approach did not value explicit knowledge over tacit knowledge. It aimed to teach both, simultaneously, because in the practice of leadership these two types of knowledge are to some degree interdependent. This required that students approach learning in a more reflective way instead of regurgitating content, which felt to students like using a new part of their brain that they had not discovered until taking the course.⁷⁷

Tacit knowledge exists, or is lived, in the whole body. Nonaka and Takeuchi (1995) characterize explicit knowledge as being of the mind, out there, and existing in theories or concepts; whereas tacit knowledge is located in the body, in the here and now, and exists in experience. One student shared how the concepts and skills of the course are rooted in his bodily sensations and emotions, and even

⁷⁵ See Quote 35 in Appendix E

⁷⁶ See Quote 36 in Appendix E

⁷⁷ See Quote 37 in Appendix E

compared the learning style of the course to learning a physical activity.⁷⁸ For another student, the course is now embedded in her and these skills now show up in the way she relates with people.⁷⁹

Interestingly one student compared the course's learning approach to kindergarten; to the less structured and exploratory way in which many children at that age are allowed to engage with what they are learning.⁸⁰ Similar to learning a skill like how to tie one's shoelaces; for that age an incredibly difficult task of coordination, fine motor skills, having a vision of what you are trying to accomplish, the presence of a coach that guides you, and finally a pair of laces to try, fail, and try again.

Lastly, one student spoke directly to the limitations of our traditional educational system of overvaluing learning theory at the expense of practice. The comments below come from a graduate student with substantial work experience. This student speaks to what I believe is one of the biggest gaps in the educational system, that is, where students are treated as empty containers to be filled with as much information as possible (Freire, 1970). Students then struggle to apply their 'banked' knowledge and start to develop a sense of frustration and become disempowered because they feel that they 'should' be able to apply all the explicit knowledge that they learned in university, but fail to be able to do so.

This class was very different in that... it's a lot less about the material that you're given and a lot more about the interactions of the group... I think most other classes are about, here's some information, do something with it on your own. So I think this class is more applicable for going from theory to practice, and I think that's a big challenge, because in our education system a lot of it is theoretical and not practical, and so you come out of school with these ideas of how to do things but then in reality you can't do them. For me that was a big reason why I was so frustrated coming out of my undergrad, working in government in a position where I probably could've had a lot of influence but feeling that I couldn't because I was stuck in this theoretical idea of doing things and didn't have the tools to put them into practice. I think, in that way, this course was really valuable. SubID#23

Finally, she says it succinctly.

I wish I'd taken this course earlier so that I could understand more what's going on in groups and maybe, quite frankly have less to unlearn. SubID#23

⁷⁸ See Quote 38 in Appendix E

⁷⁹ See Quote 39 in Appendix E

⁸⁰ See Quote 40 in Appendix E

6.3.2.1.2 Challenge and support

The theme of feeling both challenged and supported came through in almost all the interviews. I will begin by sharing how students felt supported and then move on to how they felt challenged. A readily shared experience among students was the feeling that they were in a the safe learning space that was intentionally created to allow students to test their skills, without fearing that if they flounder it would have long lasting repercussions as it might in other courses, and especially in their careers.⁸¹ The course structure and the instructors provided support in multiple ways, as discussed in the methods section. However, one of the strongest sources of support was actually their peers; the other students. One student shared how she had to reframe and reorient from the usual top-down teaching and learning so she could start learning from her own experience and from her peers, and came to see the role of the instructors as a support her in that journey.⁸² The course was intentionally designed in such a way to encourage students to learn from their peers. And by learn I do not mean only explicit knowledge; I mean the complex embodied learning of discovering and applying oneself to a challenge. This student shares his experience.

I see those that cry in class as a huge breakthrough... To be willing to just completely let go of your ego, or whatever you want to describe it, and to feel that way of trust come in from the surrounding group. That's an incredible experience and I definitely describe it as a breakthrough. SubID#13

The student peers were both a source of support and challenge. Students both embraced and rubbed their edges against each other, which is a common experience in groups. This student shares how the group acted as a mirror, reflecting back to her attitudes and acting patterns that she was not aware off.

Well, I think the further and further into the weeks we went and the more we, 'getting to know' is not the right word, but the more we got to know each other, the more people were able to show you something of yourself that you either couldn't see or didn't want to see. So in terms of how the group influenced me was realizing those things. Realizing I don't listen, realizing that I am displaying behaviour that I didn't think I was displaying, that sort of thing. SubID#26

⁸¹ See Quote 41 in Appendix E

⁸² See Quote 42 in Appendix E

There are two findings from the quantitative survey that are interesting regarding this matter. Figure 6-7 shows that most students felt that they learned equally from each other and from the instructors. While Figure 6-8 shows that students learn much more from each other in the sustainability leadership course compared to other courses.

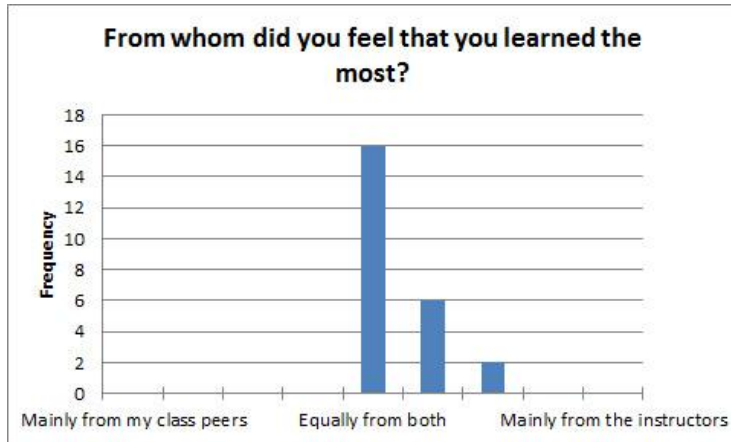


Figure 6-7: Exit survey question 19

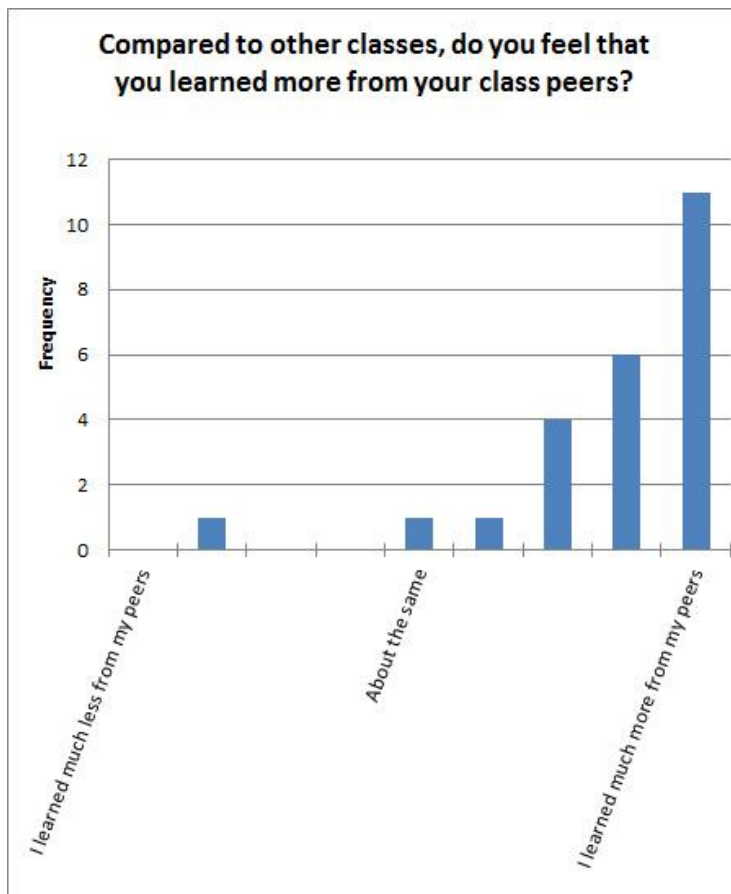


Figure 6-8: Exit survey question 20

In regards to the challenging aspects of the course, I would argue that to some degree each student was challenged differently. However, all students shared an initial experience of bewilderment that slowly shifted as they started taking responsibility for their learning.⁸³ As I mentioned in the methods section, I was constantly adjusting and adapting to students' needs, providing more structure and support when students were reaching their edges, and challenging them more when they were in their comfort zone. This student shares how she noticed the different ways I would engage with the class depending on where I, and the other two instructors, gauged the overall class was at.

I noticed it a lot, the tension between structure and flexibility, in the large group, just based on some days you would provide a lot of structure in teaching and other days it would be complete chaos and uncertainty. And a lot of interventions of students made in the chaos were really interesting and creative. I think a lot of us were intimidated by that and would've rather had the certainty of structure, and we would've had a list that we could check off and felt like we would've productively discussed the readings or whatever but that would've foreclosed the more creative and conventional interventions that lead to our learning. SubID#7

All students shared with me that the course required much more from them than other courses they had taken at university. Many of them believed that this was due to the emotional aspect of the course.⁸⁴ There is something about emotionality that opens a person up, makes them feel more vulnerable. Western culture emphasizes, as Hal and Sidra Stone (1993) say, a strong protector/controller personality, where vulnerability is largely disowned. When we disown a part of ourselves, like vulnerability, we generally are very judgemental and relate negatively to those that display such qualities, and at the same time we are fascinated by them (Stone & Stone, 1994). Interestingly, life has a way of showing us our disowned selves over and over again until we have matured enough to integrate them as our own (Stone & Stone, 1994). The student below shares a seemingly paradoxical aspect of vulnerability; which is that as we allow ourselves to open up, we at the same time feel stronger and more powerful.

I came into class with a nervous stomach every time, just because it was new learning experiences that a lot of us had not gone through in our lives before. The labs where we did experiential activities, those really challenged us and pushed us to our edges. I think we learned a lot about

⁸³ See Quote 43 in Appendix E

⁸⁴ See Quote 44 in Appendix E

each other in those labs in terms of the strengths and weaknesses and exposing how vulnerable we can be, and also how powerful I think all of us felt in our hearts. SubID#7

With more of a decade of research on vulnerability, and not to mention an incredibly inspiring TED talk, Brené Brown (B. Brown, 2012) argues that vulnerability is not a weakness but a prerequisite to living a fuller life, and on the topic of leadership she quotes Seth Godin (2008), saying “leadership is rare because few people are willing to go through the discomfort required to lead”. Brown defines vulnerability “as uncertainty, risk and emotional exposure” (p. 34). And similar to Hal and Sidra Stone (1993) she argues that in western culture we suppress experiences of vulnerability to our own detriment. In her words:

Our rejection of vulnerability often stems from our associating it with dark emotions like fear, shame, grief, sadness, and disappointment—emotions that we don't want to discuss, even when they profoundly affect the way we live, love, work, and even lead. What most of us fail to understand and what took me a decade of research to learn is that vulnerability is also the cradle of the emotions and experiences that we crave. Vulnerability is the birthplace of love, belonging, joy, courage, empathy, and creativity. It is the source of hope, empathy, accountability, and authenticity. If we want greater clarity in our purpose or deeper and more meaningful spiritual lives, vulnerability is the path. (p. 33-34)

Furthermore, Antonacopoulou and Bento (2011) argue that without the ability to feel vulnerability we are less able to adapt, to learn anew, and therefore are fundamentally handicapped when having to exercise leadership in environments that require continuous learning. In their words:

[L]eadership is learning, because leadership and learning are processes of being and becoming. In organizations immersed in continuous change, what matters most is not what a leader knows, but what he or she is capable of learning. This ability to learn, however, requires a leader who is willing to feel the vulnerability implicit in not knowing, an openness to experience that approaches each new situation as a circus artist who flies from one trapeze to the next, rather than clinging to the comforting security of the platform. The vulnerability inherent in the unknown and unknowable is an exhilarating flight between competently holding the trapeze of the past and tentatively grasping for the trapeze of the future, fostering practicing and experimentation as part and parcel of performing leadership practice. This approach towards leadership relies on a dynamic capability: the importance of unlearning as a mode of learning. (p. 74)

6.3.2.1.3 Experiencing the exercises

The experiential labs are where students felt they learned the most in the course (see Figure 6-2 on page 172). I want to reiterate that, by *learning*, I am not only referring to explicit knowledge, but also to the full realm of human experience from which we can learn. In this section I will go through each lab and share a comment or two from students’ experiences of the exercises. It is important to keep in mind

that the experience and impact that the labs had on students was highly varied. For example, a lab that for one student was the most impactful learning might have been an exercise that another student, a year later, could not even remember. Figure 6-9 below shows the post survey results rating effectiveness of enhancing learning of each experiential activity.

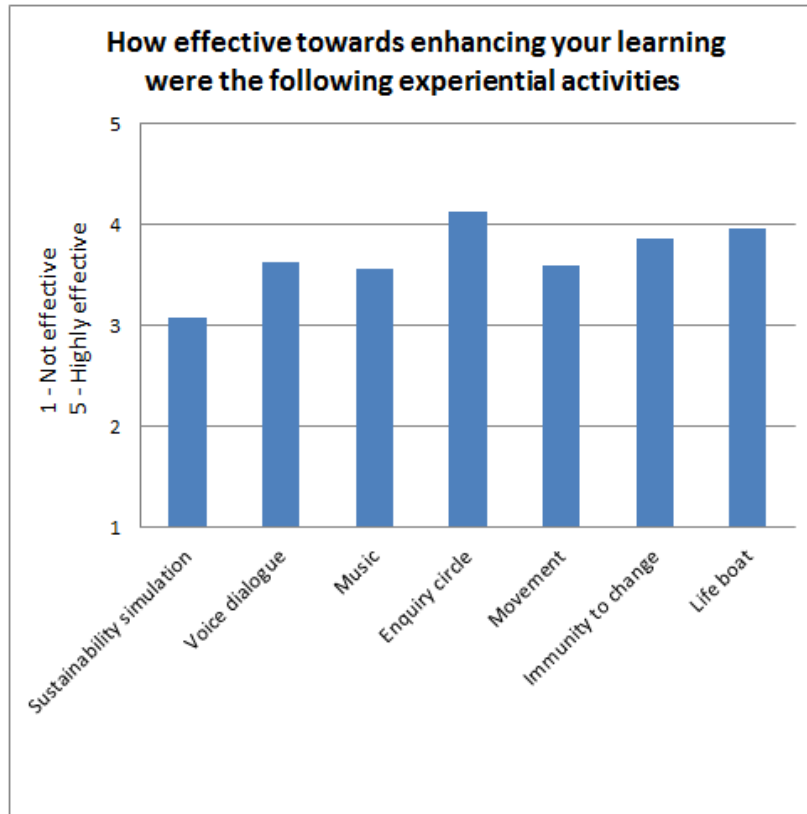


Figure 6-9: Exit survey question 4

Overall, the Thursday labs aimed at expanding students' bandwidths, meaning the "range of capacities within which an individual has gained comfort and skills" (Heifetz et al., 2009, p. 304). As discussed in the previous section, such exercises challenged students, at times substantially. This student uses the image of a stretching balloon to describe how she experienced the course as challenging her limits.

I feel like we were balloons and we were stretched and we... didn't burst and explode but it felt at times that the stretch was a very intense stretching and pulling. I was exhausted by the end of it, but I would take the course gain. SubID#9

The first lab was the simulation, and by far it was the least challenging exercise. It was purposefully designed to be a fun exercise to begin building bonds of trust between students and instructors, as well

as to illustrate the complexity of socio-ecological systems. The student below describes how the simulation helped him see multiple perspectives in a social system.

That was one of the labs that helped me be able to put myself in other people's positions, how they see things. Not necessarily thinking that I'm the one who's correct just because most of the people say it or something like that... I liked that lab very much. SubID#5

The second lab exercise was voice dialogue, which aimed at supporting students to develop the ability to take perspective on the self. In essence, the objective was to provide students with the subject to object awareness skills previously described (Kegan, 1994). The student below describes how she has continued to use the skill gained in that lab to notice aspects of her way of being; and as I have already discussed once we are able to see, or make object, a way of being, we can take responsibility for that way of being and consciously chose if that is the most appropriate way of being in the present moment.

The other lab that was really impactful was the one where you talked with different voices, with different identities: the controller versus the victim versus the protector. That has been a language that I have used a lot in my mind like, 'Oh this is my controller talking, oh this is my play person talking.' And I'm kind of talking to myself about there is a separation and there is a wholeness. So that definitely created a strong language in me. SubID#6

The third exercise that we did was the enquiry circle. The purpose of the lab was dual: on the one side to practice authentic listening and on the other side to practice vulnerability. The student below shares the fears that came up for her as she opened up to her partner, and shows that, as Brown (2012) suggests, when we befriend vulnerability many other aspects in our life that are difficult suddenly seem workable.

I remember after doing the enquiry circle lab, I pulled Magda aside and said, 'This is the hardest thing I did in my life'... The listening part was wonderful but the speaking, just having that intensity of connection... is very anxiety inducing. Scary because of the power of the connection and like it was totally up to me to articulate things and to express myself, and I had no prior experience doing that. And for my whole life that was probably the exact situation I avoided at all cost.... I learned about dealing with my fear of judgement because that was a big part of why I have trouble engaging socially, the social anxiety and fear of judgement and not being perfect and the way I express things... the second component that I learned was finding my voice, just because in writing I feel like I have a strong voice and I am much more proficient in articulating myself in that way, but in words it's so uncertain and I don't feel as polished. I learned that I have to embrace spontaneity and uncertainty and you're going to make mistakes and improvise. SubID#7

The fourth exercise that we did was the music lab, and we did this lab twice. The lab had multiple purposes, such as practicing listening and inspiring skills. The core of the teaching is being able to connect to the source of who you are, to the radiance of one's being, as from there we are more

naturally inclined to communicate authentically. To be able to do such a thing requires a lot of courage and again, vulnerability. The student below describes how moving it was for her to witness another person communicate authentically.

The singing one I remember Nora and how moving it was, and I remember it like it was yesterday, and it was at least twelve months ago. How moving it was to see her transform. I felt like she was a quiet bird just quietly in the back of a garden, we're not even paying attention to, and all of a sudden we just looked at her and she blossomed and she sang and she cried and we cried and it was like 'Wow!' SubID#9

The fifth exercise was the movement lab, where students explored perspective taking in an embodied way. The practice of befriending vulnerability continued in this lab, and many students found it a very challenging exercise. The ability to be vulnerable, to be open, provides us with the ability to also experience others more fully (B. Brown, 2012), and to experience others more fully, I would argue, is the source of empathy. In my experience, empathy is foundational to truly being able to see a problem from another person's perspective. The student below shares how the movement lab made it obviously apparent to him that he never actually was able to place himself in another's shoes as he made choices. Realizing that lack of empathy, and the awareness that came with it, seems to have later saved his marriage.

One thing that sticks out in my mind was the practice of dancing we did in the class, and it was one of the best things I've ever learned. For me the experience was, okay we were three persons, one closes his eyes and we start dancing. Two others try to replicate his movement. In the practice I realized I don't like the movement of the person and it doesn't match with the music. I want to do another movement and I remember I quit at some point, and I started doing my own movement. So after that practice I realized that, hey, when there is something that resonates with me, maybe my wife doesn't like it, or at work, when I enjoy doing something, maybe my co-worker doesn't like it... And now, a year later, reflecting back I would say that the exercise had a huge impact on me and it was amazing that even that simple exercise saved my relationship with my wife...The ability to see her perspective, the ability to see that if there is something that I am happy with, it doesn't mean that she is happy. SubID#12

The sixth exercise that we did was applying Kegan's and Lahey's (2009) immunity to change structured reflection to a personal challenge that each student had self-identified. This exercise was not experiential in the same way as the other exercises that had an embodied aspect to them. Interestingly in the immediate follow-up survey after the course was completed, students felt that the exercise helped them learn the course material, as the quote below illustrates.

The small group meetings, movies, reflective questionnaires, and the immunity to change exercise provided the most concrete, personally relevant learning opportunities that illustrated the concepts of adaptive leadership. EsQ#2

However, one year later, in the interviews, none of the students mentioned the exercise as having had as long lasting and impactful an influence on their learning as the other exercises did. I see two possible explanations for this. One, the new perspective gained through the exercise could have been integrated into their experience without them being able to recall the exercise as the source of the new perspective. I think this is unlikely. Second, the exercise did not have an embodied component to it, as it was a pen and paper reflective exercise, and therefore the learning was only mental (explicit knowledge) and something that the students were not able to internalize (tacit knowledge). I think the immunity to change exercise has a lot of potential to support transformative learning, however it probably needs to be facilitated and applied over a longer time period, instead of the one week students had the opportunity to engage with it during this course.

The final exercise was the life boat. The purpose of the exercise was to help participants realize the preciousness of life and the immediacy of death. The only way to connect authentically with such an experience is again by befriending vulnerability. The power of the exercise is heightened by the group experience as people share what matters to them, and the reasons why they would stay or leave. The student below started the class with a low self-esteem, and early on in the class was encouraged by me to explore the 'voice of power' that exists within her. Towards the end of the class she was confronting the most vocal students and making her voice heard. In a follow-up conversation after the life boat exercise she shared with me how vividly the lifeboat exercise illuminated how she was a prisoner of her own stories which kept her trapped in an experience of being powerless. A year later these are her memories of the life boat exercise.

One thing that I really keep thinking about is the very last thing that we did: the life boat experience. It was really different from what I have ever experienced before... At the beginning of the exercise what came to my mind were all negative things. I guess I felt that I wouldn't be useful so I just decided to take the rock right away, but then I heard other people share when we went

around the circle.⁸⁵ That really opened up my view of everything. Even like personal relationships with others. Like whatever people said about it's hard to leave their close friends and then some people said they have very important things to do. Then I realized I have those abilities as well and I shouldn't be so negative about things, and it doesn't matter where I am right now. There are lots of possibilities out there that I can reach. After we had gone around the circle once I actually regretted my decision to pick up the rock, and I guess you can say that I discovered self-worth through the exercise. SubID#24

Matters of life and death, both metaphorically speaking and not, are aspects of the practice of leadership. Every moment we have the potential to choose how we engage with life. Many of us let these opportunities go by, every day. As a reminder of this potential in all of us, every evening in Zen temples around the world the following verse is chanted:

*Let me respectfully remind you,
life and death are of supreme importance.
Time swiftly passes by and opportunity is lost.
Each of us should strive to awaken...
Awaken!
Take heed,
Do not squander your life.*

6.3.2.2 Reflections and discussions on teaching

In this next section I will discuss the main aspects of a transformative teaching approach that I found meaningful in helping me orient as the course instructor. These categories reflect my personal notes and reflections while teaching the course; in the footnotes I make reference to student quotes that help illustrate these different aspects of the transformative pedagogy applied in the course.

6.3.2.2.1 The role of catalyst

The course design did not assume that learners already came in with a disorientating dilemma that was a catalyst for transformative learning. Quite the contrary, many of the course methods were

⁸⁵ As explained earlier in this chapter, participants sit in a circle and decide whether to stay alive or metaphorical die; when a participant picks up a rock it signifies that they choose to die. Participants are invited to share the reason of why they choose life or death.

purposefully designed to challenge students to come out of their comfort zone and create a catalytic experience that would force students to work through it, with the support of other students, the instructors, and their larger personal network. For example, for one student the course acted as a catalysing event, and what arose into her awareness was family dynamics that she felt had never been dealt with.⁸⁶ Though the course material does not explicitly focus on family histories, it is natural that for some students unresolved family dynamics might come to the forefront. One way of explaining this is that the intensity of experience can, by making us more raw and vulnerable, help lower our defences; or what Kegan and Lahey (2009) call our immunity to change. Then, whatever unresolved issue is most ripe will surface.

This poses a challenge for the teacher, as I, and the other two instructors, needed to skilfully navigate a few tenuous terrains. First, we needed to be clear that our role was one of instructors, maybe even personal coaches, but not one of therapists. The boundary of what personal material we felt comfortable having as part of the course and what should be differed to a specialist was different for each instructor, given our competencies in this area. Navigating that territory was difficult and we relied on each other to make decisions on these matters.

Second, while personal dynamics are always present in exercising leadership, it was not uncommon to get pulled into the interpersonal and intra-personal dynamics that a student was working with and lose perspective on the larger challenge the student or case was focused on. It was important to listen and honour the interpersonal and intra-personal difficulties that a student brings into the class, and at the same time, know when to intervene and cut the repetitive cycles and stories we were drawn into. It was challenging to skilfully navigate difficult personal stories in the context of teaching leadership to the students; helping them explore new observations, interpretations, and action possibilities to tackle their challenges.

Finally, we needed to keep our attention on the level of distress the group was experiencing as a whole. Individuals had different bandwidths for coping with the disequilibrium in the classroom, and we

⁸⁶ See Quote 45 in Appendix E

needed to provide support to those who were stretched, while at the same time challenging those who had capacity for it.

The complexities of the tasks mentioned above are too much for one instructor to adequately manage alone. Having other instructors present in the class is important for multiple reasons. First, it's very hard for an instructor to be both on the dance floor, intervening, while at the same time observing the larger repercussions and dynamics in the group. Having a few other 'pairs of eyes' on the class is very useful, as different instructors will be more attuned and pickup different cues as to what is happening in the room. It is also crucial for the post class debriefings where the instructors diagnosed where the group was at, what worked and what did not. And most importantly, it also models one of the key concepts of the class: that one should not lead alone.

From a student's perspective, it is important to have a few instructors with whom to debrief for a number of reasons. First, if an exercise overwhelms a student to the point they need to leave the classroom a supporting instructor can accompany them, help them debrief, and take corrective actions. Second, the time commitment for student debriefing is normally large and can be overwhelming if not shared with other instructors.

Another aspect of working with a catalytic pedagogy is that the instructors need to have sufficient extra bandwidth to not only hold their own, but also to a large degree the overall dissonance in the class. A student comments on coming in late to one of the classes:

I don't know if you remember that day I had an important commitment and I came in late. So, I didn't even know what was happening and half of the people in the room were crying. That was scary! SubID#19

I was facilitating the exercise the student is commenting on, and given the dynamics occurring I became the anchor of the room. In that moment, the students' abilities to explore further are to some degree determined by the trust they have in the authority figure to hold steady and offer support if needed. Working with one or two students, in the overall class, at their edge is manageable. But sometimes, as the student recounts, a great number of students are at their edge; which demands that the instructor has some clarity of when he can continue holding steady allowing the experience to continue, or when he has reached their limit and needs to intervene in ways that brings the dissonance down because the instructor does not have the capacity to contain the group any longer.

6.3.2.2.2 *The role of the holding environment*

The holding environment is a crucial part of supporting students in their learning. Students need to feel a certain amount of safety so they can begin to explore their behaviours, thoughts, beliefs, and values.⁸⁷ It is important to help students distinguish between the experience of feeling unsafe versus the feeling of discomfort. If a student is feeling threatened then the ability to learn is low, as students will be protecting what they hold dear. However, it is natural to feel discomfort when exploring aspects of ourselves and others that feel edgy or threatening. One way of exploring the difference between threat and discomfort is to gauge if the student is able to make object that which feels threatened. If they cannot differentiate between the self and the threatened part, then there is limited learning potential; but if we can support the student to see that what is at risk is a part of them but not the central self, then there is more potential for the student to engage and reflect on that which is threatening, feeling the discomfort, but not feeling unsafe.

At its core, the holding environment is made of bonds of trust, both vertically between students and the instructors, and horizontally between students. At the beginning of the course, the responsibility for creating a strong holding environment falls mainly on the instructors' shoulders. I will discuss this more in the following section on 'failing expectations at a rate they can stand'. As the course evolves, the lateral bonds of trust between the students increase and they start sharing the task of building and maintaining the holding environment.⁸⁸ As the bonds of trust increase and the holding environment strengthens we can further challenge the students because they are able to bring forth and develop the skills and behaviours necessary to keep the divisive forces at bay. Here one student shares her amazement as what the class was able to go through towards the end.

It was the labs, the three-hour labs. We've been doing all these crazy intense activities and you have got eighteen people in the room crying because we're so emotionally torn. I don't know if this is in school. What's happening? It was pretty amazing being able to connect with so many different people on different levels. The fact that by the end of that there was the life boat activity, the fact that all of us were comfortable enough to sit in that room like bawl our eyes out with each

⁸⁷ See Quote 46 in Appendix E

⁸⁸ See Quote 47 in Appendix E

other and sit in that room instead of run out. It was pretty amazing to be able to have that cohesive bond among us. SubID#1

As students start taking on the role of holding their peers through difficult moments they also develop and strengthen their self-esteem. They realize they are able to stay present with difficult emotions and be of support to others.⁸⁹ As I have discussed before, in vulnerability there is immense power.

6.3.2.2.3 Failing expectations at a rate they can stand

Students came to the course with many conscious and unconscious expectations of the services the course instructor would have to provide.⁹⁰ Heifetz clarifies that there are three main types of services that authority figures generally provide: direction, order, and protection. Students longed for more structure to be imposed by the instructor. In the exit survey many students suggested that the course include some of the following structures: formal discussion periods for the readings, more 'led' experiential exercises, structured group problem-solving tasks, and other similar comments calling for more structure and direction provided by the instructor.

The role of authority in this course is a very difficult task to navigate. The main learning objectives cannot be easily taught by being subservient to the roles of authority, and on the other hand, by not providing these services one risks that students shut-down and disengage because they do not feel like they are learning as they are traditionally used to learning. This is especially true for students, generally younger, who through their educational career have only experienced and somewhat mastered one way of learning; which is regurgitating information. They expect the instructor to provide direction and clear sound-bites of what they are expected to learn. In this course this is an impossible feat, given that the instructors, at least in the beginning, had little knowledge of the students' learning edges. And even if we did have a better understanding of their edges, the only possible way to learn these concepts is through clarifying and working through the experiences that are created when the authority figure is not providing the usual services.

⁸⁹ See Quote 48 in Appendix E

⁹⁰ See Quote 49 in Appendix E

It seems that the most challenging aspect of the course for students is awakening to the relationships of authority in which we are all embedded in the class room, and then acting in a way that is more free-functioning and at the service of everyone's learning. Throughout the course many students started to see and observe more candidly the authority relationship patterns in the classroom, but few were able to act in ways that enhanced and mobilized more learning in the group. In their small groups, this was less of an issue because their expectations of the weekly assigned formal authority figure were much smaller than their expectations from the course instructors. And in this regard, students in general felt that in the small group meetings they learned more than in the large classes — though not necessarily about authority relationships.

From the instructors' point of view the first three weeks are the most challenging in regards to navigating the use of authority. From the first day, the instructor aims to highlight the expectations on the authority figure and begin to shift the implicit social contract of the class. Some students understand the concept, yet at least in the beginning, do not see why it should be otherwise. For other students the concept of the expectations on the authority figure takes longer to become clear. Many of the labs in the first part of the course had as a primary or secondary objective strengthening the holding environment, which builds confidence for students to start experimenting more. However, given that the first two weeks are the students' shopping period where they choose electives, and they have until the third week to drop the course without any consequence in their academic standing, the instructor is more of a slave to the students' expectations. Once the third week passes, the holding environment gets stronger just by the fact that the consequences of dropping the course are more severe for students and therefore they are willing to put up with more discomfort. Towards the middle of the course students started learning how to use the authority figures, the instructors, for their learning, and if they felt that the authority figures were not enhancing their learning they had no problem intervening to shift the dynamics.⁹¹

⁹¹ See Quote 50 in Appendix E

6.3.2.2.4 *Optimal conflict*

As I mentioned in the methods section, a key to creating experiential learning opportunities is to aim for optimal conflict in the group, where there is a dynamic interplay between challenging and supportive experiences. Working with optimal conflict in the group is about two tasks: how to challenge students effectively and how to also support them.⁹²

Challenge

The key to creating a challenging environment for students is that it be effective in opening up or mobilizing some pattern that we could all reflect upon and learn from. Conflict for conflict's sake is unproductive and erodes the students' trust in the instructors, and maybe also between the students. As I mentioned above, when I am failing expectations at a rate they can stand, I am purposefully not meeting the expectations placed on the authority figure because I want to use the experience created as a case-in-point of the complex relationships we have with authority figures. Other examples are the music exercises which create a lot of discomfort in the room, but with a clear focus of learning about inspiration, the power of emotions, and listening beyond the words spoken. Similarly the life boat exercise creates a lot of discomfort and vulnerability with the objective of supporting students to reflect on their life purpose, as well as the difficult emotions of personal loss and closure in groups.

Having clarity on the learning objectives for the exercise serves as a compass when the discomfort rises in the group, and in me as well. This compass helped me provide direction when the group dynamics were stuck or evolving toward something that could become counterproductive.

Support

In the large class there are in general two moments that are useful for providing support to the students. One is when the disequilibrium in the class is too high and the learning is jeopardized. In those cases providing support, like going to the blackboard and lecturing on content helps calm students

⁹² See Quote 51 in Appendix E

down.⁹³ A second and generally more productive intervention to support students' learning is to provide an interpretation at the right moment regarding something that is happening in the group. Doing this by stopping the action, asking students to reflect, and then supporting them in coming up with generalizations and concrete categories of what they just experienced. This, in essence, is the practice of using Kolb's (1983) learning theory on the spot. The first step is creating dissonance, or what Kolb calls *concrete experience*; this experience focused students' attention onto the gap in their knowing. This gap is then reflected back to them by stopping the action and asking them to observe it, the stage Kolb calls *reflective observation*. A student or instructor then assists the students to derive longer lasting abstract generalizations of the experience so they can be applied at a later time; Kolb calls this stage *abstract conceptualization*. Finally, this leads back to the dance-floor of experience, what Kolb calls *active experimentation*.

The cycle of experiential learning that we use normally entails: experiencing, reflecting, generalizing, and acting, which then is the new experience to start the cycle again; this cycle is derived from Kolb's (1983) learning theory. As instructors, we can support students in all aspect of the cycle, but given the diversity of students' competencies I found that their weekly written reflections was a good opportunity to provide personalized constructive feedback that would both challenge and support them in the process of learning. The student below comments on his appreciation of the feedback he would receive:

I remember being just really impressed at the depth of response. You know the magnitude of what you would write... I was thinking like, 'Wow you were happy to write a page on this question.' ... I think it was really useful in individual feedback. It gave a platform for me to come talk to you individually if I needed to. SubID#15

Figure 6-10 shows students' response to how important the written feedback was towards enhancing their learning. The course had in total 12 written questionnaires and a final paper aimed at supporting the students throughout the term on reflecting about leadership concepts in the context of their behaviours, skills, and group dynamics. I shared the task of providing written feedback with Carissa, the teaching assistant. For us this was by far the most onerous and time consuming task of teaching the course. It would take us between 30 to 60 minutes per questionnaire to provide personalized feedback,

⁹³ See Quote 52 in Appendix E

which took about two full days per week to complete. With the current support that UBC provides in teaching assistance hours this is not a sustainable mechanism for supporting the students. Therefore, in the follow-up survey I asked students what would be the impact on their learning if we cut back the personalized feedback by half. Figure 6-11 shows that most students would have found it detrimental to their learning.

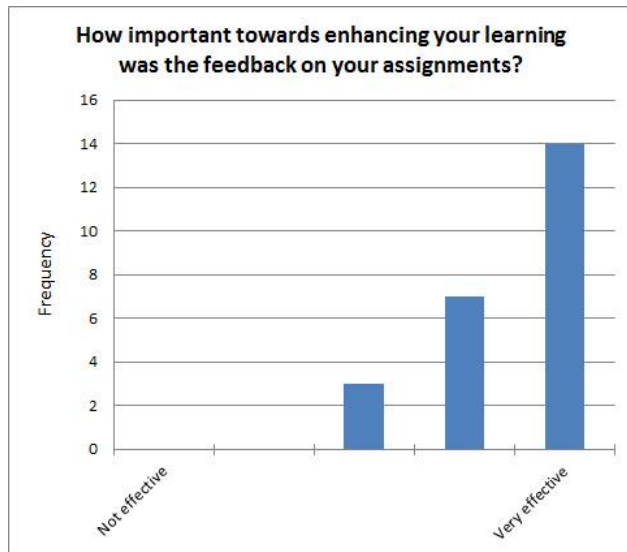


Figure 6-10: Exit survey question 7

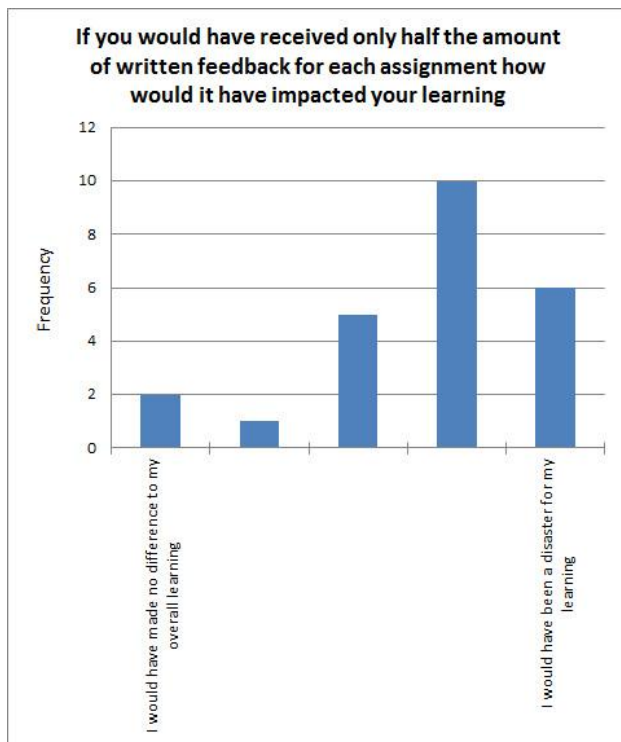


Figure 6-11: Exit survey question 8

6.3.2.2.5 Conflict styles

It was apparent in the group dynamics that each individual dealt differently with the conflicts in the class. Hamilton (2013), drawing on the Thomas–Kilmann Conflict Modes, describes the three most common patterns of coping with conflict. The ‘avoidance’ pattern simply means to withdraw, by either physically leaving the room when it gets hot or by turning inward and pretending that nothing challenging is happening. The ‘accommodating’ style tends to supersede the value of connection over separation and will err on the side of diffusing conflict as quick as possible by pleasing or being submissive to others. Finally, the ‘competitive’ style refers to those that never let a good argument go to waste, and tend to be assertive and confronting in a conversation. Clearly each individual has a mix of responses depending on the situation, yet we tend to habitually respond in one way more than another.

To mobilize learning, I found that the avoidance and accommodating styles of coping with conflict are the most difficult to work with. These styles tend to suppress the energy that is needed to support growth. The class, embedded in an overly polite Canadian culture, had a lot of difficulties moving beyond avoiding and accommodating styles of coping with conflict.

Although all of the above styles for coping with conflict are rooted in fear: fear of being hurt, not being loved, or not being heard or acknowledged; the competitive style is the only one that does not suppress the assertive energy needed to catalyse growth. The challenge then for the instructor becomes working with the paradox of power-vulnerability that is needed for learning and growth.

6.3.2.2.6 Noticing and working with paradoxes

There are many ways that paradoxes manifested in the class. A paradox, in this context, refers to a contradictory relationship between experiences and viewpoints, many times reflecting a deeper truth. A common one was the contradictions that an exercise in the class would bring up in students. As one student commented:

It was weird, I was talking to Lillie about the life boat experience and she said it was mean, the whole experience. I never thought about it that way. It was so interesting to hear something that was so different to what I experienced. SubID#24

Here are two students that participated in exactly the same exercise: to one of them it was a transformative experience, to the other it was simply mean. From an instructors’ point of view, this goes beyond noticing the multiplicity of experiences arising to seeing the irresolvable paradox. In this case

the paradox is one of learning, in which an identical exercise can create both no-learning and transformative learning at the same time. The experience above can also be framed as the complexity of learning, and not necessarily a paradoxical one. However, I find it more useful to frame this as a paradox because of the co-existence of opposites. The more I work in groups, the more I realize that the vitality and paralysis of a group is shaped by how the group works with and through ambivalent and contradictory experiences and viewpoints.

If the instructor tries to resolve the paradox by engaging the students in a group debrief aimed at bringing a unifying closure to the experience it will probably backfire. On the other hand, acknowledging the difference is not enough either, since we might get stuck in seeing it as an 'either/or' experience that creates learning or not depending on the student. To work with the paradox, we can actually engage with the students to see the 'both/and' within their experience. In this case, for the student that experienced the exercise as transformational we could work with them to find the mundane aspect of that experience for them. For the student that saw the exercise as being mean, we could help them explore how she was constructing meaning, one of meanness, and try to uncover what limited her to experience it in that way. If successful we could actually help the student see the other side of the paradox, and hence experience the transformative aspect of uncovering a hidden mechanism of how they construct meaning.

One way of instructing this learning is using voice dialogue, as described in the methods section, where we facilitate students to embody through a first person voice each of the polar perspectives. If a voice is shadow to a person we can coach them to first think analytically what that voice should look like and gradually ask that they speak from that voice. This does not guarantee that voice will fully move out from shadow and be integrated, as this can take time and effort, but the first step is growing the awareness of the shadow voice. Once the group or individual has inhabited both polar voices, the next step is to ask them to speak from the apex, which integrates and transcends the two voices. Students might struggle with this at first, and the facilitator can provide examples, but in my experience there is generally one person that has already somewhat or fully integrated the polarity through other life experiences and can easily speak to the integrated voice. This person normally leads the group and others lean into the voice and start experimentally speaking from it until they can find inside the integrated voice and speak truthfully from it.

Paradoxes also occur in the class in the natural way that factions develop in a social system. No different from society, the class developed different factions based on how they coped with the challenge they faced. At the beginning the class split into those that wanted more structure and those that did not, and the conversations and conflict between them stayed at the functional level of 'should we have more structure or not'. This then evolved into the quiet and loud factions, and again the conversations and conflict were focused on resolving these tensions.

The behaviour of the group was almost textbook-like (Vince & Broussine, 1996). When a group faces a difficulty it tends to *split* and polarize. For example, at the beginning of the class, the difficulty of learning leadership gave rise to two factions: those that wanted more structure and those that wanted less structure. What follows is that the factions will *project* onto the other their conflicting experience; when the class was stuck in this split, the interventions were reduced to somebody standing up and trying to create structure followed by somebody from the other camp assassinating them (metaphorically) for imposing their will on others, keeping the group stuck. What follows is that the group will *repress* or mask similarities, and *regress* to habitual ways of acting that have been safe in the past. In the class I observed how the situation polarized and individuals anchored more strongly onto their beliefs of what was the 'right' way to proceed. To work with the challenge the group needs to move beyond the contradiction, the 'either/or', and work with it as a paradox of 'both/and'. One way of helping the group achieve this is by pointing out how their interventions, when trying to make sense from a contradictory point of view, keeps the group stuck. And suggest that they try to orientate the group not within the contradiction they are stuck in, for example more structure or less, but with the purpose of the group: that which unites the paradox. In this case the purpose of learning leadership, or they could use more specifically the topic for each week as the orientating mechanism to transcend the paradox.

Another ongoing paradox in group life is the individual-group dichotomy. As a new group gets formed one of the first questions an individual tries to resolve, consciously or not, is 'whom am I in this group?'. Smith and Berg (1997) call this the paradox of belonging that is comprised of questions around identity, involvement, individuality, and boundaries. Groups will quickly establish norms and roles to address the initial uncertainty and discomfort felt by the members.

The facilitator's role, both in the class and while providing feedback on the small group dynamics, is to point-out possible ways that the group is stuck in a set of norms or roles that are not productive for their

learning, and/or have been put in place by the dominant faction in the group. The focus should not be around not getting stuck on the dichotomy, but on how quickly they can get unstuck and be more fluid in working with the contradictions that they will naturally face; similar to the example above of the structure/no-structure tension in the class.

In the class I purposefully created an experience to work with the paradox of life and death, as I believe that, if done correctly, it can be a source of inspiration and motivation in one's life. Also, mobilizing change often requires supporting a group or faction through a process of loss, of an ending. Developing one's awareness of how difficult endings are can nurture empathy and compassion for when the time comes to support others through such a process. The life boat exercise was an opportunity to work with the paradox of life and death.⁹⁴

A final paradox that I explicitly worked with in the class was one of power and vulnerability. Internally this paradox is about the assertiveness and openness needed to both be authentic about our inauthenticities, and decisive in taking action to address them; and externally the paradox is about being purposeful and compassionate towards a collective goal and others. What I generally observe in groups is that they do neither power or vulnerability well; and the paradox arises when we witness someone who becomes more open and vulnerable in front of a group and at the same time the group authorizes them, leading to the individual feeling more powerful than before.

One of the objectives of the voice dialogue exercise was to explore this paradox. It was interesting to observe how groups tend to split and project, with one faction holding the power side, and the other the vulnerable side. The teaching purpose is to both increase the spectrum of emotions that individuals are able to navigate, and to help them integrate the disowned voices so that the splitting becomes more conscious and individuals work on the side that they suppress. For one of the students in the class the voice dialogue exercise was one of the most significant exercises. She came to see me after class and said something along the lines of 'I have no voice of power, help me find it. I only know vulnerability'.

⁹⁴ See Quote 53 in Appendix E

The edge for the rest of the semester for this student was developing her voice in the group.⁹⁵ For another individual in the class the opposite was true. He was so habituated to being assertive, with little openness to reading others, that he very quickly got on most peoples' nerves. Throughout the course I encouraged him to explore his vulnerability and to open up to others, to really learn how to listen better, and by the end of the course he felt an expanded sense of openness and vulnerability.⁹⁶

Working skillfully with paradoxes was one of the challenging aspects of facilitating the course. Paradoxes in group life are inherently adaptive challenges; they are never really solved. In essence, as instructors, we need to live the paradox, bringing more awareness to all the ways that in groups we unconsciously split, project, and disown an aspect of ourselves that we do not acknowledge. The contradictory nature of the process of splitting and projecting is in essence what creates conflict in the group. We are generally better at noticing the differences rather than what unites them, and the challenge of the facilitator is not only to continually develop the awareness of the paradoxes in the group, but to also support students in seeing and wrestling with them.

6.3.2.2.7 Evolving group dynamics

Throughout the duration of the course the individual - group polarity takes the form of an evolving process of how individuals coalesce into groups, and how these groups go through a staged process of becoming more highly functional. Tuckman (1965) outlines a five stage model of how a group can evolve over time to become more productive in their work. The first stage is 'Forming', where the individual interactions are ones of orientation, testing, and dependence, as individuals try to fit in to the group in their habituated ways. The student below shares her experience of this first stage in her small group.

In the small group, I think, to begin with there's a lot of dominance. People just doing the thing that they default to and that definitely took a couple of sessions to realize it was happening. I definitely think, Lee and Darin, because they were the oldest, they had master's and PhD's, and I was definitely intimidated by them to begin with.... SubID#7

⁹⁵ See Quote 54 in Appendix E

⁹⁶ See Quote 55 in Appendix E

The group then begins to experience conflict in the 'Storming' phase, where individuals are resisting group influences and task requirements. The same student continues to share her experience of the small group.

....But I think as we delved into the consultation and the learning I realized, 'oh we're pretty much on a level playing field and it doesn't matter that I'm an undergrad and they're master's.' It was really interesting and I think when I made [a specific intervention] it was kind of the first source of our conflict.... SubID#7

With the right support and luck the group moves into the 'Norming' and 'Performing' phases where trust and group cohesiveness develops, and roles and norms become flexible and fluid, adjusting to the task demand. The same student continues to share her story.

....A lot of people were triggered by my intervention and saying, 'No that's a violation of my privacy' and I think it took a couple of weeks before people were willing to open up and see a different perspective than their own. I think there was some resistance to redeem throughout, and I wondered if people agreed because they were feeling the pressure. It was really an interesting opportunity but I think overall, I did feel the norm of openness and trust and risk taking. I think from then on the quality of our consultations improved because we were willing to go a bit deeper and by the end... I think our diagnostic skills were strong. A lot of it came from really delving into our values and our different roles and perspectives. SubID#7

Finally the group approaches its termination and the phase of 'Adjourning' begins, with concerns, sadness, and anxiety about separation being common. This trajectory does not always follow all the stages or play itself out in the order Tuckman defines; however, understanding the model provided me with an additional lens through which to diagnose where the group was at and decide on possible interventions to support its growth.

In the sustainability leadership class, I would argue, the class as a whole was never able to get past the norming phase of positive in-group feeling and trust being developed. The student from the previous quotes now reflects on her experience of the large class as it was working through the storming phase, and feels a lull in energy afterwards.

I think that in the large class we got closest to the disequilibrium the first month where we had more of a sense of entitlement and we're willing to take some risks and were willing to push the boundaries of the room just because we were so surprised. But then after that I kind of lulled into a pattern and I can't quite remember the last few classes but I think we almost regressed towards the end. SubID#7

I would attribute the above student experience to the group getting stuck in the norming phase of group cohesion and bonding, and not fully evolving into a high performing, risk taking, more adaptive group.

On the other hand, the small groups were quite diverse; one hit the storming phase right at the end of the semester and barely was able to begin the norming phase of bonding. Another group moved quickly through the storming and norming phases, and became very productive for the rest of the course duration in the performing phase. Interestingly this latter group did not, at least consciously, go through the adjourning phase as they continued to meet after the course was done for a prolonged period of time. This could be a consequence of both having developed friendships in the group, and also not wanting to address the anxiety and sadness that separation creates.

6.3.2.2.8 Uniqueness

How the class evolved over thirteen weeks is as much a function of the course structure, as it is of the students who partook of the course. In a sense one can observe the learning that happened at two levels. From a higher level, the overall course objective of learning about authority relationships, different forms of leadership, technical and adaptive challenges, and so forth gives rise to repeatable patterns of how the group struggles with the pedagogy and content. If I would teach this course again at UBC, I expect that I would observe similar patterns of behaviour on how students struggle and engage with the course, as well as how the group evolves over the semester.

At a lower level, I think the learning and dynamics are unique to the group of individuals that come together. It is the individuals, their life histories, and those of their ancestors that all come together in the class and create unique group dynamics and learning opportunities.⁹⁷ The learning that happens is unique for every student. Each student has something different to learn from the course and as an instructor I have no certainty what that is. There are many concepts and skills that I attempted to teach, but individuals picked up what they needed to learn. I had a sense of deep trust that each individual was going to learn what they needed to learn from the course. Though it may not be what I wanted them to

⁹⁷ See Quote 56 in Appendix E

get out of it, I trust that whatever they needed to learn at this moment in their life will be possible by holding them through a challenging and complex process.

Through the interviews it became very apparent that the diversity of learning opportunities was one the strengths of the course. Almost every single exercise and aspect of the course had students who either thought that it was the most or least effective aspect of the course. At the same time this makes it challenging to reflect on how the course could be improved.

6.3.2.2.9 Meeting individuals at their learning edge

One way of understanding the course learning objectives is from a 1st, 2nd, and 3rd person perspective. From a 1st person perspective students were learning about their interiority, their thought processes, where they place attention, their emotional sensitivity, their trigger points, and so forth. From a 2nd person perspective learning was about group interaction and dynamics, about skill sets, how they and others communicate, what touches and inspires people, and so forth. Finally, from a 3rd person perspective the focus of learning was on more abstract concepts and ideas around observation and diagnosing of leadership challenges. This is another way of referring to the know-who awareness, know-how skills, and know-what knowledge.

Each student came to the class with a different developmental edge in each of these perspectives. Not only that, they also came with different preferences for which of these spheres they wanted to focus on, learn about, and develop. The role of the instructors was to support each student in discovering their edge and then challenging them to overcome it.⁹⁸ Students came to appreciate the emphasis of the course on overcoming one's edges.⁹⁹ However, one of the challenging aspects of facilitating the course was working with the large range of people's edges. Below I share some of the edges the students were working on.

⁹⁸ See Quote 57 in Appendix E

⁹⁹ See Quote 58 in Appendix E

Some individuals were challenged by the complexity of the readings, and had a hard time observing some of the basic concepts in real-time.¹⁰⁰ Others had incredible cognitive skills and learned the course material quickly, yet struggled to make meaningful interventions.¹⁰¹ Some individuals came into the class believing that they had good leadership skills, though in practice their skills were actually limited. There were a few students who equated leadership with forcefulness and had a hard time reading how other students were perceiving them. This generally created group dynamics where others would resist the person's interventions because of their style of engagement, and lack of listening and observation skills.¹⁰² A few individuals never shifted their ability to authorize themselves as the source of providing direction and structure, and hence had an overall difficult time participating.¹⁰³ There were a few students who were quite socially challenged, and engaging with another person was quite outside of their comfort range.¹⁰⁴ Some students found a lot of value and learning from the small groups, but felt that they could barely engage with or even understand the complexity of the larger group dynamics.¹⁰⁵ For others it was working with their pride and the overconfidence that blinds them.¹⁰⁶ Finally, I realized that the learning edges of the students are also mobile, in the sense that some students overcame many difficulties and were constantly learning new skills and trying them out.¹⁰⁷

6.3.3 Learning and growing

Joiner and Josephs (2007a) argue that only 10% of today's managers have developed the levels of 'leadership agility' needed, not only to survive, but to thrive in today's world. For Joiner and Josephs developing more effective and agile leadership capacities is a process of continual learning and developmental growth.¹⁰⁸ In this section, I will present findings and discuss from the students'

¹⁰⁰ See Quote 59 in Appendix E

¹⁰¹ See Quote 60 in Appendix E

¹⁰² See Quote 61 in Appendix E

¹⁰³ See Quote 62 in Appendix E

¹⁰⁴ See Quote 63 in Appendix E

¹⁰⁵ See Quote 64 in Appendix E

¹⁰⁶ See Quote 65 in Appendix E

¹⁰⁷ See Quote 66 in Appendix E

¹⁰⁸ Joiner and Josephs' (2006) work on leadership is based on Loevinger's (1997) and Cook-Greuter's (1999) work on developmental growth.

perspective the process of developmental growth, and the impacts it has had on their ability to learn beyond the scope of the sustainability leadership course.

6.3.3.1 Developmental growth

The process of developmental growth is going from wholeness, to differentiation, to integration. The differentiating step is what Kegan (1994) calls the subject-object shift, where we can now see that which we were a part of and blind to. By creating novel and challenging experiences for students we increased the chances that the experience would be catalytic, creating dissonance, and in a way cracking some part of the wholeness in their experience. This could be disheartening, especially if one places a lot of value on one's wholeness.

When we cannot differentiate from our experience we have little control or agency to act differently. However, when we have new frames to make sense of an experience our options expand, and in a sense we gain some freedom. One student shares how after participating in the course she started to notice that who she perceived herself to be was directly a consequence of others' expectations.

I realized how much pressure education at UBC places on students to be a certain person... You know, I realized that there are lots of expectations and pressures on students. Everyone knows that, but basically, your class decides for you who you're going to be. I realized that has been affecting who I am a lot over my course of education... But this course has definitely had an effect on the way I perceive myself and I intentionally change the way I act. SubID#24

Kegan (1994) defines developmental growth as an epistemological change. By epistemology he refers to a 'way of knowing'; what changes is not 'what' we know, but 'how' we know. Below a student struggles defining what she learned from the course:

When my friend asked me, 'What did you learn?' I can't explain. I just tell them it's something you have to do and then you will know. I can't tell you. I don't know how to tell you... it's not what you learn, not terminologies, it's a way of thinking. SubID#18

To help explain the concept of what 'form' trans-forms in developmental growth Kegan and Lahey (2009) use the metaphor of a computer. They relate traditional learning, or what they call in-form-ative learning, to the software you add to a computer. You can keep on adding new software to a computer to expand what it can do; similarly new knowledge can increase what a person is able to accomplish. However, transformational learning is more like upgrading the operating system of the computer so it

can handle more complex software; interestingly a student used such a metaphor to explain his learning in the class:

It feels impactful because I feel like the course perhaps changed some of the things about myself like kind of more how I operate or how I think as opposed to just imparting knowledge or information. You know information itself can bring a different perspective to whatever you're engaging and that was one of the good things I got out of the rest of my degree and that shift of perspective from that knowledge can influence how you interact, but I feel like the sustainability leadership course sort of affected me more at like an operating system level. SubID#15

6.3.3.2 Mindset shift

In my experience, one of the most important shifts that paves the path to transformative learning is one of replacing a judgemental mindset with a curious one; going from knowing, to questioning, to learning. Shunryu Suzuki says this more skilfully by stating that "In the beginner's mind there are many possibilities, but in the expert's there are few" (Suzuki & Dixon, 2010, sec. Prologue). Below are two students' experiences of this:

Most of these activities taught me so much about other people, they really made you experience the different realities that people inhabit. They were invaluable for making me truly curious about other people. ESQ#2

Being able to go through that, getting to a question that doesn't elicit defence... I'm being here, as just coming from a place of curiosity, it kind of helped to try to understand where... my partner was coming from. SubID#23

Dweck (2006) makes a simple, but powerful, distinction between two ways, or mindsets, of being in the world: fixed and growth mindsets. Individuals that primarily function with a fixed mindset believe that they are endowed with being smart or not, talented or not, and in our case leaders or not. These beliefs about ourselves then rule over our behaviours. We either are always trying to prove that we are smart, or are always disengaging to prove that we are not; whereas those with a growth mindset embrace challenges, struggles, and failures; conceptualizing them as fertile ground for learning and growth.

Dweck argues that we all can shift from a fixed to a growth focused mindset. At its core is a genuine curiosity for learning. This shift however, requires a supportive environment that helps mirror back to the students the implicit assumptions they have about themselves and about learning more generally. It is helpful to catch students on the spot as they act from a fixed mindset, to help them reflect on it and

its possible limitations to their ability to act and learn. The student below comments on the difference between the learning in the sustainability leadership course and others she has partaken of:

Whereas the leadership class was sort of learning about learning. SubID#19

This student shares how the course has helped her be more observant, curious, and even interested in learning:

But aside from the interventions I practice that awareness of group dynamics now when I'm in conversations. And every now and then it just comes out and I remember the practices of the course and that's when I really start just randomly in a group, I step back and see why there's structure and why there's only certain people speaking in the group meeting. That awareness, that curiosity I guess, to be willing to ask a question. Why is that person always speaking? Now I have the tools to delve into myself more. So that's what I do now that I didn't before... Also you know, I've become interested in learning. SubID#13

6.3.3.3 Sense of purpose

There are multiple ways to conceptualize transformative learning (Kegan, 2009; Maslow, 1968; Mezirow, 1991; E. W. Taylor, 2008), and many of them point to the expansive nature of how a person can change. I would add that transformative learning can also be a shift in orientation of where we place our attention. Simply, this can be a shift from an egocentric to an other-centric view, from I to We. The shift to caring not just about oneself, but also about others can open up the person to a meaningful life. This student shares the amount of dissonance the course created in her and how that aided her to shift her attention:

I think one of the things I miscalculated in taking this course was just how much it would fuck me up. I was just, you know, it qualifies as a really intense statement but I think there's really a danger there of just opening up too much and wanting to do too much. And what that basically did was just blew me from everything else. So the problem I had was the main thing I think that this course brought me is that it taught me to basically care again, hope again and feel that I could actually do something, make a difference. Actually I could care again because I didn't. And I didn't realize that before starting. Then I realized like, 'Wow! You know I've completely closed down over the years.' I didn't believe you could make any kind of change in the world, I didn't want to bother, I don't even read the news. Just completely very personal things like dealing with my issues but that's really easy, but anything outside of that I never did and I was always really annoyed when people tried to look at this and look at that and try to make a difference. It doesn't help. It's really a post modern perspective, there's no good, there's no bad, there's no right, there's no wrong, there's no truth. And then through the course I was 'well hang on, wait a minute, I can actually feel something. I don't know how and I don't know what but there's more possibility there.' And then the course ended and then I went back to school and I thought, 'Now what? I don't want to

do this anymore. These classes don't mean anything... I want to do something more. I want to make a difference. I want to feel inspired to make something of my life.' SubID#26

In my own personal experience I would say that a sense of purpose that extends beyond us is one of our sources of life and vitality. It helps us orientate and make difficult life decisions. This does not mean that it makes life easier or necessarily happier. The same student shares how after the course finished she felt the lack of support and was left with the difficult decisions and responsibility of what to do with her life.

Depression followed after the course ended. The whole 'What to do with my life?' and luckily I was able to work with that and get out of that but it was really dark for several months and I had not counted on that. SubID#26

It is probable that there were many more strings plucked during the course that created such dissonance in this student, but regardless; the lack of follow-up support was one of the short comings of the course as many students experienced this as a vacuum.

As hard as it is, dissonance is normally required to help us connect to what is meaningful in our lives. It is normally in periods of vulnerability that we can more easily connect to and clarify that which is important to us. I think that higher education has a responsibility of both encouraging and supporting students through such a process. This student shares her thoughts on exactly this matter:

Taking courses like that is necessary for at least a grad student experience. You need to have an experience that shakes your foundation and makes you ask yourself who you are, and where you want to be, and what are you doing. And something that really, really shakes you to better know where you want to go in your career... I hope that people ask themselves that at some point in their lives, but courses like yours are an opportunity to address those things too. Even if you don't finish the course with an answer, but the answer will eventually come. It's just an opportunity to think, 'Why?' What is the effect that you want to have and what is in you?' I always describe the course as: You want to change the world? What's in you to do it? Why would you change it? I think it's just an opportunity to delve into that because otherwise you're so busy and it's more comfortable to not look at yourself and think. SubID#9

For other students the course experience was not so much about finding a sense of purpose, but about reconnecting to their purpose. This student shares her experience around this matter:

In a lot of ways it was exactly what I needed for redirecting me within my program and remembering why I was doing my master's. It really was because I wanted to be a sustainability leader and that's why I decided to do my master's. I kind of lost that in my program, as the program, I don't know. I guess one, because the program doesn't really have a focus in that area at all even though they say they do. When I applied they had it in their directory flyer and

everything. The program itself is kind of bits and pieces, here and there. So one, because the program didn't have it and two, it's a really busy program so it's hard to make it your own at the same time. So I kind of lost my own direction. SubID#23

6.3.3.4 Learning to authorizing themselves to learn

A number of students felt that the course awoke them to the pattern of dependency of students on professors and the university in general, regarding their learning. They realized that the apathy they felt was, to some degree, a product of not being empowered in their learning process. Another way of framing this from a constructive-developmental perspective is a shift from a socialized order of mind to a self-authoring order of mind (Kegan, 1994), where a trustable inner authority develops that can make choices independently from what others say is best. Here one student reflects on this, as well as how she now tries to provide more feedback to the university to address the teaching issues she experiences.

I'm also reflecting on the subsequent courses that I've taken at UBC, and how well I do the teaching evaluations. Now I give a lot more specific feedback about the sort of learning environment that I think would push students to engage a bit more, because I think in conventional courses when there's discussions or whatever, it's just a total apathetic mess. Where no one's willing to engage, either because they haven't done the work or that's just the kind of dynamic that's been developed where we only answer to the authority figure and we don't even look or interact with those around us. So in some of my courses that were like that I gave them suggestions. How can we get a higher level of engagement from students and not just devolve to the teacher. It's quite sad when you think about it, that university is supposed to be about the people we meet and the way we interact and we build relationships with, but the culture that's been built, you just go through your day without talking to the person next to you. SubID#7

Continuing with the shift from socialize to self-authoring mind, one of the concepts of leadership that translates to a transformative learning process is in regards to authority relationships. In general, most authority relationships are either dependent or counter-dependent. That is, in a student-teacher context, students are either dependent and thoroughly follow instructions from the teacher, or they behave counter-dependently and rebel. The university system praises those students whose behaviour is dependent and who respond to the teacher's requests. Students that behave counter-dependently tend to have lower grades, if they are able to stay in university at all. Below a science student hints at these dynamics.

In other courses you get caught up in the grade and the formal authority and pleasing the authority rather than pleasing yourself... Maybe you're not even learning anything, too much of the academic structure I think is A+B, formal authority and less. Is there a course on interviewing for jobs or harnessing that sort of social skills? I don't know. Maybe in philosophy or somewhere

you discuss things more in class, maybe I didn't take those but from my personal experience there was nothing like it and that's a fault. SubID#11

There are at least four aspects to what is jeopardized through this type of relationship with authority. First, the responsibility for defining the students' learning falls solely on the authority. And the dependent relationship accentuates this dynamic to the point that it has become a university culture of 'grand professors' teaching 'meager students'. This student describes the difference of how she was behaving in the course compared to other classes she has taken, and how there is a shift in responsibility for learning.

In the sustainability leadership class we were forced to figure out what was going on and to be a part of it because otherwise nothing would happen. So we kind of had to do something and because it was sort of asking you to look more within yourself and invest more personally, that was kind of, once we got more comfortable I felt like I was really bare and I needed to be there and I wanted to be a hundred per cent there versus other lectures where I sit in the back corner and hide and just take notes sometimes. SubID#1

The strong top-down authority relationship likely also suppresses students' creativity, and the motivation for taking control over their learning. In a more traditional course structure students tend to learn how to memorize content, but are limited in learning how to learn. Also, given that the learning problems are structured by the instructors, students develop limited questioning skills, creative framing, and the structuring of problems. This student gets to the point when asked if this course should be limited to 3rd and 4th year students:

I feel like initially for a first year student it would probably be too overwhelming and a lot of the lessons would not be understood. I do feel like it should happen earlier than later because I think for a lot of people it does change the way you engage with academics, your approach to learning, you take responsibility... You become aware of how you learn, what your biases and triggers are, and maybe a lot more mindful on how to engage in groups, and with the professor. I think early on in a person's university career would be a good time to do that self-learning because most of us haven't had any opportunities to do that. SubID#7

A second problem with the status quo relationships of authority between students and teachers is that, given its generally dependent nature, students do well with highly defined tasks, but flounder when facing ambiguity and uncertainty. This can have dramatic impacts on students who once they graduate experience low self-esteem as they do not feel they are in control of their lives. No wonder, since throughout most of their academic career they have handed over that control to the university and instructors.

Third, in social groups where the norm is a dependent and counter-dependent relationship to authority we end up with masquerading and pretense. On the surface we have students who are trying to please the instructor, but who are ambivalent about their interior emotions related to what they experience in the class. This saps the life force out of group dynamics, and we end up with apathetic social relationships. Resentment is expressed outside of the classroom and a spiralling of self-enforcing dynamics are put in place that hinder not only the student's ability to learn, but also the sense of fulfilment of the instructor of being able to teach.

Finally, a culture that fosters a dependent relationship with authority limits students' developmental growth. A key aspect of supporting individuals to grow to a self-authoring order of mind is to place them in learning situations where they need to become authors of their own lives; where individuals become able to self-generate their own values, thoughts, and feelings independent of the expectations placed on them. A dependent relationship with authority accentuates a 3rd order of mind, where individuals borrow and integrate values, thoughts, and feelings from the authority figures they trust.

To support transformative learning we should be keenly aware of the authority relationships between student and instructor. What we want to foster is an inter-dependent relationship with authority, where there is autonomy and responsibility of both student and instructor on addressing the learning challenges. To do this it might help to frame the course learning in relationship to the larger societal challenge that the course is trying to address. This invites a more inquisitive mindset, where there is collaboration between students and instructors in defining the learning needed. It also helps students shift the learning from the 'the instructor says so' to 'I can see how it might help address this problem'. This shift in mindset can be uncomfortable for an instructor because it does expose them to students challenging what the instructor thinks is best given the larger societal challenge faced; and hence, the nature of an inter-dependent relationship of authority.

That said, even a course like sustainability leadership that had a strong focus on clarifying authority relationships was only partly successful at it. This speaks to how incredibly embedded, habitual, and unconscious these dynamics are. Below a student reflects on this:

I wanted to mention that one of the concepts that I reflected on is interdependence. Acting politically didn't really happen in the course, at least not for me, and I've had to remind myself in participating in other courses because I think I do have a dependency on authority figures and I want to impress the teacher and always do the right thing. If I don't feel that I can and I don't have

the expertise, it shifts to be too scary even to engage. So I think I learned my triggers and my dependencies a lot in this course but for the most part I was really anxious to overcome it. It's something that I probably have to continue working on. I don't know if it was because you were the main source of feedback and validation and that kind of perpetuated the dependency because a lot of us were like, 'I don't know about the course, I don't know how I'm doing' and if the only source of validation was from the formal authority figures, that may have been transient even more and I don't think that I really ever had the confidence of saying 'oh you were leading well' because we did not know... And I've been reflecting on, maybe not the difference but the balance between having a sense of intrinsic self-worth and providing my own validation versus situations where I actually do need to depend on authority figures and other peers like it is going to affect my sense of self-worth. SubID#7

6.3.4 Merits of the course

When I reflect critically (Calhoun, 1995) on the time and effort it took to teach the course I wonder: was worth it or not? There are a number of ways to frame and discuss this question. From the interviews with students I found that they used an exterior/interior framing to talk about the impacts the course had on them. In other words, the impacts they noticed in their behaviours and how those behaviours impacted others (outside), as well as impacts to how they see and relate to themselves (interior). In this section I will use a similar framing and progressively move from the exterior to the interior discussing my thoughts regarding the impacts of the course. Put differently, I will start by questioning if this course has had a positive impact on society and end by discussing transformative learning of students. In this section I will address the following questions:

- Did the course have a positive impact on society?
- Are students more able to mobilize sustainable change in society?
- Are students better prepared to transition to a career?
- Are students more capable to exercise leadership in their personal life?
- Have students learned more about themselves?
- Have students grown their meaning making structures?

Did the course have a positive impact on society?

The development and delivery of this course was inspired from the gap I see in higher education in regards to preparing students with the capacity to exercise sustainability leadership in society. However, it is highly unlikely that one course will be able to fill this gap. Furthermore, the course did not include a

community service learning component and therefore did not address directly any tangible societal challenge. Consequently, I would say that the impact the course had on society was neutral.

Are students more able to mobilize sustainable change in society?

From the findings of this research I am not able to provide an answer to this question. As I have discussed, it is difficult to measure whether students' abilities to mobilize change have increased; not only because of the short time frame since the participants finished the course, but also because it is almost impossible to clarify cause-consequence of individuals' actions on systemic challenges. It is also hard to tease apart what impacts are from the course against the many other possible interventions that have supported the students in their growth. It would be an interesting research question to conduct a five year follow-up survey and interview to explore this question further.

Are students better prepared to transition to a career?

From the students' survey, especially Figure 6-1 (see page 170), I observe that most students feel that the course was more successful than other courses at preparing them for their careers. However, given that most of them have not yet entered the work force it is difficult to know whether what they learned in the course would actually be beneficial for supporting their careers. Again, it would be interesting to conduct a five year follow-up survey and interview to explore this question further.

Are students more capable to exercise leadership in their personal life?

From this framing, I would say that the course was worth teaching as some students shared examples of how they have addressed a personal challenge in their life that they were not able to do so before the course. Furthermore, most students credit the course experience with giving them the awareness, skills, and knowledge to intervene in their lives in a way that has fostered learning, deeper awareness, compassion, and even love.

Have students learned more about themselves?

I think this is one of the strongest areas of the course, as most students have learned more about themselves, their strengths and weaknesses, and their hungers and passions. Hearing the students reflect on the insights they had, some quite profound, and how they now engage with themselves and the people around them was quite inspiring for me. And I was very grateful and humbled to see that many students left the course with a new openness to explore the world, engage with it, and mobilize change; in essence the practice of leadership.

Have students grown their meaning making structures?

An aspect of the research question was regarding growing student know-who awareness. As this dissertation argues, I think this is an important aspect of learning that needs to be better addressed in higher education. From the findings in this chapter it is clear that the way students organize meaning has been re-organized, for some quite profoundly; and it seems to be more complex given the increase in SCT scores and the data from the follow-up interviews. However, in the context of leadership, I do not believe that many of the leadership concepts have crystallized in the students' awareness, and therefore they do not seem to necessarily have a more complex and integrated leadership orientating framework to assist them after completing the course. I do not think this is necessarily a fault in the course design, but more one of a lack of post course support. Overall, I believe the course has had a positive impact on this dimension of learning.

Finally, I believe that the course was a worthwhile endeavour because, beyond any particular learning that students may have gained through the course, the observed changes in attitude, awareness, and intention towards learning of a number of students sets them more clearly on a path of resilience and adaptability where they now have greater capacity to respond to the challenges they will face in life. Furthermore, our ability to respond is what allows us to be responsible (response-ability) for our attitudes and actions, and ultimately, taking responsibility is the source of our freedom (Frankl, 1959).

6.4 Conclusions

This case study of a sustainability leadership course explored one possible approach of fostering participants' cognitive understanding of sustainability leadership diagnostic abilities, expanding awareness of themselves and the complexities of change, and providing embodied leadership skills for mobilizing people. I found that the course overall was able to have a meaningful impact in the know-what knowledge, know-how skills, know-who awareness of sustainability leadership. However, its overall impact on preparing students to better exercise sustainability leadership is limited given that the course was not part of a larger set of courses or program that aimed to develop such skills. I will discuss this further in the next chapter.

I think the course was impactful for students because of the teaching approach used. As I mentioned before, the pedagogical approach used in the course was incredibly challenging for me and the other two instructors. This was the first time that I taught the course and it required a substantial time

commitment to prepare and deliver the course. However, what I found the most challenging was the need to exercise leadership while delivering the course, both with the students and other instructors.

Though the course had a syllabus, I was constantly experimenting in how I interacted with students. In a sense each class was an experiment, and with the support of the other two instructors, we were constantly reflecting, learning, and adapting our interventions. This required a lot of disciplined attention and presence during class time, and a lot of in-depth, and at times, challenging conversations during the briefing and debriefing with the other two instructors.

Furthermore, it was an ongoing, laborious endeavour to renegotiate the implicit social contract of higher education, that is where professors deliver content and students receive. Many of the students struggled with the sense of taking responsibility and becoming active participants, instead of passive recipients of content, in their education. Many times I found myself default into the status quo approach of delivering content, at times purposefully to pace the change the students were undergoing or to clarify a concept, but most of the times I would succumb unconsciously to this expectation as I found it easier and less onerous to just repeat in my own words the contents of the readings than to hold steady and allow the students to take responsibly for their learning.

As the primary instructor I needed to learn publicly from my failures as a way of modeling what I was expecting students to learn. This required from me vulnerability and openness to receiving and seeing in what ways I was inauthentic and/or incongruent during the course, as well as which of my interventions failed to produce the desired results. At the same time, being vulnerable did not mean abandoning my power and skilful use of authority to support learning. It was not always clear when a critique towards me, the authority figure, was a work avoidance mechanism from the students or an authentic failure from my part. Again, analysing this and addressing these challenges required a lot of reflection with the support of the other two instructors.

Finally, the emotionally charged classroom was definitely a challenge for all of us. On one side, as we open up and allow ourselves to be more vulnerable it is natural that emotions surface and are expressed. On the other side, when our more vulnerable side is not accessible an emotion such as anger is likely to express itself through aggressive or passive-aggressive actions. As an instructor I was both a receiver and perpetrator of unskilful emotional communication. I found it easier to address challenging and complex emotions when they were directed towards me or others. What I found humbling was

realizing and taking corrective action each time I would engage in an emotionally unskilful way, in essence trying to model what I expected out of students.

I believe that I learnt and grew as much as students have. The course was an excellent learning space not only for the development of know-what knowledge, know-how skills, and know-who awareness, but also as testing ground for teaching methods used, which overall I found very supportive to supporting the type of learning the course aspired to. If I was going to teach this course again the top three things I would focus on addressing would be the following. First, the course merits being a six credit course and with the expanded time scope I would add one or two films with a focus on environmental challenges and leadership. Second, I would create a follow-up course that both re-enforces and expands the skills learnt in this course. This second course would probably have a community based project as a part of the syllabus. Finally, I would coordinate and collaborate with other like-minded instructors to see what existing courses complement the skills acquired in the sustainability leadership course, and then pursue to identify what gaps in skills still remain that would require the development of other courses. I will discuss this further in the next chapter.

Chapter 7. Final thoughts and conclusions

Shriberg and MacDonald (2013) conducted a comprehensive study of sustainability leadership programs offered around the world and found that “colleges and universities across the U.S. and world are rushing to respond to an increasingly urgent challenge: developing the next generation of sustainability leaders” (p. 2). A program director of a sustainability leadership program interviewed in the study stated “it doesn’t matter if you are a prostitute or prime minister, and everything in between, everyone has the potential to be a leader in sustainability” (quoted in Shriberg & MacDonald, 2013, p. 12). Given the spirit of the time we are in, it is not surprising that universities and students are looking for opportunities to develop their skills to confront the challenges that we are currently facing.

In this chapter I discuss the challenges of education, not just from a sustainability viewpoint, but also from a broader perspective. This broader view encompasses other changes occurring in the world that will impact education; both how we understand it, and what skills education will need to provide to help society adapt to the changing landscape. I discuss these implications in the context of this dissertation and provide some suggestions for what a sustainability leadership program, not just a course, could look like. I also briefly discuss the difficulties of implementing such a program at UBC. The chapter ends with the overall conclusion of the dissertation and suggestions for further research.

7.1 Changing landscapes

If we pause and expand our view beyond the narrowness of the sustainability leadership course and observe the larger landscape of higher education we see that it is quickly shifting. Massive open online courses (MOOCs) are probably just the beginning of an onslaught of disruptive changes to which traditional brick-and-mortar universities will have to adapt. The future is unclear, with MOOCs not yet having found a sustainable business model. However, if successful, they may rapidly make obsolete the business model of existing teaching-based universities; while also potentially creating a large dent in the budgets of research focused universities. In essence, online learning has the potential of reaching the masses, across the globe, at a fraction of the cost of face-to-face traditional learning.

MOOCs will probably continue to improve on how they deliver content to students. They are normally developed by top professors at top universities and will probably become harder to compete with. Some universities are already allowing students to earn credits for MOOCs (Lee, 2013), and it is probably not

far into the future when universities will start dropping some courses that are better taught via MOOCs, and simply rely on internal examination of learning via MOOCs as part of their curriculum.

This is both a threat and an opportunity for brick-and-mortar universities. If we look at the competitive advantage of brick-and-mortar institutions over virtual courses, it is evident that there are some experiences that online learning cannot replace when compared with face-to-face *in situ* learning. For example, there is the campus experience and camaraderie developed with peer students. There is something about the embodied, in-the-flesh experience that normally makes a university experience so memorable for people. I will venture to say that a deeply transformative learning experience can only be accomplished face-to-face; where we can achieve a level of intimacy, support, and vulnerability that is only possible when not only our minds, but also our hands and hearts connect in the here-and-now. I think this is one of the main strengths of brick-and-mortar universities and colleges. Therefore, part of the adaptation that will be needed for universities to survive the disruptive changes that are already occurring is to hone the strengths of face-to-face teaching and learning—not only to market this competitive advantage, but also to foster and support it within the institutions. MOOCs can teach content very well: the ‘what’ or informational part of an education experience. Yet, I believe, they are very limited at addressing the ‘how and why’ or transformational potential of learning; the embodied, practical knowledge that can only be gained through experiential activities with others.

While MOOCs are placing adaptive pressure on universities, the changing landscape of computer automation is threatening many of the standard university careers. Frey and Osborne’s (2013) recent report reveals what might be in store for us in the next few decades. They estimate that about 47 percent of total US employment is at risk from computerisation. Brynjolfsson and McAfee (2014), both professors at MIT, argue that a new wave of disruptive change, similar to the industrialization era, is unfolding right now. This change will produce benefits for many (some groups more than others), but at the cost of disruption to the current economy and workforce.

For decades, jobs based on routine tasks have been lost to computer automation. It seems that now many of the jobs that seemed safe a few decades ago are at risk from new types of brain-work automation. The continual exponential growth (moore’s-law) of CPU power, memory, and storage space means that today’s computers are able to accomplish tasks that were once thought to be the sole domain of humans: pattern recognition. Brynjolfsson and McAfee (2014) describe how in the last few

years computers started surprising us with their ability to diagnose diseases, listen and speak to us, and write high-quality prose.

Brynjolfsson and McAfee argue that there are three skill areas that computers are less likely to conquer: ideation, large-frame pattern recognition, and complex communication. Ideation is about creativity, and while machines are all-powerful at coming up with answers, they do not bring up new interesting questions. Large-frame pattern recognition refers to tasks that require our embodied senses of seeing, hearing, and touch, which are far superior to any machine, at least for another few decades. And complex communication refers to the way that humans can communicate when creating and innovating.

Individuals and groups that are good at innovative thinking, idea creation, and collaboration will probably have a comparative advantage in the new unfolding economy. The authors quote Voltaire “Judge a man by his questions, not his answers.” (p. 190). This brings us back to the point made in chapter 5; are universities mainly teaching us rote learning of memorizing and repeating knowledge back; the classical straight-A student? If so, we do not fare well against the machines, and graduates are likely not well adapted to the changes that are already unfolding around us.

Returning to the context of sustainability challenges and the transdisciplinary approaches needed to make progress on these challenges, Russell et al. (2008) argue that there are “a range of skills that are key to undertaking transdisciplinary work, which are not necessarily valued in traditional knowledge production, particularly communication, integration, teamwork and management skills” (p. 469). No matter from which angle we look at the changing landscape, they all seem to agree that the traditional focus on know-what knowledge will no longer serve the needs of students or society. On this point Russell et al. (2008) argue that “this shifting context creates a demand for organisations such as universities to change their approach to knowledge production”. How universities respond to this shifting landscape “will shape the university of the future, and its contributions to knowledge production and society” (p. 460).

A course like sustainability leadership is not only about leadership, but also about developing the abilities of individuals to collaborate better, think more creatively, learn through hands-on engagement, be more self-directed, and develop more awareness about their emotional embodied selves. This means learning to not always follow rules and orders, learning to connect to one’s own purpose and motivation, developing a growth mindset to life, a questioning approach to the world, and nurturing our

empathic and compassionate selves. Brynjolfsson and McAfee (2014) argue that the best place to learn the skills of ideation, large-frame pattern recognition, and complex communication are in self-organizing learning environments, which I would argue are not too different from the pedagogy of the sustainability leadership course.

7.2 Future of higher education?

Given the changing economic landscape, with the ever increasing automation of task and jobs, as well as the increasing penetration of MOOCs into higher education, and the demands of transdisciplinarity to address the challenges of sustainability, what is the future role of college and university institutions?

As I have argued throughout this dissertation, I think that most if not all university programs need to expand their curriculum to include the provision of know-how skills and know-who awareness. These include, but are not limited to, the following skills: communication, group work, conflict management, giving and receiving feedback, negotiation, self-confidence, flexibility, and adaptability. At the same time, universities need to be more successful in developing creative abilities, such as problem framing and solving, creative thinking, critical analysis, and the synthesis and evaluation of information.

However, the development of these skills should not be at the expense of traditional know-what skills such as language, numeric skills, logic, and computer proficiency. It is not that know-what skills are not needed, they are just no longer sufficient. Clearly the burden on students continues to increase, and each year more and more is expected from them. As Billy Beane, in the film *Moneyball*, says: "Adapt or die!" This is true for both students and higher education institutions.

In the pre-industrial era most individuals functioned and contributed to society by applying agricultural and craftsmanship 'know-how' skills learned through a life of practice. In the industrial era new abstract skills related to managing and creating knowledge were needed. To support these 'know-what' skills all forms of institutions from kindergarten to universities were created to train people in know-what so they could contribute to society. These skills are developed sequentially and orderly. The know-what can be packaged into discrete units that individuals can master. In the post-industrial era, mastery of know-what is no longer sufficient. There seems to be a cyclical return to 'know-how' skills, but instead of a know-how focused on resources and materials, the know-how skills of the post-industrial era are in regards to human creativity and the interpersonal aspects of group life. As well, the demands of this age

are increasingly 'over our heads' (Kegan, 1994), requiring that individuals need to grow their meaning making structures as well, in essence the know-who awareness.

In general, today's educational system continues to prepare individuals for an industrial era economy. Some outliers, such as the Montessori schools, have curriculums that support creative and know-how and know-who skills. No wonder some of their graduates thrive in today's economy, like Larry Page and Sergey Brin, founders of Google. Or Jeff Bezos, founder of Amazon, and Jimmy Wales, founder of Wikipedia. Peter Drucker (1993), also a graduate of Montessori, argues that we are in an era where those who thrive are skillful at applying knowledge to knowledge. Organizations and teams that are not able to live and be effective in a process of constant innovation will become obsolete. Twenty years later, Brynjolfsson and McAfee (2014) continue to agree with Drucker, in that we need to support the development of: ideation, large-frame pattern recognition, and complex communication in individuals. The education system in general, and higher education specifically, have proven slow to adapt to this evolving reality (ACE, 1996; Arum & Roksa, 2011; Astin & Astin, 2000; Pascarella et al., 2011).

Furthermore, Laszlo Bock, the senior vice president of people operations for Google stated "G.P.A.'s are worthless as a criterion for hiring, and test scores are worthless... We found that they don't predict anything." (quoted in Friedman, 2014). The number one attribute Google looks for when hiring is the ability to learn on the fly (Friedman, 2014). The second attribute they look for is leadership, not leadership defined as an individual that has held a position of authority, but leadership defined similarly to how I have used the term in this dissertation. Lastly, Google seeks individuals who are humble and not afraid to fail, because for Laszlo Bock the mindset that allows you to learn from failure is one that is naturally inclined not to take the ego, or oneself, too seriously and is open to seeing the problem and solutions with fresh eyes, in essence know-who awareness.

How often in a university course are we encouraged to try something new with ample margin for error without it having a negative impact on our grades, and hence the ability to continue studying? Rarely; more often we are judged and graded on getting the right answer. Montessori and a few other innovative approaches support and develop divergent thinking, whereas the status quo in university culture praises convergent, right answer, thinking. In an article in the Wall Street Journal, James Sims (2011) argues the following.

*[Joining the Montessori Mafia is] the surest route to joining the creative elite... Perhaps it's just a coincidence that Montessori alumni lead two of the world's most innovative companies. Or, perhaps the Montessori Mafia can provide lessons for us all even though it's too late for most of us to attend Montessori. We can change the way we've been trained to think. That begins in small, achievable ways, with increased experimentation and inquisitiveness. Those who work with Mr. Bezos [founder of Amazon], for example, find his ability to ask "why not?" or "what if?" as much as "why?" to be one of his most advantageous qualities. **Questions are the new answers.** [emphasis added].*

My guess is that most, if not all graduates, of a higher education institution are expected to work in groups and/or creative enterprises in their professional careers. Why then are these skills so overlooked in higher education? Why does higher education in general continue to fail in supporting this type of learning in adults? These questions take us back to part 1 of the dissertation, of how difficult it is for individuals and organizations to adapt to a changing world.

One way of framing this challenge of change in higher education is path dependency. Most higher education institutions are decades old and continue applying a system of education that is also decades old. The people that thrive in the old system rise to the top and become professors, deans, provosts, and so forth, recreating the past over and over again. It is of no surprise that it takes a new educational institution such as Quest University, just a few kilometres north of UBC, to implement divergent thinking pedagogy into the core of its programs, as the new institution is not constrained by tradition and the influence of those in authority positions. At Quest, all 3rd and 4th year students are guided not by a course curriculum, but by a question they develop and are interested to pursue ("Course description," 2014). The instructors then support students to build the curriculum and select courses in such a way to best support them through a rigorous and sustained intellectual inquiry of the question that interests them.

One could also argue that the reason Quest is able to create a more innovative educational approach is because tuition costs are about four times (Bouw, 2013) those of public universities in Canada. However, I think this is a weak argument as other public universities, such as Queen's University, with similar tuition costs as UBC outperform UBC in all categories of learning as measured by the National Survey of Student Engagement (Student experience, 2012), whereas UBC is below the average in every single category. It is possible that providing a more tailored educational experience would cost more. However, I think what primarily distinguished Quest from UBC is its founding purpose of providing excellence in education combined with a critical lens and analysis on the areas where traditional higher

education does not meet the needs of students and society. Hutchinson (2008) points out that Quest is “capable of providing what most public universities in Canada cannot: creative, high-intensity curricula; very low teacher-student ratios; small class sizes and flexible scheduling; instructors who are committed to teaching, rather than to their own research; a positive atmosphere devoid of faculty-level sniping and politicking”. Clearly class size and student-teacher ratio have a direct impacts on operational cost and hence tuition, but the curricula, passion for teaching and overall culture of the institution have no direct link to cost.

Quest’s approach is just one of multiple ways of placing more attention on developing divergent thinking, which includes creativity and other know-how skills and know-who awareness. Traditional institutions, which have more to lose in terms of reputation when engaging in a process of change, typically take a more conservative approach than Quest University. They can pace the work by adding more variety of courses that support know-how skills and know-who awareness throughout the four or five years undergraduates are in school. However, I would argue that taking such an approach would classify more as a technical solution rather than an adaptive one, to what is clearly an adaptive challenge that higher education institutions are facing. The adaptive challenge is that students cannot keep on adding courses to their already full academic schedules, unless some courses that are currently mandatory are cut. This will be met with resistance as professors and program directors will experience this as a loss. Furthermore, with time we will have to innovate and expand new pedagogies that skilfully integrate content with both know-how skills and know-who awareness. Community Service Learning (CSL) and Problem Based Learning (PBL) are in my opinion steps in the right direction; however few professors are skilled in these styles of teaching. And those that have tried it quickly realize that they are more difficult and demanding to teach than traditional lectures, taking away time from other important duties such as research and community service. Therefore, we can expect that many professors will meet a call for changes in pedagogy with resistance. Here we can see how the concepts of theories of change from part 1 of the dissertation, come together with the leadership skills required to mobilize this change in organizations discussed in part 2.

7.3 Where do we go from here?

From what I have learnt in the case study of the sustainability leadership course it is evident to me that the skills taught in the course are clearly in demand by students, and—I would argue—are needed in society so that we can more skilfully mobilize our organizations, institutions, culture, and ultimately

values to thrive in a changing world. However, I can confidently say that one course, no matter its merits, will never be enough to ensure the development of the competencies and capacities that I have been discussing so far.

For example, as a thought exercise, I could ask the question “are the abilities of students who completed the sustainability leadership course at a level that they could engage with the type of sustainability challenges described in the case study of part 1?” If I ignore the context specific knowledge required, can I say that the students have the competencies and capabilities for effectively observing, interpreting, and intervening in such situations after taking the course? Except for a few students who had prior work experience and were already somewhat competent in the practice of leadership, I would have to conclude that the sustainability leadership course was insufficient to prepare the students for this type of work. The course might be necessary, but by no means sufficient at preparing students for effectively working in such situations. This thought exercise elucidates the biggest limitation of the approach that I have taken to intervening, researching, and analyzing the gap in sustainability education, which is that the complexity of the learning objectives of such a course likely means that a single course approach is destined to fail given the enormity of the challenge.

Reflecting back, I would argue that a more appropriate and effective approach, yet clearly much harder to implement, would be to develop a program of sustainability leadership education comprised of multiple courses that build and draw on each other. As I have discussed in chapter 6, students clearly wanted more opportunities to continue to practice as well as support them in refining and developing their skills further.

Given that the challenges of sustainability are shared across a large number of university faculties and schools, I believe that a sustainability leadership program should not be located in one particular faculty. Instead it should be a transdisciplinary program that cuts across faculties and ‘transcends’ disciplines (R. J. Lawrence, 2004), having a set of core courses that accompany a student in their four or five years of study. This not only aligns more truthfully with the transdisciplinary challenges of sustainability, it also fosters a diverse student cohort; which is critical in a sustainability leadership program, because it enables students to experience the complexity of diverging perspectives.

The sustainability leadership program would also need to have an explicit transformative educational mandate, therefore authorizing the instructors to engage with the whole student, not just their minds.

Many of the experimental learning exercises carried out in the sustainability leadership course could only be done because the course was voluntary and the students were given plenty of written and verbal warning that the course would explicitly challenge them emotionally. I do not think it is appropriate to do such exercises without full consent of the students, and therefore a mandatory course that used such methods could only be carried out in a program that explicitly stated its purpose of transformative learning; where students come to class expecting to be challenged intellectually and emotionally.

To start out, I can imagine the program leading to a minor and not a major degree, to encourage students from many diverse areas of study to participate. The downside of a major degree is that it would probably lose the diversity of students that a minor program would likely attract. The upside of a major degree would be having more control on sequencing of courses as well as a higher mandatory amount of course work. A list of possible areas of study for the course would be, in no particular order:

- **Foundations of sustainability:** a course to introduce students to the substantive aspects of sustainability challenges, the history of sustainability thought, as well as the numerous frameworks for how to address challenges.
- **Theories of change:** a course focused on exploring the multitude of theories of how change happens in groups and society.
- **Negotiation:** a course teaching skills of communication, strategic analysis of sides, and existing methods for negotiation.
- **Communication:** a course that focuses on common skills of public speaking and debate, as well as more subtle techniques of authentic speaking and listening, generative dialogue, giving and receiving honest feedback, conflict resolution, and so forth.
- **Creating high performing teams:** a course that teaches the numerous techniques for helping a group become a team and perform at a high level. Most of the teaching would probably be focused on all the work avoidance norms that groups develop that hold them back from becoming high performing teams.

- **Group creativity and innovation:** the course would introduce groups to techniques and methods used in groups to enhance their creativity.
- **Risk and strategic planning:** this course would focus more on the technical skills of risk analysis and the multi-criteria strategic planning methodology.
- **Group facilitation:** the focus of the course(s) would be on how to structure a workshop or a longer process to support groups and/or stakeholders to reach the objective they intend. In the last few years there have been many innovative techniques to accomplish this, like the world café (J. Brown & Isaacs, 2005), open space technology (Owen, 2008), U-Process (Scharmer, 2009), and transformative scenario planning (Kahane, 2012b).
- **Advances in economic thinking:** a course that explores environmental, ecological, and post growth economic theories and suggested policy interventions.
- **Contemplative practices:** a course designed to help students discover what contemplative practices best provide them with a sanctuary where they can rejuvenate.
- **Thematic courses on sustainability:** this could be a mix of courses exploring specific sustainability themes, such as water, transportation, business, food, housing, energy, and so forth.
- **Governance, institutions, and community development:** a course or mix of courses that helps students understand the importance of these topics for supporting long lasting change.

This list can easily grow, and I can continue to discuss possible sequencing and scaffolding of courses, pedagogical approaches, and types of students the program would be tailored to. These are interesting intellectual questions; however, a possibly more interesting question is why such program does not exist at UBC or at many other similar higher education institutions. I am not the first one to think such a program is important and necessary (Moore et al., 2005; Spiegelman, Moore, & VanWynsberghe, 2004), so why does creating such a program seem overly difficult in some universities? Fullan and Scott (2009) have encountered similar difficulties in universities as they studied how to create more leadership educational opportunities in higher education. They state the following.

It has been observed that elementary school teachers love their children, high school teachers love their subjects, and university professors love themselves. We know all three groups, and there is more than a little truth to these generalizations. It seems that the more you move up the education hierarchy, the more difficult it is to bring about change. Universities, with all their brainpower, are more resistant to change than many other institutions. Universities are great at studying and recommending change for others, but when it comes to themselves, that is another matter. (p. ix).

How to mobilize change at traditional higher education institutions is a very interesting action research question that is beyond the scope of what I planned for in the dissertation. In my opinion this question needs to be addressed before engaging in a discussion of what is the best interfaculty program at UBC for supporting better sustainability education. Without a critical analysis (Calhoun, 1995) and possible changes to the organizational structure and culture of the institution, anyone trying to make progress on developing such a program is very likely swimming against the current. I believe a more interesting question is how to mobilize the social system of UBC to learn what it needs to learn so it can thrive in a changing world of higher education. What changes are needed in the structure and culture so it becomes more adaptive as an organization, not only to bring forth better sustainability programs but to also thrive anew in quickly changing landscape of higher education? And for somebody wanting to exercise leadership at UBC regarding this challenge, I would ask: ‘who do you need to be to mobilize change?’ By ‘be’ I am not referring to the role or position of authority you would have to occupy to be able to lead, quite the contrary; I am referring mainly to the complex constellation of perceptual, intellectual, intuitive, and emotional abilities that would enable you to mobilize change. Exploring this question and discovering this anew would guide those individuals as to how they would need to grow, as well as develop a better conceptualization of what abilities a program such as sustainability leadership should encourage, support, and develop. Hopefully, this dissertation offers a glimpse of what that terrain is like.

7.4 Conclusions and future research

This dissertation revolves around two questions:

1. How does change occur in human systems?
2. How can we better support university students to develop the skills needed to mobilize change?

These questions inquired into the procedural aspects of sustainability (Robinson, 2004), the ‘how’ of mobilizing people into a more sustainable future and not ‘what’ a more sustainable future looks like. In

other words, the focus of the dissertation was investigating what Schumacher (1977) called a divergent type of problem, which is a type of problem that will never converge to a single solution. Therefore the findings and suggestions by the very nature of the problem studied are partial and not sufficient. Nevertheless, I hope the material presented in the dissertation will help re-frame or at least expand how we understand and engage with sustainability challenges.

Regarding the first question, of how does change occur in human systems; I argue that the perceived or real loss experienced by individuals, and the meaning making structures from which they construct reality are two important unacknowledged and rarely explored constructs in change initiatives. People resist only the change they perceive to be threatening to them. Bridges (1980) made the crucial distinction more than 30 years ago between change and transitions. Change is the outer issue we want to modify; transitions are the internal shifts that are needed so the change initiatives are successful. Transitions require that we come to terms with a loss and let go, so we allow space for the new. Change initiatives are more likely to be successful if they forefront and explicitly work with, accompany, and support the groups experiencing the loss. However, to our own peril, in change initiatives we mainly focus on the brighter future or the win-win possibilities.

Second, in participatory change initiatives we assume that all individuals are able to take perspective on their values, point of views, and those of others. We engage with them in rational, deliberative decision processes; yet given the demands we place on participants we can infer from the constructive developmental literature that these types of processes are over the heads of more than half of the population (Kegan & Lahey, 2009, p. 27), as abstract demands such as exploring one's values and considering those of others is not a capacity that everyone has developed. If we acknowledged this limitation, then we could start creating engagement methods that would scaffold individuals in such a way that it would support them in the difficult tasks of taking multiple perspectives on the problem, their values, and solutions.

Third, most of us function with unacknowledged theories of change that are rarely scrutinized for their validity. There clearly is no one theory of change that can map out the complexity of the human world, nonetheless; those of us that work with change in human systems or aspire to teach this to others need to engage more frankly with the question of how change happens. This is especially true in sustainability education courses, as there is a wide gap between the discourses of what a sustainable future looks like and how we go about getting there.

Finally, in regards to the first guiding question of the dissertation, I presented a simple typology that can aid us to better understand the type of sustainability problem we are facing, and laid out ten recommendations that can support us to think more creatively on possible approaches to engage with them. The main reason and concern for developing such a simple typology and the ten recommendations was to encourage divergent thinking and novel approaches to tackling the difficult challenges of sustainability.

The case study in Costa Rica was an example of how as a society we tend to confuse technical with adaptive challenges, applying convergent approaches to divergent problems. In the case of Costa Rica, I argue that applying a payment for ecological services (PES) to reduce soil erosion in a watershed populated by small scale farmers is likely to be unsuccessful and potentially counter-productive to the end goal, even though a similar PES system has been successful in large scale farms in Costa Rica. We have to be careful of the golden hammer and panacea approaches to sustainability challenges.

One important direction for future research regarding the first question of “How does change occur in human systems?” is to better understand how individuals’ orders of mind (Kegan, 1994) impact multi-stakeholder processes. Most sustainability workshops, facilitated change processes, negotiations, and even conflict-resolution interventions assume individuals functioning from a 4th order of mind. Given that the research states that more than half the adult population (Kegan & Lahey, 2009, p. 27) mainly functions from a 2nd or 3rd order of mind, which is less capable of taking perspective on their own values and beliefs, what changes are needed to how participatory change initiatives are structured so that deliberative processes can more clearly engage with both facts and values?

Regarding the second guiding question, I argue that in the sustainability discourse, practice, and education in general there is a lack of attention to the ‘how’ or procedural aspects of accomplishing change, and to the ‘who’ or awareness of the intervener. This takes us into the topic of leadership and the abilities needed in individuals and groups to successfully mobilize change in organizations and society. I introduce Ronald Heifetz’s (1994) adaptive leadership guiding framework as a possible answer to what is needed from us to better mobilize change. The question of how can we better develop these skills, is more challenging, as the practices that Heifetz lays out are far from easy to develop.

The case study of the sustainability leadership course explored one possible approach of supporting the development of both leadership skills and expanding individuals’ meaning making structures. I found

that the pedagogy utilized was somewhat successful at accomplishing these two goals. From the follow-up interviews I think that graduates from the course did not develop the leadership skills as much as I had hoped; however, the course had a larger developmental impact than I expected. I was surprised to find how strongly students felt they lacked emotional development opportunities during their education, and how much they valued the space created in the course to explore personal and interpersonal dynamics of group life.

In this chapter I discussed some implications of the changing landscape of education, in terms of the wider economy with the continual automatization of jobs, the threats to brick-and-mortar institutions from the continual increase of massive online open courses (MOOCs), and finally the need for transdisciplinary education to better prepare students to address sustainability challenges. My recommendation is that higher education should provide more opportunities for students to develop both know-how skills and know-who awareness and focus less on know-what content knowledge; given that the first set of skills will provide them with a competitive edge in the evolving new post-industrial economy, increasing their capacity to be creative and effective in group work, preparing them in learning to learn, and ultimately supporting leadership development and advances in sustainability challenges.

I mentioned that the main limitation of the case study was its single course approach in comparison to a program approach. A fertile area of future research is around the question of how to best support the development of sustainability leadership abilities in higher education. From the results of this research, I argue that an interfaculty transformative educational program that accompanies students from beginning to end of their studies would be much more appropriate for nurturing these skills across disciplinary boundaries, and I propose a preliminary list of courses. Future research could help answer questions of program design regarding what minimum set of courses is needed, what should be the learning objectives of each, and what the best timing would be for each course in the four or five years that a student is in university. However, exploring such a programmatic approach should probably be preceded by a critical analysis (Calhoun, 1995) of structural and cultural aspects in the universities or colleges sponsoring such an initiative to identify barriers to change.

Overall, the dissertation highlights that the blind spot of sustainability is the interiority of human systems; from the roots of failure of change initiatives located in individuals' experience of loss and meaning making structures, to the gaps in education that mainly focus on the external 'what' of the

problem and not on the internal ‘how’ and ‘who’ of change. The interventions carried out in this dissertation, described in the case studies, and the recommendations that followed suggest how important this area of study and practice is to supporting transformative change in individuals and societies.

As a final reflection I would like to share that, through the PhD journey, I have immersed myself deeply into a world of *knowing*. Surprisingly, as I come out at the other end I realize how much I do *not know*. Though wise individuals over 2000 years have known about this paradox, collectively we humans still live in worlds of *knowing*—or, as Thomas Kuhn (1962) describes them, paradigms. We operate with questionable assumptions that are no less deeply held for being outside of our awareness. And, within the constraints of those paradigms, each one of us constructs meaning inside the limitations of our ‘order of mind’ (Kegan, 1994), furthering the tenuous foundations on which we claim to *know*. It is humbling to witness how, as a consultant, I am to a large degree expected to *know* how to help my client solve the challenges they are facing. And as an educator, I am entrusted with passing on my *knowing* onto others. To *know* that one does *not know* – while living in the midst of the *knowledge* society (Drucker, 1969) – what a Socratic paradox.

The bad news is you're falling through the air, nothing to hang on to, no parachute. The good news is, there's no ground. – Chogyam Trungpa Rinpoche

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Appendix A – Course syllabus and advertising

Syllabus

Sustainability leadership: practical wisdom for transformative action

Course syllabus

Fall term (September-December) 2011

Three (3) credits

Undergraduate: [CONS 449C 101](#) (lecture) & [CONS 449C L01](#) (lab)

Graduate: [CONS 504C 201](#) (lecture) & [CONS 504C L01](#) (lab)

Julian Gonzalez & Michael Meitner

Department of Forest Resource Management

This course will illustrate the map of the territory of leading sustainable initiatives and guide you in sharpening your own internal compass for coordinating and cultivating the profound changes and transitions that are required from us to prosper as a society. The main focus of the course is on the applied and practical skills needed to be a sustainability leader. This course will introduce participants to the fascinating and chaotic world of sustainability leadership. This course is truly inter-disciplinary drawing from psychology, sociology, political science, systems study and many other disciplines. The theoretical knowledge that we will work with has been boiled down to what works on the ground; what is useful when working with sustainability challenges.

We start with the assumption that sustainability challenges cannot be changed simply by command-and-control, by using a technical instrument or known solutions. Sustainability challenges are entrenched in people themselves, requiring from us a transition to new behaviours, new ways of relating to each other, and new approaches to leadership to catalyze this change. As sustainability leaders, we need the capacities and skills to mediate complex trade-offs between competing values, navigate uncertainty, help groups face resistance and fear of change, and have the capacity to act and mobilize.

This course will not give you specific knowledge for a given sustainability challenge, be it related to water, food, energy, municipal planning, poverty, or any other of our sustainability challenges. This type of knowledge about sustainability is what we call **know-what**, which tends to be abstract, logical, conceptual, and objective, and there are many courses in the university that can teach you that specific knowledge. Instead this course aims to teach you the **know-how** of leading sustainable change. Know-how is about the concrete, embodied, incorporated, and lived experience. It is about the skills and capacities to act in the moment (personally, with friends or family, at work, as a students, etc.) in a way that enhances quality of life for us and other beings. An early training in the foundations of sustainability leadership lays down the path of a lifelong journey of developing your own personal mastery.

Course location and time

Fall term (September-December) 2011

- Lectures: Wednesdays 16:00 - 17:20
 - Class: Forestry Building - FSC 1001
- Labs: Thursdays 15:00 - 17:50
 - Class: Chemical and Biological Engineering Building - CHBE 103

Learning objectives

- Understanding the dynamics of change and how to initiate and cultivate sustainable change
- Learning how to see and discern between the systemic, group, interpersonal and personal dynamics of a challenge
- Perspective taking – learning to see and inhabit the multiple sides of a tough problem
- Seeing, holding and working through polarities and paradoxes
- Familiarizing with your own leadership strengths, weaknesses and areas to cultivate
- Experience and practice the above in the classroom setting

Evaluation

Evaluation of the course will be based on the following:

- Class participation (25 points): This includes attendance, participating in class and small group discussion
- Weekly short reflective questionnaires – Total of 10 questionnaires (Undergraduate: 25 points; Graduate: 20 points)
- Three film analysis (Undergraduate: 25 points; Graduate: 20 points)
- Final paper (Undergraduate: 25 points; Graduate: 35 points) – The graduate paper is longer and expected to be better researched and written

Penalties:

- Missing classes: For each class missed you will loss 10 points from your class participation mark
- Late assignments: for every day late you will be discounted 25% of the grade for the assignment. After the fourth day it will not be accepted.

Format

The course is composed of:

- Readings
 - Primary readings: between 15 to 70 pages a week
 - Secondary readings: between 0 to 70 pages a week
 - **Important Note:** The classroom time is designed as a place to practice and refine concepts and skills that are outlined in the readings. The class begins where the readings end; we require that you come with at least the required readings completed prior to each class.
- Weekly classroom time:
 - 1.5hrs a week of class discussion
 - 3hrs a week of lab work including large class consultations, simulations, films, and guided exercises.

- Small group consultation sessions (outside of class time)
 - 1.5hrs a week of meeting time with a small group (6-8 people) to present and consult on personal cases. These weekly group meetings are an opportunity to practice and apply what has been taught in class.
 - Each person will have to present to their small group one of the following (in order of preference of the instructors)
 - Personal leadership failure case – in essence, this is presenting a personal case describing a time working with a group when you failed to achieve a goal or purpose of the group. This can range from professional to personal family cases.
 - A current leadership case – preferably this will be a challenge that you are currently working on and can speak from personal experience. It has to be something you are struggling with, not something you have already figured out.
 - A historical leadership failure of an individual or group of people - this is probably the hardest option to successfully complete because you will have to spend considerable time researching a case.
- Weekly questionnaires
 - Each week you will hand in a reflective questionnaire analysing the dynamics of your group consultations (approx. 500 words). As the terms progresses we will change the questionnaires to focus on different aspects of what is been taught.
- Three film analysis
 - Each film will have an accompanying questionnaire to aid you in the film analysis and help you digest the leadership concepts (approx. 1000 words).
- Final paper
 - More details will be provided during the class (approx. 3000-5000 words).

 **The time commitment for this class is considerable, approximately 8 to 15hrs a week.**

 **For some students this course may involve a substantial emotional challenge.**

Readings

Required textbook: The Practice of Adaptive Leadership by Heifetz, Grashow and Linsky. Harvard Business Press. 2009.

We will be reading chapters from the following books:

- Ecological Literacy (1992) by Orr.
- Fields of Green (2009) edited by McKenzie, Hart, Bai and Jickling.
- Leadership Without Easy Answers (1994) by Heifetz.
- Managing Transitions (1991) by Bridges.
- Paradoxes of Group Life (1987) by Smith and Berg.
- Practice of Adaptive Leadership (2009) by Heifetz, Grashow and Linsky.
- Real Leadership (2005) by Williams.
- Societal Learning and Change (2005) by Waddell.
- Solving Tough Problems (2004) by Kahane.
- The Moral Imagination (2005) by Lederach.
- The Power of Positive Deviance (2010) by Pascale, Sternin and Sternin.
- The Power of Sustainable Thinking (2008) by Doppelt
- The Sustainability Revolution (2005) by Edwards.

Schedule

Week 1 (5th – 9th September)

Topic: Introduction

- What does it mean to be a sustainable society?
- What does it mean to practice leadership?

Primary readings:

- Practice of Adaptive Leadership – part one
- The Power of Positive Deviance – chapter 2
- The Sustainability Revolution – pp. xiii-xv, 6-10, 128-130

Secondary readings:

- Ecological Literacy – chapter 2
- Real Leadership – chapter 1
- The Power of Sustainable Thinking – chapter 3

LAB: Setting up the small group consultations and large group simulation

Week 2 (12th – 16th September)

Topic: Solving tough problems

- How does a group/society make progress on tough problems?
- How does social change happen?

Primary readings:

- Organizational Learning, Argyris and Schon, pp. 1-29
- Leadership Without Easy Answers pp. 28-40

Secondary readings:

- Solving Tough Problems – Foreword and Part I
- Societal Learning and Change – chapter 1
- Real Leadership – chapter 2

LAB: Simulation – Sustainability multi-stakeholder challenge

Week 3 (19th – 23rd September)

Topic: Group dynamics

- What role does conflict play in social change?
- What are the main patterns in group dynamics?
- Do individuals have ultimate control over determining what they say, think, and do in groups?

Primary readings:

- Notes on group dynamics. Heifetz
- Dialogic Leadership. Isaacs

Secondary readings:

- Small group decision making, Fischer, pp. 166-180
- Paradoxes of Group Life – chapters 5 and 6

LAB: What happened? Debriefing and learning from the simulation. Plus 90 minute film.

Weekly small group consultation session begins

Week 4 (26th – 30th September)

Topic: The courage to experiment

- What is needed from us to create a new reality?
- How does innovation happen?
- How can one intervene to shift group dynamics?

Required readings:

- Practice of Adaptive Leadership – chapters 4 to 6, & chapter 22

Secondary readings:

- The Power of Positive Deviance – chapter 3
- Solving Tough Problems – Part II
- The Moral Imagination – pp. 34-39

LAB: large group case consultation

Week 5 (3rd – 7th October)

Topic: Leadership with authority

- Why do we obey authority?
- What are the limits of authority?

Primary readings:

- Leadership Without Easy Answers pp. 49-66, 69-88, 101-129, 138-144

Secondary readings:

- None

LAB: large group case consultation & movie

Week 6 (10th – 14th October)

Topic: Leading without authority

- How can you relate productively with authority?
- What freedom to lead do you have by NOT having authority?

Primary readings:

- Leadership Without Easy Answers Chapter 8 pp. 183-194, chapter 9 pp. 207-208, 224-231, & chapter 10

Secondary readings:

- Real Leadership – chapter 3

LAB: large group case consultation

Week 7 (17th – 21st October)

Topic: Orientating in the midst of chaos and conflict

- How do you know that you are leading in the right direction?
- What questions can you lead with to bring clarity to the challenge you face?

Primary readings:

- Practice of Adaptive Leadership – chapters 18 to 24

Secondary readings:

- Krishnamurti, The first and last freedom
- Paradoxes of Group Life – chapter 7
- Real Leadership – chapter 5
- Hazzan, Connecting to source: the U-Process

LAB: large group case consultation

Week 8 (24th – 28th October)

Topic: Listening and presence

- How can you use yourself as data to what is happening in the larger system?

Primary readings:

- Practice of Adaptive Leadership – chapters 13 to 17
- Selected readings from The Listening Book. Mathieu.

Secondary readings:

- The Power of Positive Deviance – chapters 6 & 7
- Solving Tough Problems – Part III & conclusion

LAB: large group case consultation

Week 9 (31st October – 4th November)

Topic: Design effective interventions

- What makes a good intervention?
- How do you know if it was effective or not?

Primary readings:

- Practice of Adaptive Leadership – chapter 9
- The Power of Positive Deviance – chapter 8

Secondary readings:

- Societal Learning and Change – chapters 6 & 8

LAB: large group case consultation

Week 10 (7th – 11th November)

Topic: Inspire people

- How do you inspire people?
- What are the dangers of inspiration?

Primary readings:

- Practice of Adaptive Leadership – chapter 21

Secondary readings:

- None

LAB: large group case consultation

Week 11 (14th – 18th November)

Topic: Acting politically & orchestrating conflict

- Can you lead by yourself?

Primary readings:

- Practice of Adaptive Leadership – chapters 10 & 11

Secondary readings:

- Kahn, Holding environments
- The Moral Imagination – chapters 8 & 9

LAB: large group case consultation

Week 12 (21st – 25th November)

Topic: Thriving as a leader

- What do you need to renew yourself?
- What is your growing edge, what do you need to support it?

Primary readings:

- Practice of Adaptive Leadership – chapter 23
- Leadership Without Easy Answers – chapter 11

Secondary readings:

- The Moral Imagination – chapter 10 & 11
- Fields of Green – chapter 9
- Real Leadership – chapter 10

LAB: movie

Week 13 (28th November – 2nd December)

Topic: Transitions

- How do you face and mobilize people through losses?

Primary readings:

- Managing Transitions – chapters 1 & 3
- Termination in Groups. Van Steenberg LaFarge

Secondary readings:

- Managing Transitions – chapter 4

LAB: closing lab

Week 14 (5th – 9th December)

NO CLASS

Final Assignment: Final paper due Monday 12th of December.

Email advertising



This fall 2011 UBC is offering a new course on Sustainability Leadership

- Have you ever wondered how you could effectively create positive change in a social/environmental issue that matters to you?
- Are you craving a hands-on approach to skillfully engage with difficult situations?
- Have you ever worked with a group that felt stuck and left you wanting to know how to help the group make progress on the challenge it was working on?
- Do you have a longing for profound societal change and want to be a part of it?

This course will introduce participants to the fascinating and chaotic world of sustainability leadership. Truly inter-disciplinary, the curriculum draws from psychology, sociology, political sciences, systems study and many other disciplines. The theoretical knowledge that we will work with has been boiled down to what works on the ground, and what is useful when working with sustainability challenges. The main focus of the course is on the applied and practical skills needed to address tough challenges.

This course is not for the faint-hearted. It will challenge you to look deeply within yourself, engaging your emotional capacities, as well as push you to expand your critical thinking abilities. You will be challenged to listen profoundly and speak with authenticity and intention.

If you feel excited reading this but you are hesitating or doubt your abilities to take such a course, send us an email or come talk to us over a coffee. This course is probably for you. The voice of doubt and scepticism within you are powerful and important guides. Through this course you will learn how to distil their wisdom. Leaders are made, not born. They learn through experience and hard work.

To guide you through this journey the course will be hosted and facilitated by three individuals with diverse backgrounds and vast personal experience. Their mission will be to support you in your learning, provide one-on-one consultation throughout the class and challenge you to go beyond your perceived limitations.

For more information go to ubc.sustainabilityleadership.ca

Undergraduate: CONS 449C 101 (lecture) & CONS 449C L01 (lab)

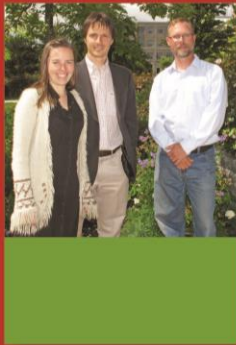
Graduate: CONS 504C 201 (lecture) & CONS 504C L01 (lab)

Julian, Mike and Carissa.

Poster advertising



Sustainability Leadership



This fall 2011 UBC is offering a new course on Sustainability Leadership

- ✔ Have you ever wondered how you could effectively create positive change in a social/environmental issue that matters to you?
- ✔ Are you craving a hands-on approach to skillfully engage with difficult situations?
- ✔ Have you ever worked with a group that felt stuck and left you wanting to know how to help the group make progress on the challenge it was working on?
- ✔ Do you have a longing for profound societal change and want to be a part of it?

This course is not for the faint-hearted. It will challenge you to look deeply within yourself, engaging your emotional capacities, as well as push you to expand your critical thinking abilities. You will be challenged to listen profoundly and speak with authenticity and intention.

This course will introduce participants to the fascinating and chaotic world of sustainability leadership. Truly inter-disciplinary, the curriculum draws from psychology, sociology, political sciences, systems study and many other disciplines. The theoretical knowledge that we will work with has been boiled down to what works on the ground, and what is useful when working with sustainability challenges. The main focus of the course is on the applied and practical skills needed to address tough challenges.

If you feel excited reading this but you are hesitating or doubt your abilities to take such a course, send us an email or come talk to us over a coffee. This course is probably for you. The voice of doubt and scepticism within you are powerful and important guides. Through this course you will learn how to distil their wisdom. Leaders are made, not born. They learn through experience and hard work.



Undergraduate: CONS 449C 101 (lecture) & CONS 449C L01 (lab)
Graduate: CONS 504C 201 (lecture) & CONS 504C L01 (lab)

ubc.sustainabilityleadership.ca



Appendix B – Assessment instruments

Pre assessment

Sentence completion test first two pages (WUSCT form 81)

Emotional intelligence test last page

Gender:	Age:	Native Language:
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Instructions: Please complete each sentence to the best of your knowledge, or the best of your ability. Give yourself 20 to 30 minutes of private time to complete this form. There are no right or wrong answers

1. When a child will not join in group activities

2. Raising a family

3. When I am criticized

4. A man's job

5. Being with other people

6. The thing I like about myself is

7. My mother and I

8. What gets me into trouble is

9. Education

10. When people are helpless

11. Women are lucky because

12. A good father

13. A girl has a right to

14. When they talked about sex, I

15. A wife should

16. I feel sorry

17. A man feels good when

18. Rules are

Instructions: Take 10 min to circle the answer that best corresponds.							
Questions	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Neither agree or disagree	5 Somewhat agree	6 Agree	7 Strongly agree
I have a good sense of why I have certain feelings most of the time.	1	2	3	4	5	6	7
I have good understanding of my own emotions.	1	2	3	4	5	6	7
I really understand what I feel.	1	2	3	4	5	6	7
I always know whether or not I am happy.	1	2	3	4	5	6	7
I always know my friends' emotions from their behaviour.	1	2	3	4	5	6	7
I am a good observer of others' emotions.	1	2	3	4	5	6	7
I am sensitive to the feelings and emotions of others.	1	2	3	4	5	6	7
I have good understanding of the emotions of people around me.	1	2	3	4	5	6	7
I always set goals for myself and then try my best to achieve them	1	2	3	4	5	6	7
I always tell myself I am a competent person.	1	2	3	4	5	6	7
I am a self-motivated person.	1	2	3	4	5	6	7
I would always encourage myself to try my best.	1	2	3	4	5	6	7
I am able to control my temper and handle difficulties rationally.	1	2	3	4	5	6	7
I am quite capable of controlling my own emotions.	1	2	3	4	5	6	7
I can always calm down quickly when I am very angry.	1	2	3	4	5	6	7
I have good control of my own emotions.	1	2	3	4	5	6	7
When I am working with others (group projects or in work environments) <u>to perform my tasks well</u>, it is necessary for me to:							
spend most of my time interacting with people (e.g., students from the group, professors, colleagues, and/or other workers in this organization)	1	2	3	4	5	6	7
spend a lot of time with every person whom I am working with	1	2	3	4	5	6	7
hide my actual feelings when acting and speaking with people	1	2	3	4	5	6	7
be considerate and think from the point of view of others	1	2	3	4	5	6	7

Post assessment

Sentence completion test first two pages (WUSCT form 81)

Emotional intelligence test last page

Gender:	Age:	Native Language:
---------	------	------------------

Instructions: Please complete each sentence to the best of your knowledge, or the best of your ability. Give yourself 20 to 30 minutes of private time to complete this form. The words in parenthesis are intended to be read by male respondents. There are no right or wrong answers

1. Crime and delinquency could be halted if

2. Men are lucky because

3. I just can't stand people who

4. At times she (he) worried about

5. I am

6. A woman feels good when

7. My main problem is

8. A husband has a right to

9. The worst thing about being a women (man)

10. A good mother

11. When I am with a man (woman)

12. Sometimes she (he) wished that

13. My father

14. If I can't get what I want

15. Usually she (he) felt that sex

16. For a woman a career is

17. My conscience bothers me if

18. A women (man) should always

Instructions: Take 10 min to circle the answer that best corresponds.							
Questions	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Neither agree or disagree	5 Somewhat agree	6 Agree	7 Strongly agree
I have a good sense of why I have certain feelings most of the time.	1	2	3	4	5	6	7
I have good understanding of my own emotions.	1	2	3	4	5	6	7
I really understand what I feel.	1	2	3	4	5	6	7
I always know whether or not I am happy.	1	2	3	4	5	6	7
I always know my friends' emotions from their behaviour.	1	2	3	4	5	6	7
I am a good observer of others' emotions.	1	2	3	4	5	6	7
I am sensitive to the feelings and emotions of others.	1	2	3	4	5	6	7
I have good understanding of the emotions of people around me.	1	2	3	4	5	6	7
I always set goals for myself and then try my best to achieve them	1	2	3	4	5	6	7
I always tell myself I am a competent person.	1	2	3	4	5	6	7
I am a self-motivated person.	1	2	3	4	5	6	7
I would always encourage myself to try my best.	1	2	3	4	5	6	7
I am able to control my temper and handle difficulties rationally.	1	2	3	4	5	6	7
I am quite capable of controlling my own emotions.	1	2	3	4	5	6	7
I can always calm down quickly when I am very angry.	1	2	3	4	5	6	7
I have good control of my own emotions.	1	2	3	4	5	6	7
When I am working with others (group projects or in work environments) <u>to perform my tasks well</u> , it is necessary for me to:							
spend most of my time interacting with people (e.g., students from the group, professors, colleagues, and/or other workers in this organization)	1	2	3	4	5	6	7
spend a lot of time with every person whom I am working with	1	2	3	4	5	6	7
hide my actual feelings when acting and speaking with people	1	2	3	4	5	6	7
be considerate and think from the point of view of others	1	2	3	4	5	6	7

Exit web survey

Consent to Participate in Exit Course Survey

Project title: Student perceptions and understanding of the practice of sustainability leadership.

Principal Investigator: Dr. Michael J. Meitner (Office: 604-822-0029)

Co-Investigator: Julian Gonzalez (Office: 604-822-6708)

Purpose: This work aims at better understanding the learning dynamics within a sustainability leadership course. It also proposes to extend the understanding of the role that experiential pedagogies (e.g. dialogue, discourse and participation) play in personal transformation. Personal transformation is defined as a learning process that involves experiencing a deep, structural shift in the basic premises of meaning making structures (e.g. thought, feelings, and actions). It is a shift that dramatically and permanently alters our way of being and acting in the world.

The results of this research may be used as part of Julian Gonzalez graduate thesis.

Risk: There are no foreseeable physical, psychological, or sociological risks.

Study Procedures: The subject will participate in a 30 to 50 minute online-questionnaire. The subject's preferences will be stored in a database once he/she submits the questionnaire. The data collected will be used in an aggregate manner to understand the impacts of the sustainability leadership course. The outcomes of the survey will be used to create a more effective educational environment, and enhance the possibilities for transformational learning in future courses. The results will also be used to better understand the material taught in the course and the relevance to the student's life and leadership.

Confidentiality: All information associated with this study will be held in confidence and only the investigators will have access to the information. All data resulting from this interview will be stored in a secure password protected computer database. All documents will be identified only by code number rather than by subject name. Subjects will not be identified by name in any reports of the completed study.

Contact for information about the study: If you have any questions or desire further information with respect to this study, you may contact Michael Meitner at (604) 822-0029 or Julian Gonzalez at (604) 822-6708.

Contact for concerns about the rights of research subjects: If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598.

Consent: Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

Remuneration/Compensation: Participating in the survey will make you eligible for the draw of two gift certificates valued at \$50 each. You are eligible for the draw even if you don't complete the survey.

You can request a copy of this consent form for your records.

Typing your name below indicates that you consent to participate in this study. Your name will not be associated with the data.

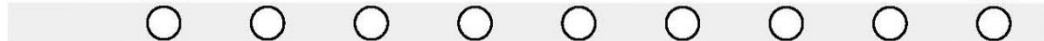
Course impact page 1 of 2

Please answer the questions below keeping in mind that the upper and lower ends of the scale are in the context of an educational experience at UBC.

In your experience how has this course affected you in the following areas:

Rate how this course has affected how curious you are in trying to affect change

Far less curious than before No change Far more curious than before



Rate how this course has affected how compassionate you are in trying to affect change

Far less compassionate than before No change Far more compassionate than before



Rate how this course has affected how humble you are in trying to affect change

Far less humble than before No change Far more humble than before



Rate how this course has affected how self-centered you are

Far less self-centered than before No change Far more self-centered than before



Rate how this course has affected your creativity in responding to change

Far less creative than before No change Far more creative than before



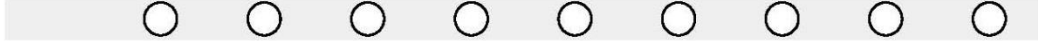
Rate how this course has affected how empathic you are

Far less empathic than before No change Far more empathic than before



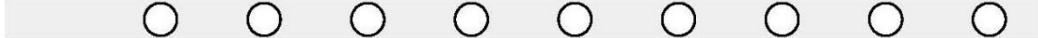
Rate how this course has affected your ability to improvise in how you respond

Far less able to improvise than before No change Far more able to improvise than before



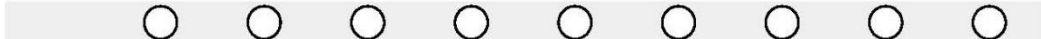
Rate how this course has affected how fearful you feel when engaging with people

Far less fearful than before No change Far more fearful than before



Rate how this course has affected your ability to hold steady in the face of conflict

Far less able to hold steady than before No change Far more able to hold steady than before



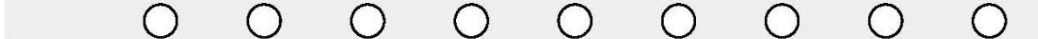
Rate how this course has affected your ability to operate in the midst of ambiguity

Far less able to operate than before No change Far more able to operate than before



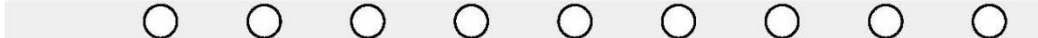
Rate how this course has affected your ability to function amidst contradictions and ideological differences

Far less able to function than before No change Far more able to function than before



Rate how this course has affected your awareness of the limits of only seeing a challenge from your perspective

Far less aware than before No change Far more aware than before




Rate how this course has affected your ability to engage with conflicting perspectives

Far less able to engage than before

No change

Far more able to engage than before

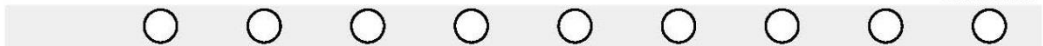


Rate how this course has affected your ability to honour perspectives that are contrary to yours

Far less able to honour them than before

No change

Far more able to honour them than before




Rate how this course has affected your ability to step back and observe your own patterns

Far less able to step back than before

No change

Far more able to step back than before

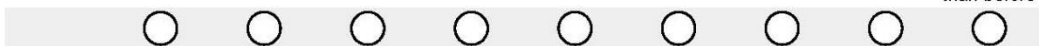


Rate how this course has affected your ability to question your usual responses

Far less able to question than before

No change

Far more able to question than before

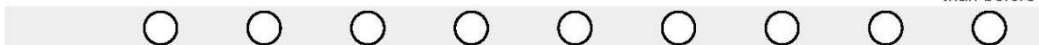


Rate how this course has affected your ability to question your usual beliefs

Far less able to question than before

No change

Far more able to question than before



Rate how this course has affected your ability to step back and observe social patterns

Far less able to step back than before

No change

Far more able to step back than before




Rate how this course has affected your ability to connect with dis-similar individuals

Far less able to connect than before

No change

Far more able to connect than before

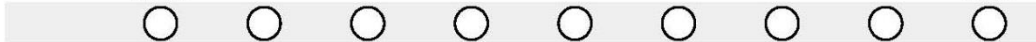


Rate how this course has affected your awareness of the dynamics happening between people

Far less aware than before

No change

Far more aware than before

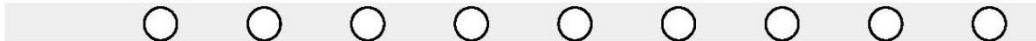


Rate how this course has affected how likely you are to take an inter-disciplinary approach to an adaptive challenge

Far less likely than before

No change

Far more likely than before

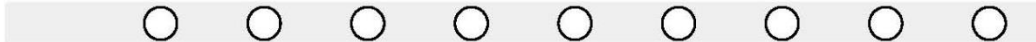


Rate how this course has affected how likely you are to lead with questions rather than answer

Far less likely than before

No change

Far more likely than before

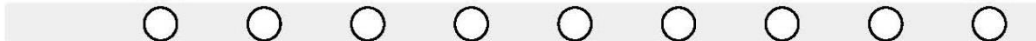


Rate how this course has affected how likely you feel you can make progress on a an adaptive challenge

Far less likely than before

No change

Far more likely than before



Overall, would you say this course was a positive transformative experience for you?

No, it hasn't been

It is the most transformative experience I've had in an educational context



Has this course contributed to your desire for personal growth?

No

Yes, it has highly motivated me to pursue other areas of personal growth



Course impact page 2 of 2

In your experience how has this course changed your understanding in the following areas?

Compared to before taking the course, how do you feel regarding the dynamics and complexities of change in social systems:

More confused No change Less confused

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Regarding how to initiate and cultivate change in social systems I feel

More confused No change Less confused

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Regarding the difference between systemic, interpersonal and personal dynamics of a challenge I feel

More confused No change Less confused

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Regarding my own personal strengths, weaknesses and areas to cultivate I feel

More confused No change Less confused

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Course format evaluation page 1 of 3

How effective towards enhancing your learning were the following class formats

	Not effective				Highly effective
Wednesday Class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thursday Case Debrief Class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thursday Experiential activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Anything else you would like to tell us about the class format

How effective towards enhancing your learning were the following experiential activities

	Not effective				Highly effective
Movies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sustainability simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voice dialogue session	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Music exercises (2 sessions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Circular inquiry with open questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Movement class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Immunity to change reflective exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Life boat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Anything else you would like to tell us about the experiential activities

How effective towards enhancing your learning were the following readings

	Did not read	Not effective				Highly effective
Book: Practice of Adaptive Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from Leadership Without Easy Answers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from The Power of Positive Deviance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from Real Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from Solving Tough Problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from Societal Learning and Change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from Paradoxes of Group Life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from The Moral Imagination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from The Listening Book	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multiple readings from Managing Transitions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organizational Learning, Argyris and Schon	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Sustainability Revolution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ecological Literacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Power of Sustainable Thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small group decision making, Fischer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notes on group dynamics. Heifetz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dialogic Leadership. Isaacs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The first and last freedom, Krishnamurti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connecting to source: the U-Process, Hazzan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-Reliance, Emerson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Holding environments, Kahn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fields of Green	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Termination in Groups. Van Steenberg LaFarge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How effective towards deepening your understanding were the following written assignments

	Not effective				Highly effective
Weekly small group questionnaires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Movie questionnaires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aspirations and ambitions exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Final paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How important towards enhancing your learning was the feedback on your assignments?

Not effective					Very effective
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you would have received only half the amount of written feedback for each assignment how would it have impacted your learning

I would have made no difference to my overall learning					I would have been a disaster for my learning
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What did you find to be most useful from the written feedback?

Course format evaluation page 2 of 3

Work load: how many hours approx. per week did you spend in the following

	1	2	3	4	5	6	7	8	9	10+
Class readings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meeting with your small groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listening to class recordings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)										

If you were to remove any of the components, readings, experiential activities, assignments or aspects of the course what would they be?

If you were to add any of the components, readings, experiential activities, assignments or aspects of the course what would they be?

Did you find the overall teaching methodology useful to your learning?

Not useful					Very useful
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Would you have preferred more traditional lecture teaching?

I would have preferred all classes to have a formal lecture					I liked the course as it was taught					I would have preferred even less lectures
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Would you have preferred more instructor support outside of class time

☐ Yes

☐ No

Additional comments

In your experience what was the most challenging part of the course?

What is the most important thing you learned?

What disappointed you about this course?

Any other general feedback you would like to give us regarding the format of the course?

From whom did you feel that you learned the most?

Mainly from my class peers									
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Compared to other classes, do you feel that you learned more from your class peers?

I learned <u>much less</u> from my peers									
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you have more social contact with your peers than in other courses?

No, actually much less									
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Where do you feel you learned the most?

Mainly outside formal class time (includes small group meetings)									
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other questions

Would you recommend this course to other students?

- ☐ Yes
☐ No

How useful was this course compared to other courses you have taken in preparing you for your career?

Much less useful than other courses Average Much more useful than other courses

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

How useful was this course compared to other courses you have taken for your personal development?

I have not taken other personal development courses Much less useful than other courses Average Much more useful than other courses

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Are you interested in further developing the concepts and skills taught in this course?

Not interested I am highly interested in further developing them

☐ ☐ ☐ ☐ ☐

Would you take a follow-up course that would expand on the interpersonal and personal aspects of exercising leadership?

- ☐ Yes, without a doubt
☐ Maybe, I would need to know more about it
☐ No

Would you take a follow-up course that would focus on teaching and practising different contemplative techniques and traditions to support you in creating a sanctuary for your practice of leadership?

- ☐ Yes, without a doubt
☐ Maybe, I would need to know more about it
☐ No

Would you be interested in being a TA in future courses?

☐ Yes

☐ No

Would you be interested in being more involved in developing this course further and other similar courses?

☐ Yes

☐ No

Instructors evaluation

What is your evaluation of the teaching team's ability to exercise leadership in mobilizing the class to learn about the practice of leadership?

The teaching team did
a poor job in
exercising leadership

The teaching team did
an excellent job in
exercising leadership

What is your evaluation of the instructors in each area

	Julian	Mike	Carissa
Overall effectiveness in fostering your learning	<input type="text"/>	<input type="text"/>	<input type="text"/>
Quality and utility of her/his interventions	<input type="text"/>	<input type="text"/>	<input type="text"/>
Enthusiasm teaching	<input type="text"/>	<input type="text"/>	<input type="text"/>
Capacity to listen	<input type="text"/>	<input type="text"/>	<input type="text"/>
Capacity to protect dissident voices and perspectives	<input type="text"/>	<input type="text"/>	<input type="text"/>
Capacity to generate questioning and critical thinking.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Provide support	<input type="text"/>	<input type="text"/>	<input type="text"/>
Positively challenge you	<input type="text"/>	<input type="text"/>	<input type="text"/>
Provide a vision	<input type="text"/>	<input type="text"/>	<input type="text"/>

Other (please specify)

This is the last question. Any thing else that you would like to add?

Student interview semi-structured questions guide

Part A: most salient

- Is there anything you want to talk about related to the course? Take a minute and sit in silence. Let whatever is more pressing (important) float to the top.
- Follow up questions: (without using 'why' as it triggers a more cognitive answer)
 - Tell me how this came about?
 - Tell me more about it?
 - How do you feel about it?
 - Physiologically how did you react?
 - What stuck from the course?
 - Did you feel that something in you grew, expanded or shifted because of this course?
 - Did anything contract?
 - What supported this in your opinion?

Part B: Timeline narrative

- Remember back to the beginning of the course, can you tell your story of how you experienced the course from beginning to end?
- Ask students to draw graphs of their disequilibrium experience in the class.
- What did you fear before the course started?
- How did this evolve during the course?
- Did other fears arise? How did they progress?
- What freaked out most in the course? Why do you think?

Part C: Authority

- Over the course of the term how did you feel that your relationship with the people in formal authority changed or shifted if it did.
- Did anything shift inside?

Part D: Group influence

- Remember the class and envision the group dynamics and how they evolved over time. Tell what you see?
- What about the group dynamics influenced you most?
- How did the dynamics change/evolve over the period of the course?

Part E: Behavioural changes

- What are you doing differently now than before taking the course?
- Can you give specific examples?
- Can you think of more?
- Have you used what you have learned in the course since?
- Trying to elicit stories of application of course concepts, ways of being, etc..
- How has your experience after the course change in relationship to the following:
- How creative you feel when facing a challenge (personal or work)
- How you feel when facing ambiguity, contradictions or uncertainty (personal or work)
- How you feel your ability to engage with conflict has change (personal or work)

Part F: Life purpose

- Has the course had any impact on your interest in life and where you want to dedicate your energies to?
- Where are you going from here? Is it connected to the course in anyway?

Part G: University

- Have you experience something like this course in other university course or programs?
- How important do you think it is to have similar course
- Would you like to see a course like this at the beginning, middle, end of the course?
- Is this course better taught at a graduate or undergraduate level?

Part I: Changes

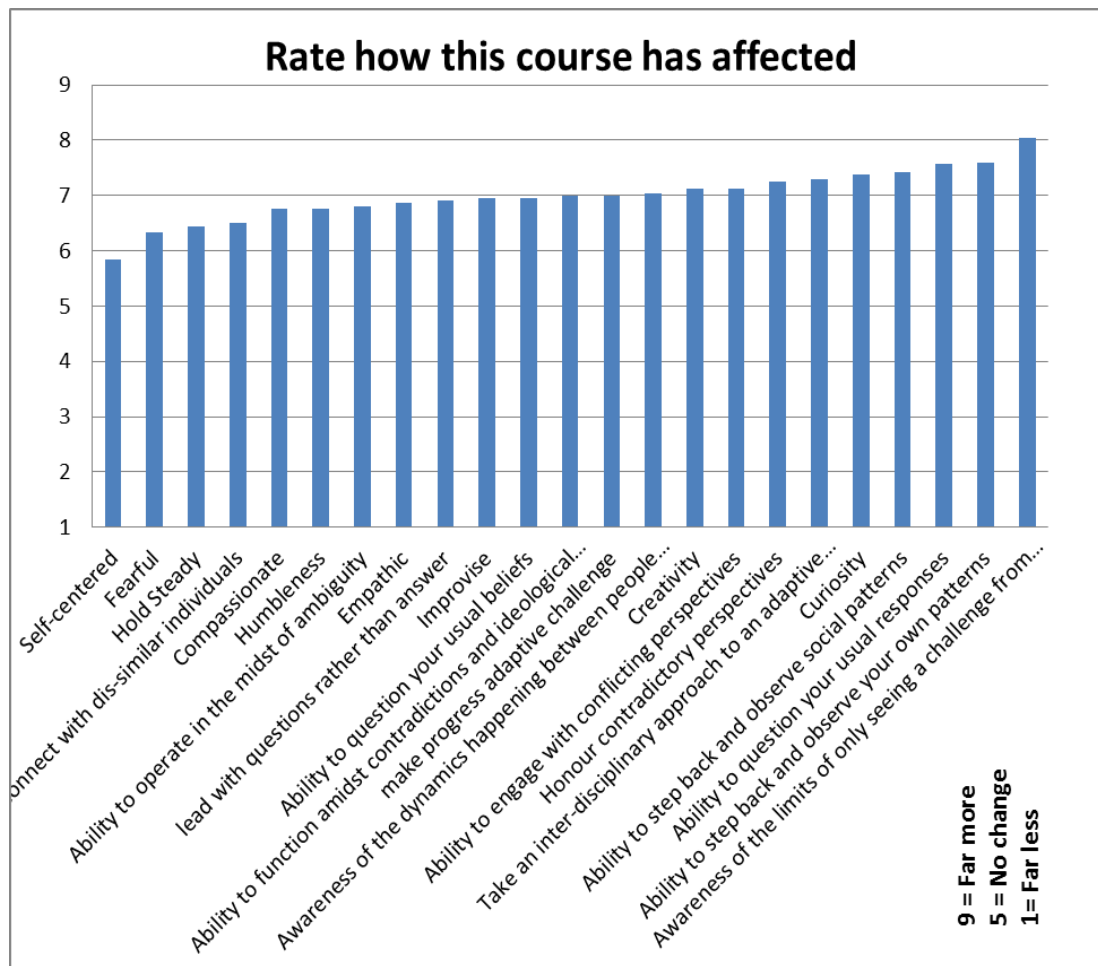
- What would you change to how the class was taught? What totally annoyed you, what worked well?

Part J: Sustainability Leadership

- Has this course help you better exercise leadership in your life?
- Has this course help you better understand sustainability?

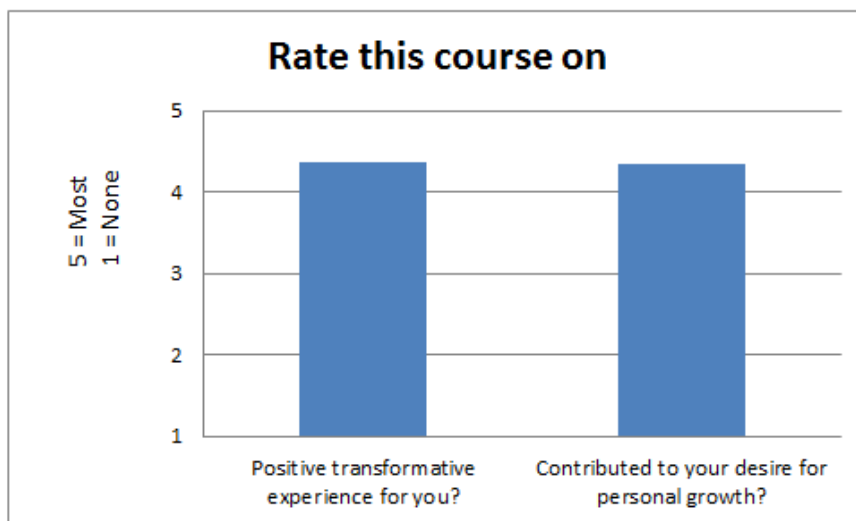
Appendix C – Survey results

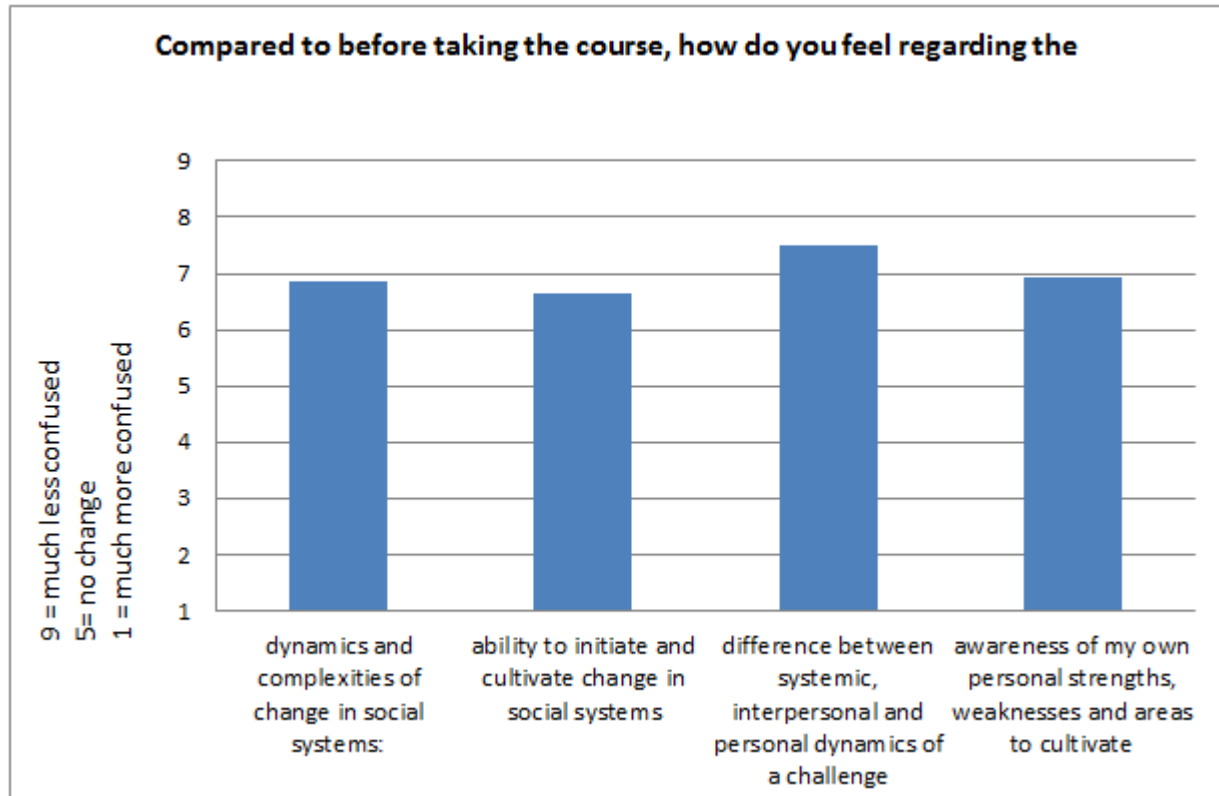
Exit web survey results

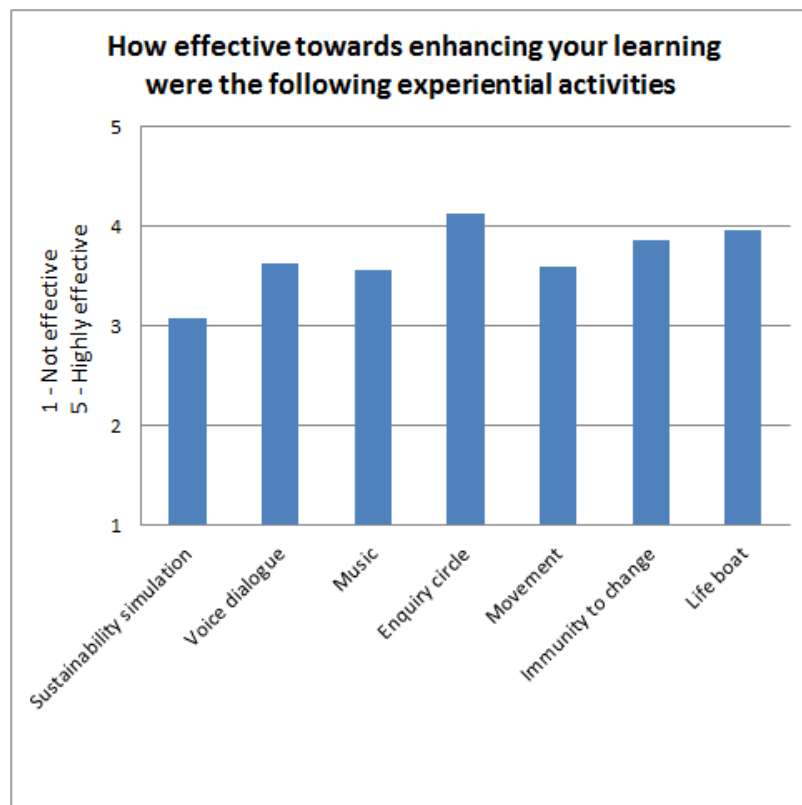
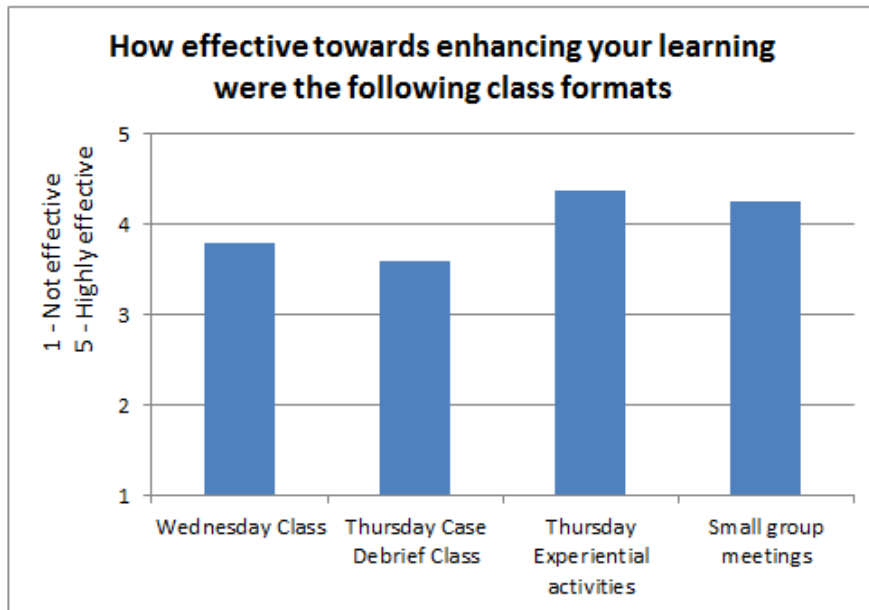


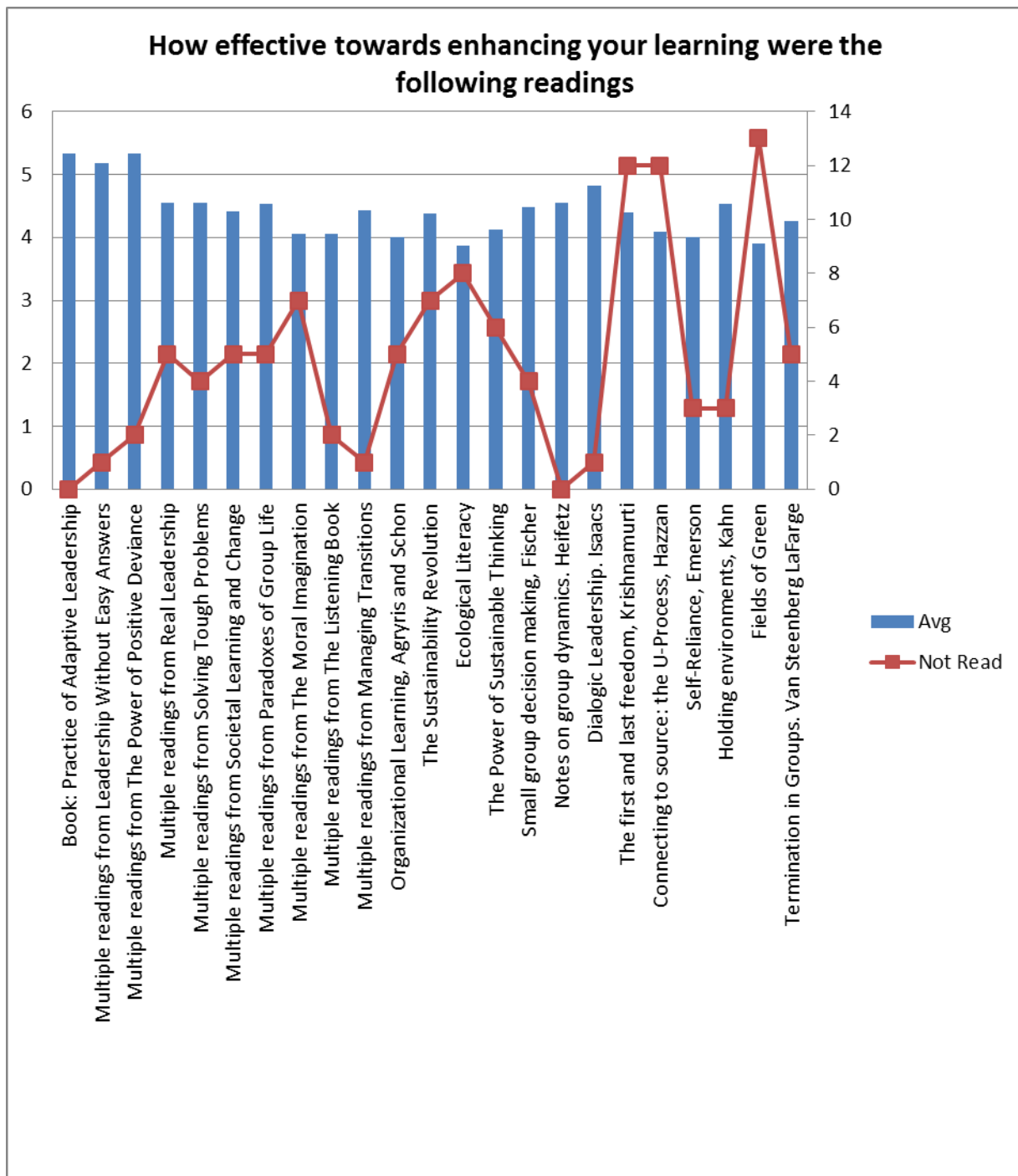
See footnote ¹⁰⁹

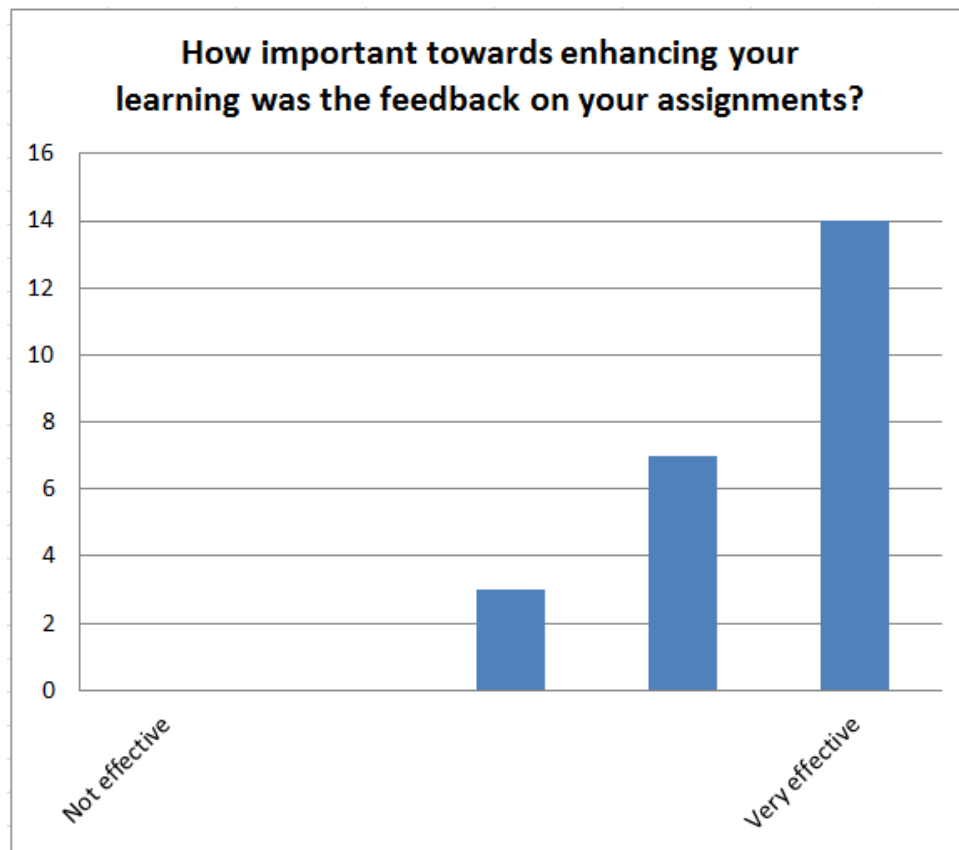
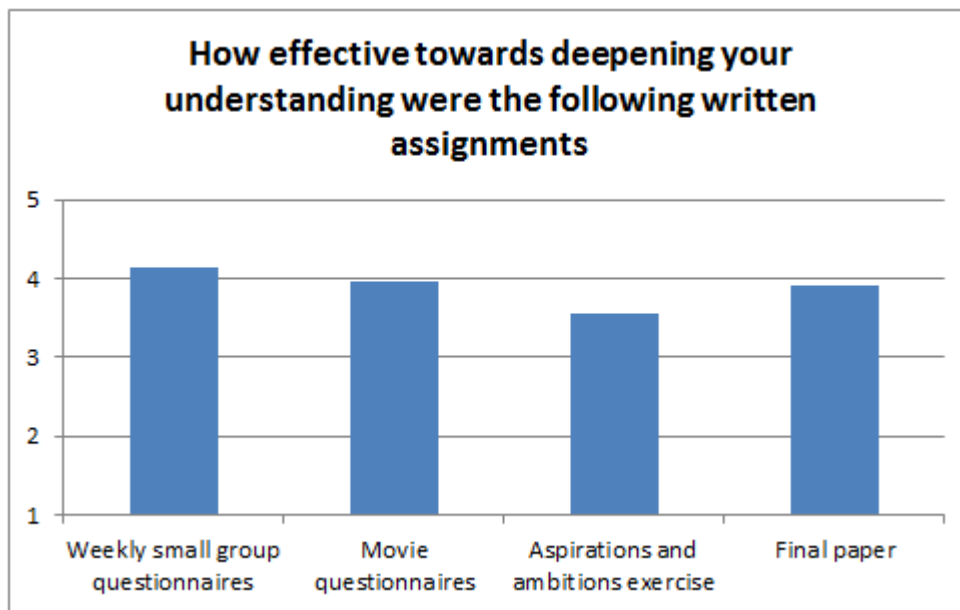
¹⁰⁹ The ratings for most of these questions were written such that a positive effect of the course was towards the right-hand side of the scale. However, the 4th (self-centered) and the 8th (fearful) question had the positive effect towards the left-hand side of the scale. This was a short sight in the design of the survey. To address this mistake the survey responses were inverted. Although, it is possible that some students did not realize the inverted scale and therefore the answers to questions 4 and 8 are possibly not an adequate representation of students experience.

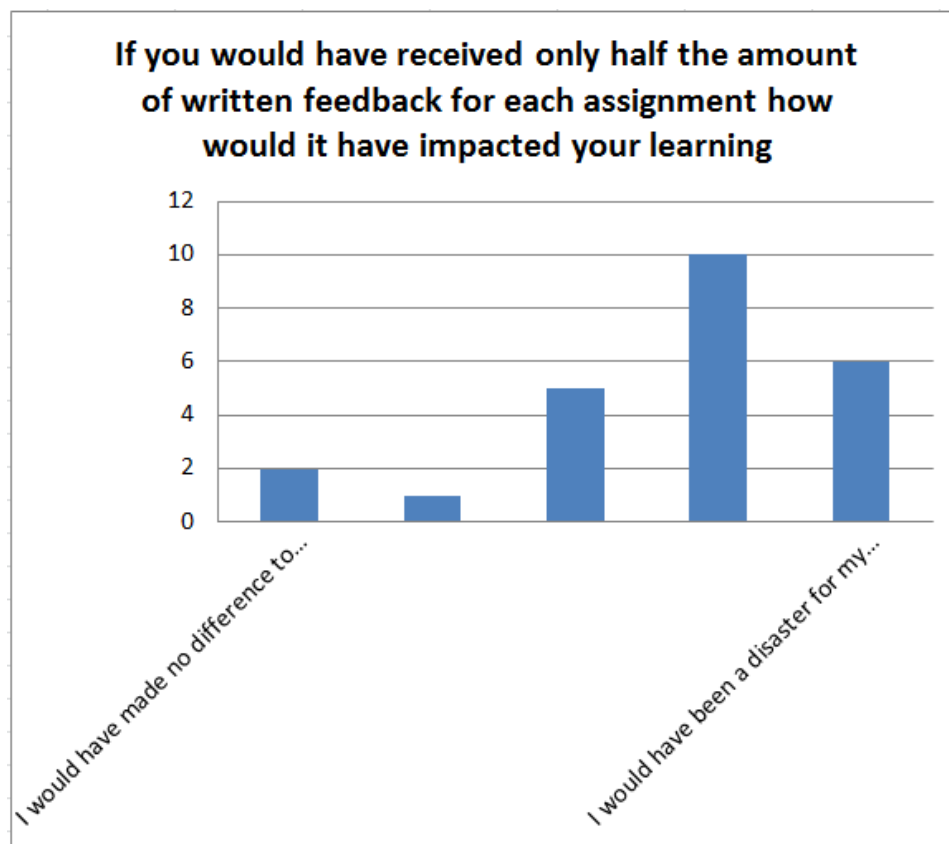




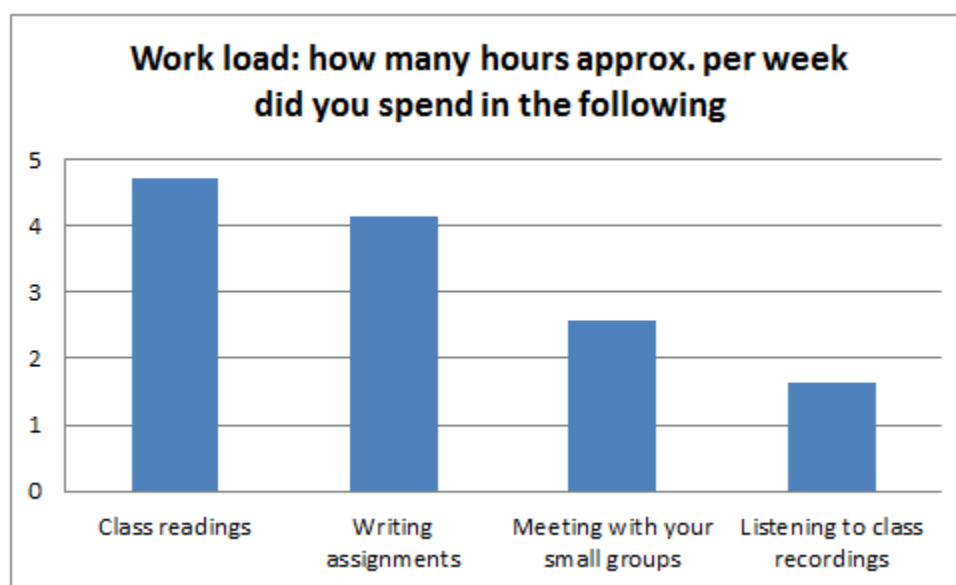


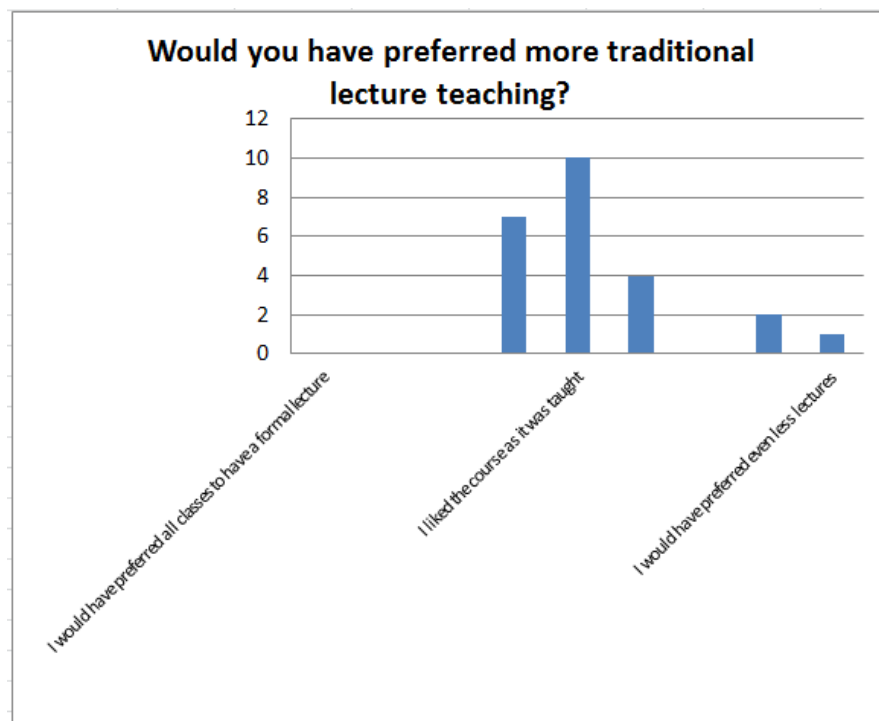
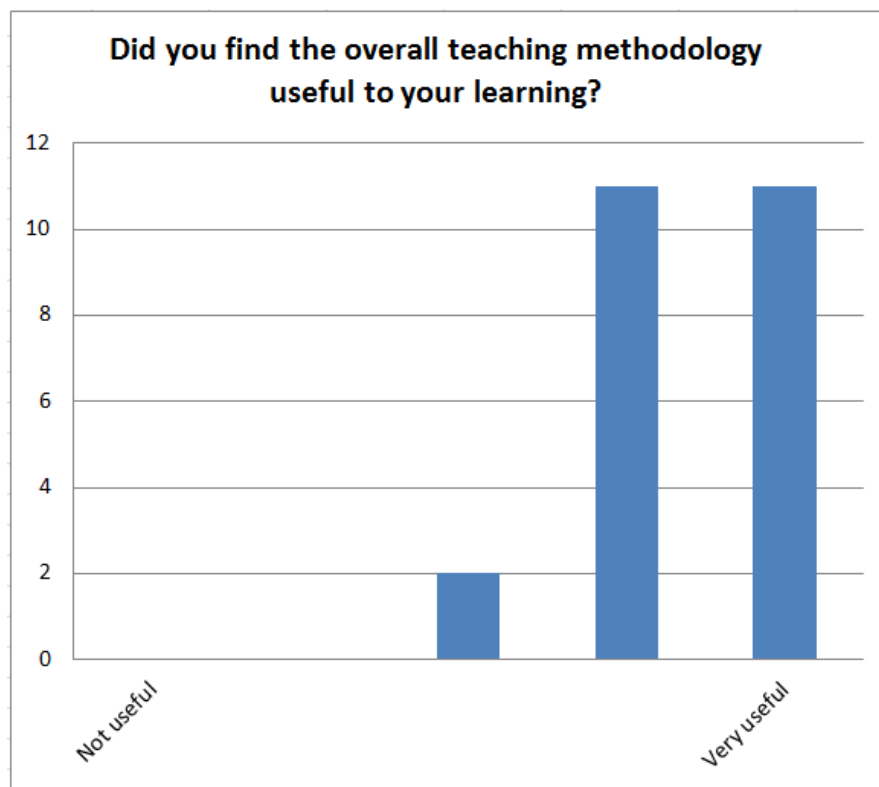


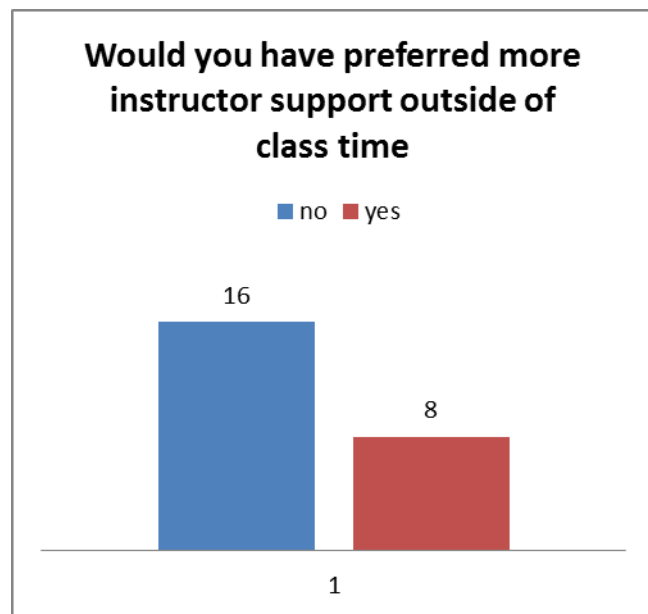


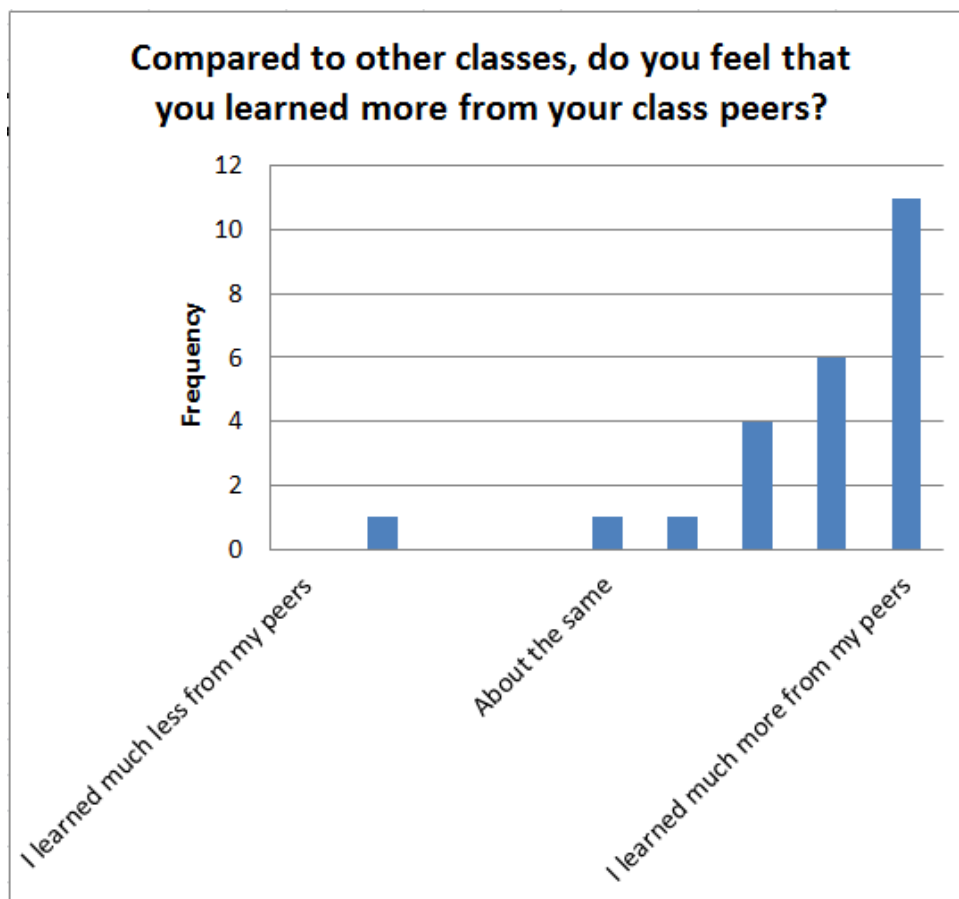
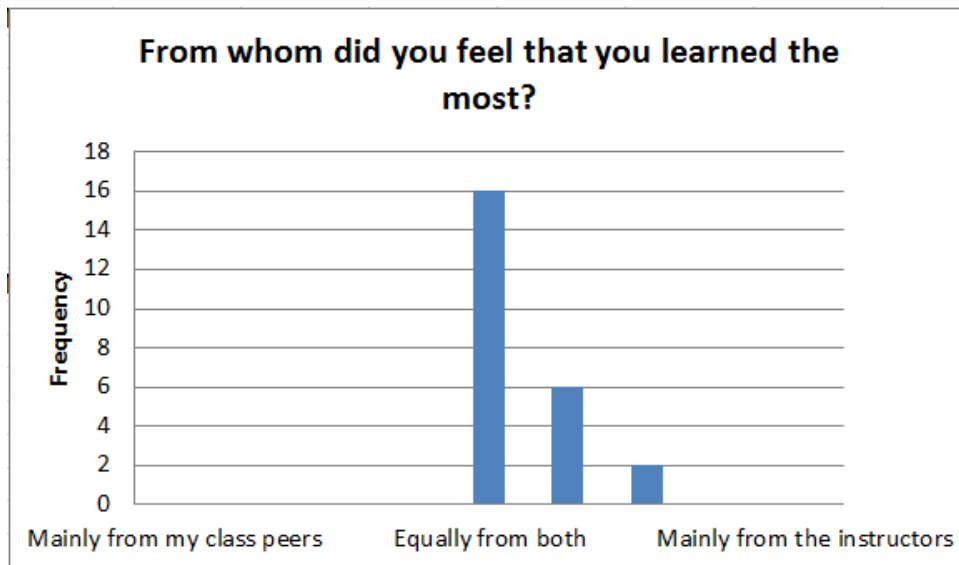


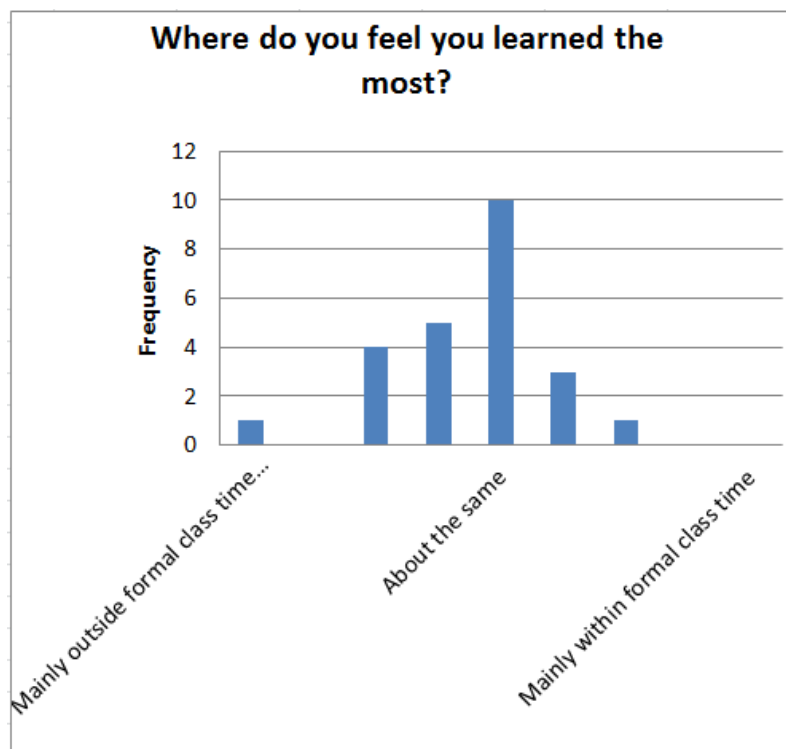
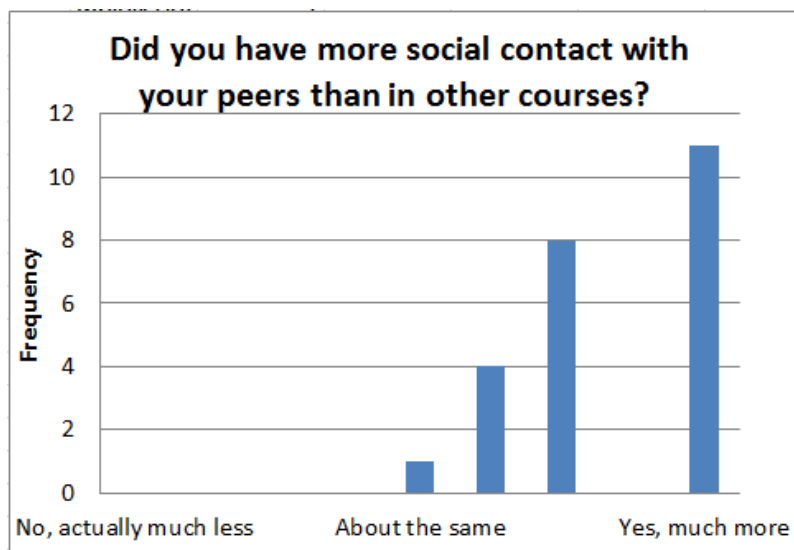
Course format evaluation page 2 of 3



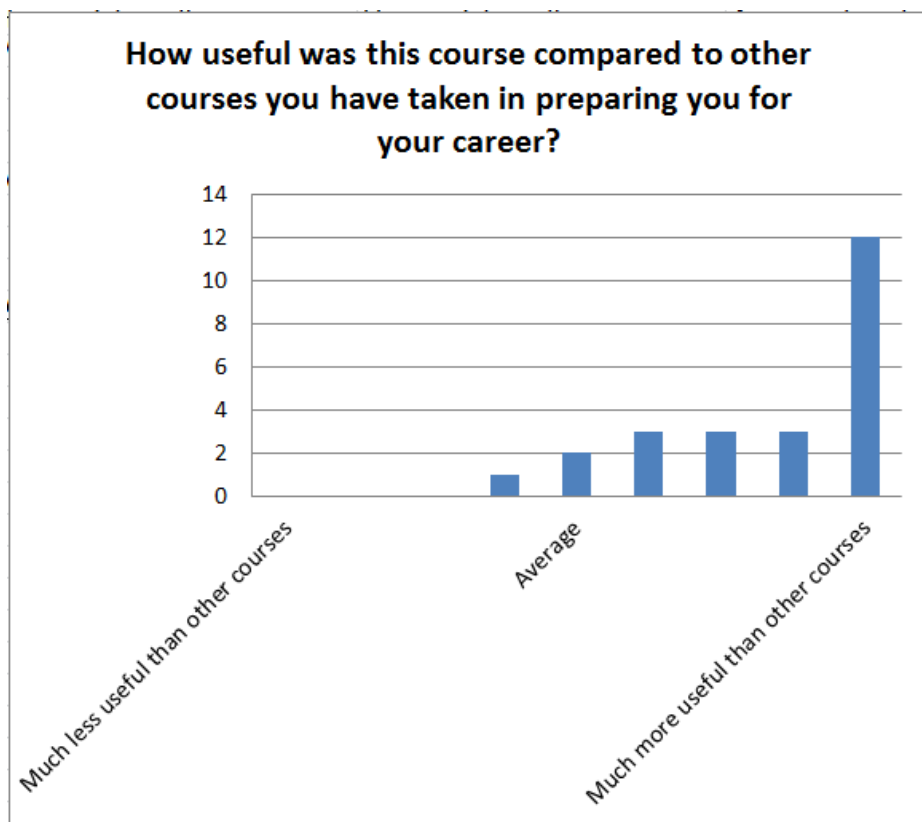
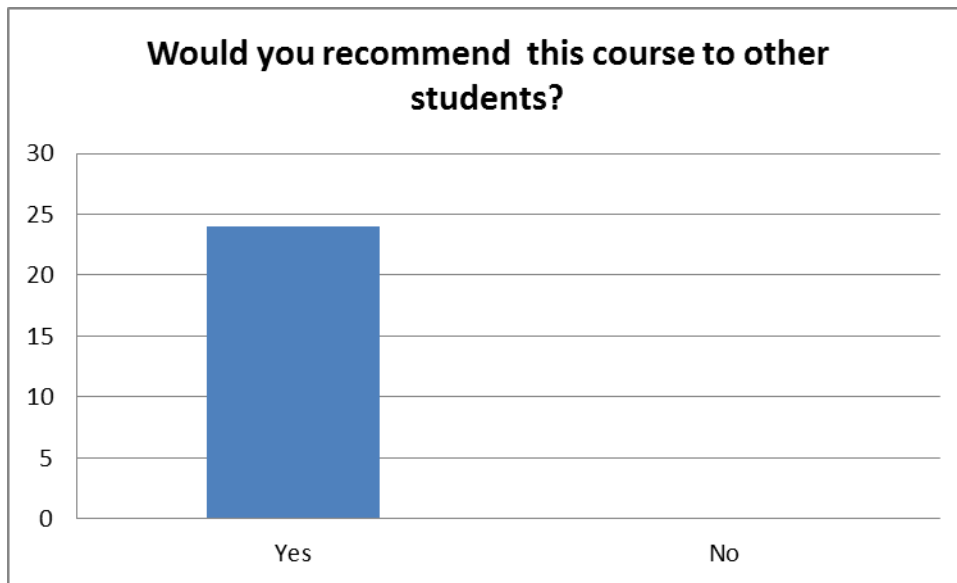




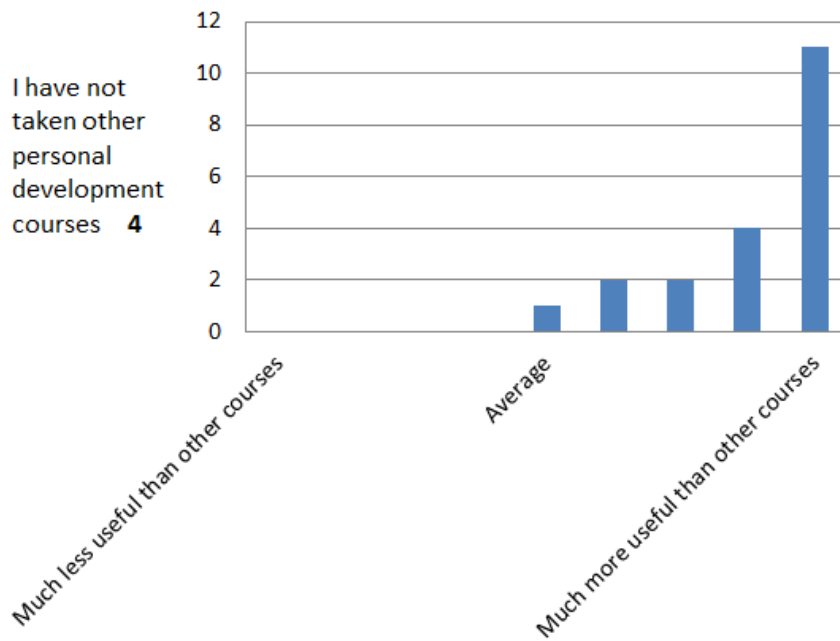




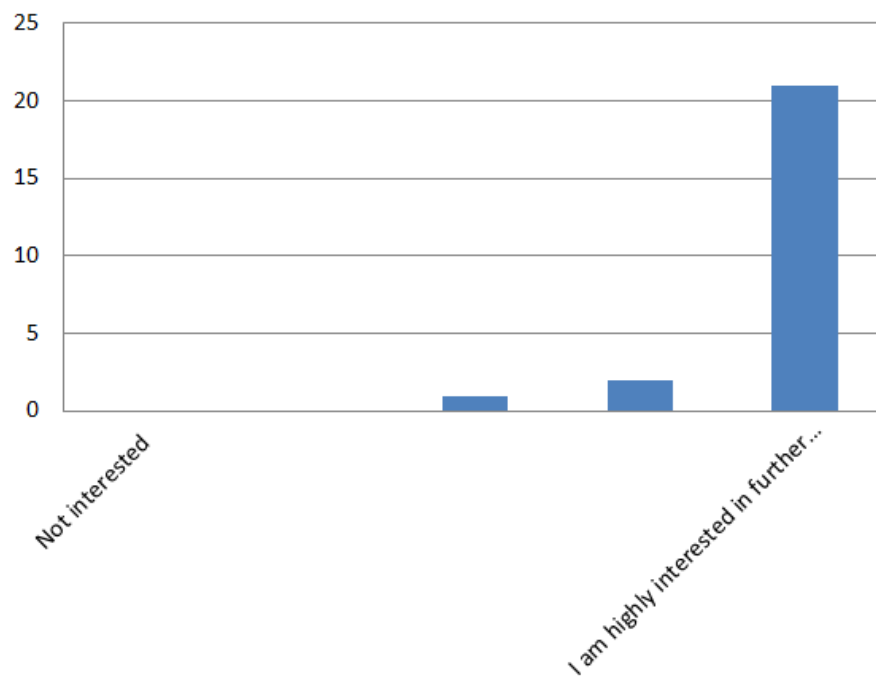
Other questions

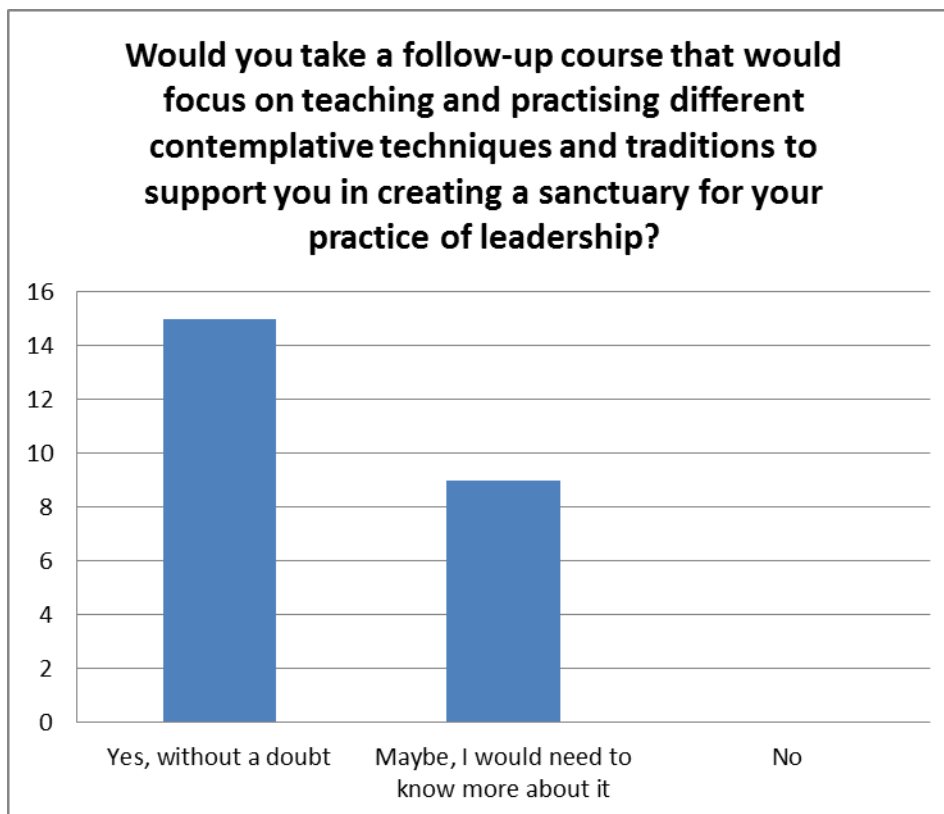
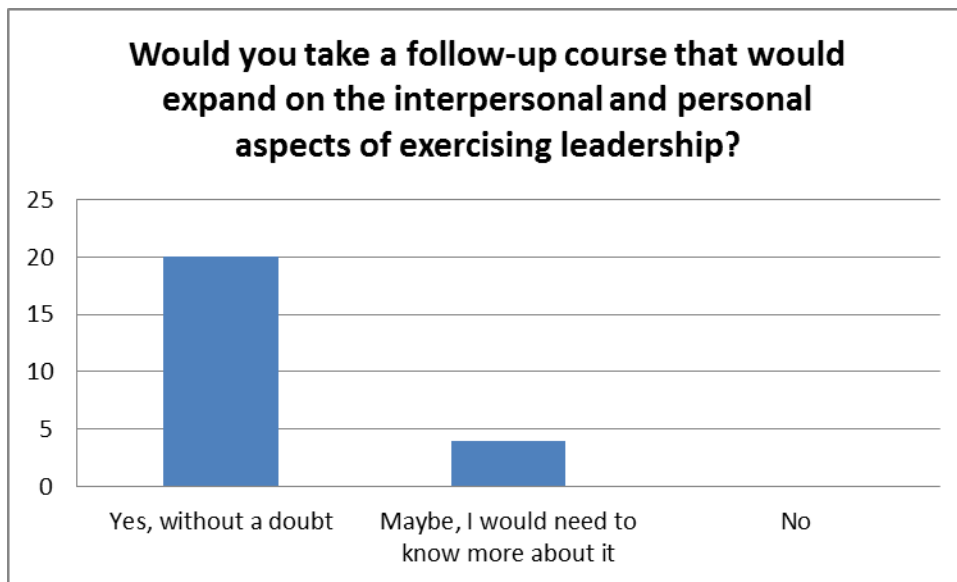


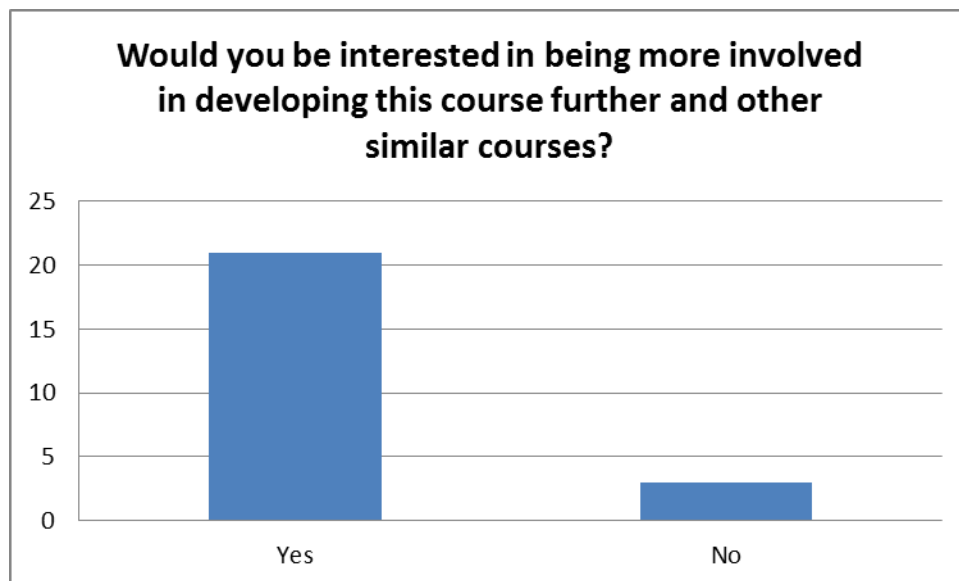
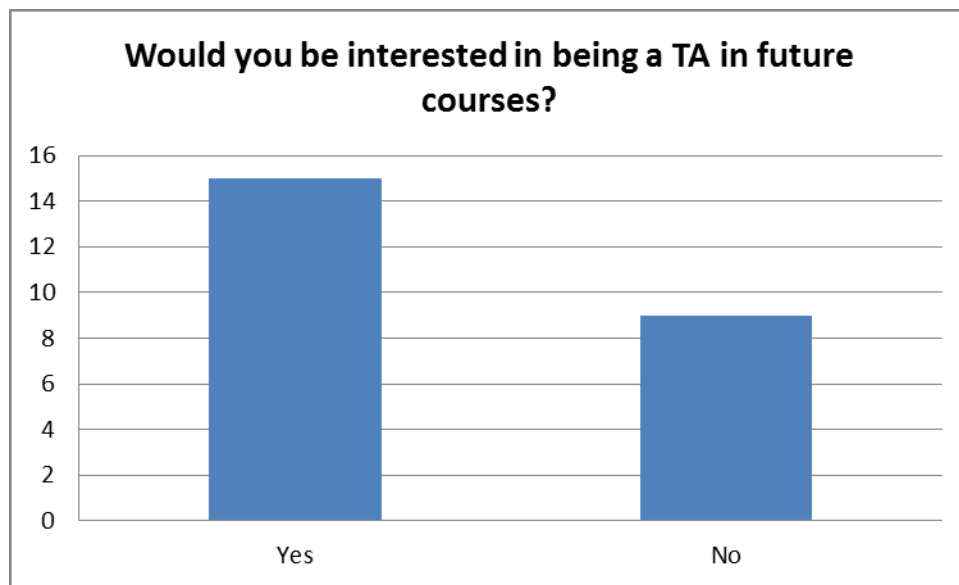
How useful was this course compared to other courses you have taken for your personal development?



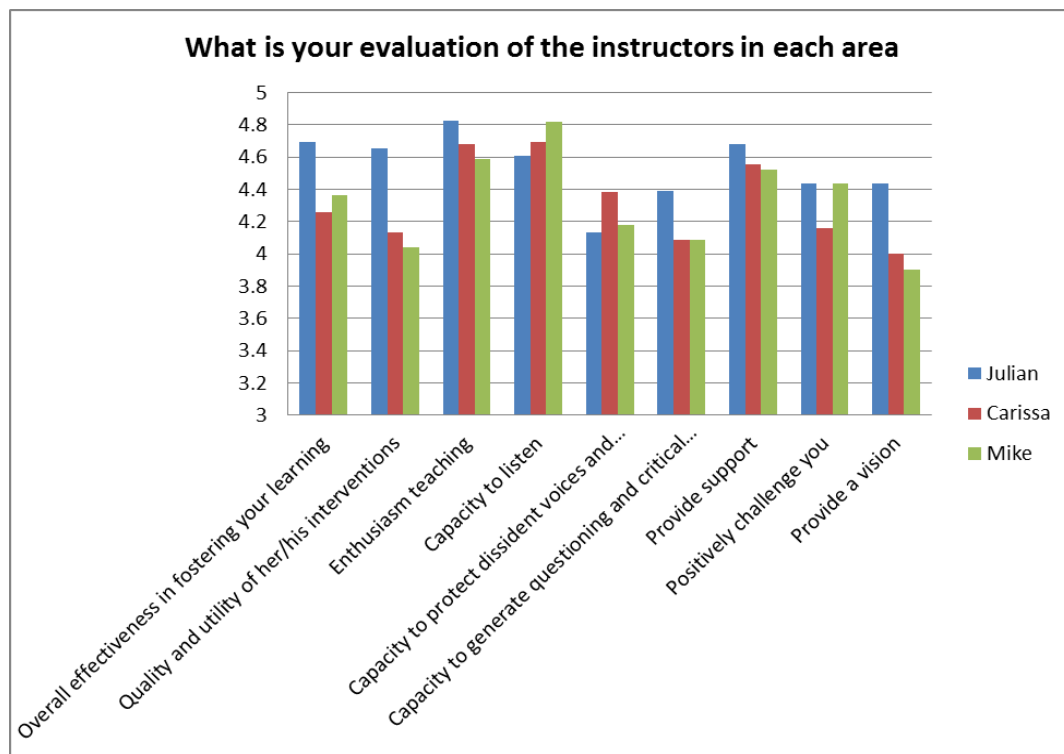
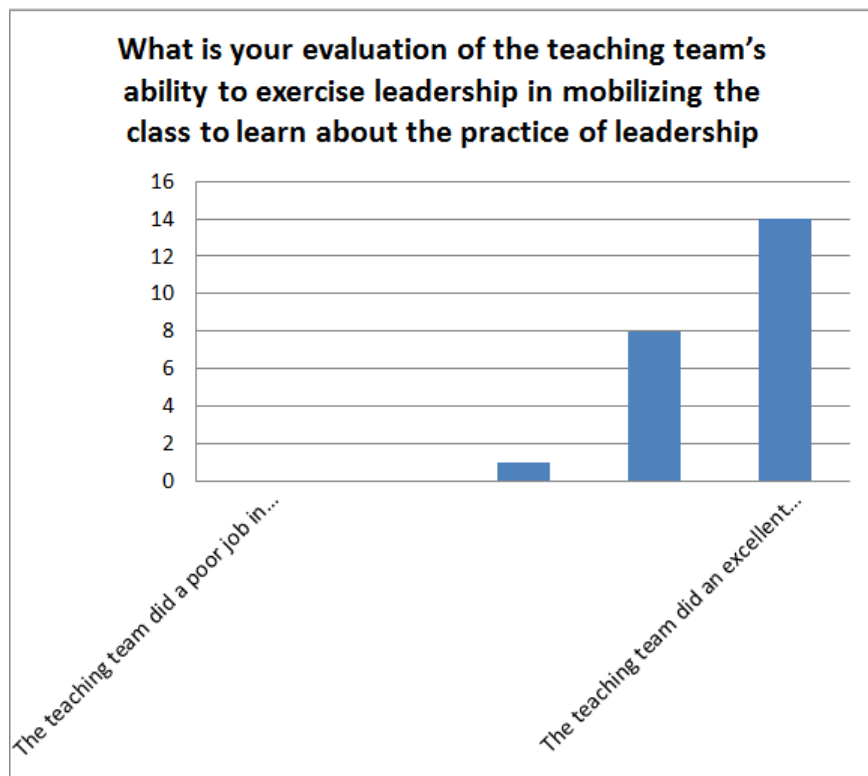
Are you interested in further developing the concepts and skills taught in this course?







Instructors evaluation



UBC exit survey results

Other Activities		[SA]	[A]	[D]	[SD]
Q1	These activities were useful	20	2	0	0
Q2	These activities occupied an appropriate amount of time	16	5	0	0
Q3	The teaching assistant(s) were knowledgeable	18	3	0	0
Q4	The teaching assistant(s) were helpful	19	2	0	0
Q5	Assignments were marked fairly	16	6	0	0
Q6	Sufficient feedback was given on assignments	18	4	0	0
Q8	The course objectives were met	14	6	0	0
Q9	The support materials (hardcopy/electronic) were useful	16	6	0	0
Q10	The workload for the course was appropriate	10	5	5	1

Responses: [SA] Strongly Agree=4 [A] Agree=3 [D] Disagree=2 [SD] Strongly Disagree=1

University Module		[SD]	[D]	[N]	[A]	[SA]
Q1	The instructor made it clear what students were expected to learn.	1	0	3	8	10
Q2	The instructor communicated the subject matter effectively.	1	0	0	10	11
Q3	The instructor helped inspire interest in learning the subject matter.	1	0	1	0	20
Q4	Overall, evaluation of student learning (through exams, essays, presentations, etc.) was fair.	1	0	0	8	13
Q5	The instructor showed concern for student learning.	1	0	0	0	21
Q6	Overall, the instructor was an effective teacher.	1	0	0	3	18

Responses: [SD] Strongly Disagree=1 [D] Disagree=2 [N] Neutral=3 [A] Agree=4 [SA] Strongly Agree=5

Instructor Questions		[E]	[G]	[A]	[P]	[VP]
Q7	State of preparation for lectures	17	3	2	0	0
Q8	Knowledge of the subject	20	2	0	0	0
Q9	Ability to engage class	19	2	1	0	0
Q10	Effectiveness in encouraging you to think in depth about the subject matter	21	0	1	0	0
Q11	Effectiveness of classroom presentations	17	4	1	0	0
Q12	Efficiency of use of in-class time	16	5	1	0	0
Q13	Availability for discussion out of class	20	1	0	0	0

Responses: [E] Excellent=5 [G] Good=4 [A] Adequate=3 [P] Poor=2 [VP] Very Poor=1

Appendix D – Sustainability simulation

Example: farmer stakeholder



SUSTAINABILITY SIMULATION

Farmer One



OVERVIEW

The simulation is comprised of the following eight stakeholders:

- a zinc mining company,
- a forestry company that currently only focuses on timber production but is thinking of expanding its business into mills and biofuel pellet plants,
- three commercial farming businesses that compete with each other in both conventional and organic markets,
- a fishing tourism company that sells three different fishing options: rod and reel, fly fishing and remote experiences,
- a hydroelectric company that produces electricity for the province, that also manages reservoir and river water levels,
- and an environmental group (eNGO) that monitors water quality and aquifer levels

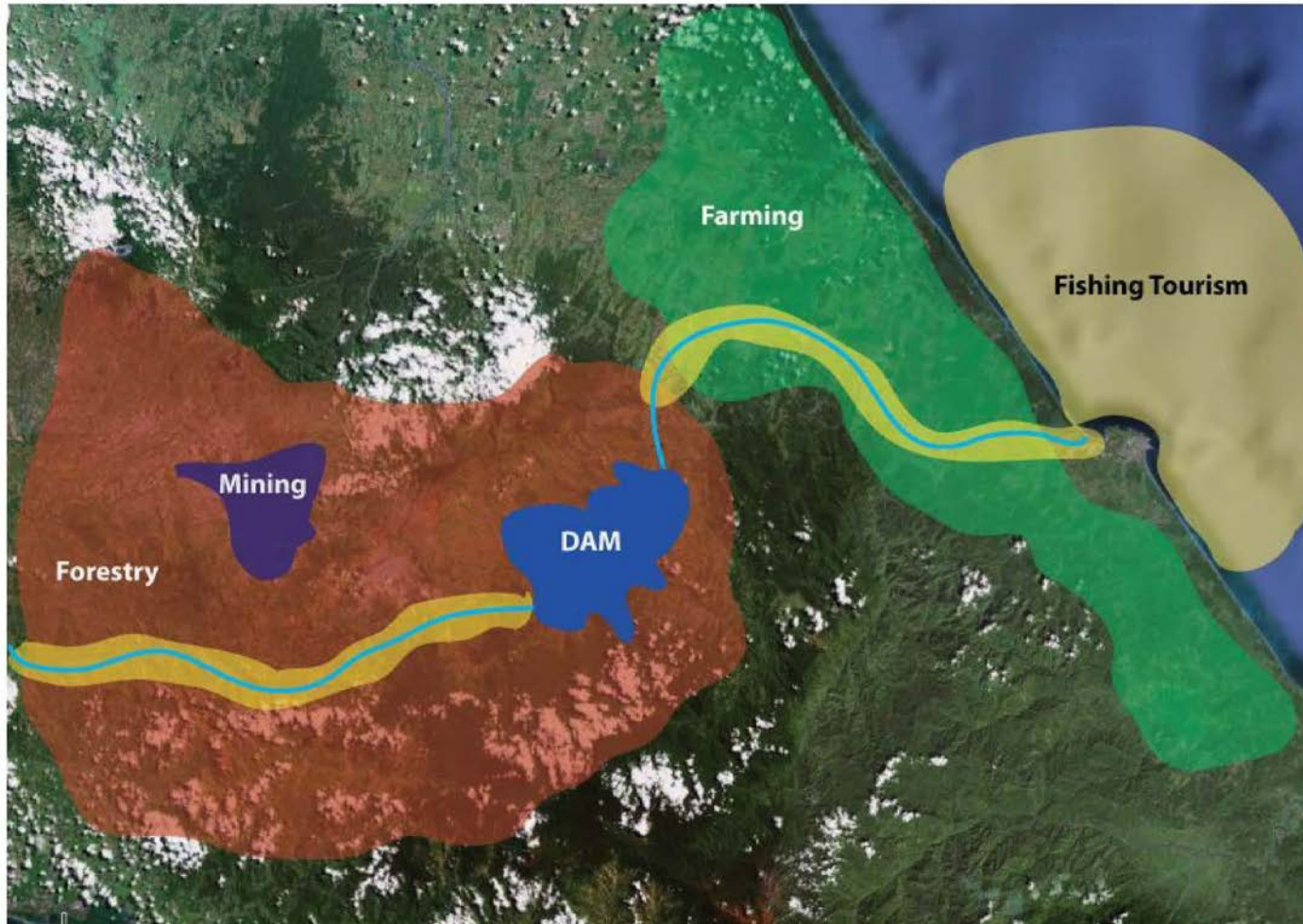
CONTEXT

The region has a sub-tropical climate and is known for its vast lands of forested areas and is a mecca for fishing. However, the region is facing multiple challenges. The economy is struggling with 12% unemployment rates and low paying salaries. The local aquifer is being depleted and water quality is quickly deteriorating. Tensions and emotions are running high in the society as different interest groups focus on competing interests. The international food market has created a lot of competition between farmers as each tries different strategies to stay competitive in the marketplace. The tourism fishing company is struggling to maintain satisfied customers as fish catches decline due to deteriorating water quality. The hydro company is concerned with the increasing soil sediments being deposited at the bottom of the dam reducing the reservoir capacity, as well as, the decreasing rains that are challenging the profitability of the enterprise. The forestry and mining companies are new to the area and are operating at reduced capacity because they are concerned with the pressure that the international environmental NGO watch dog can place on market prices via boycott campaigns.

The challenges of the region are creating pervasive conflicts as the tension between economic, social and environmental interests rise. Meteorologists forecast that the climate will become drier because of the regional impacts of climate change.

TIMELINE

Time	Activity	Year
Setup lab	Setup and review history	2001-2010
End of setup lab	Period 1 decisions	2011-2012
3:20	Period 2 decisions	2013-2014
3:35	Period 3 decisions	2015-2016
3:35-4:05	Public Forum	
4:20	Period 4 decisions	2017-2018
4:35	Period 5 decisions	2019-2020
4:35-5:05	Public Forum	
5:20	Period 6 decisions	2021-2024
5:35	Period 7 decisions	2025-2030



FARMER ONE

You are one of three farms that are competing against each other in the market. The last decade has seen a 3% growth per year in global agricultural production that has contributed to the competitive market you are facing. To your advantage it is forecasted that the global agricultural production growth is projected to slow to 1.7 per cent a year, as higher energy and fertiliser costs temper expansion.

Your farm has been quite profitable in the last decade and your immediate concerns are more local, as you have noticed that the water in the river has been in constant decline in the past decade. The productivity of your crops are directly influenced by how well they are irrigated. The local rains have not been able to supply all your water needs and all farmers have resorted to pumping water out of the river and requesting water from the local aquifer.

Water quotas are allocated every year for the aquifer and you need to decide at the beginning of each year how much of your water needs will be pulled out of the aquifer. There are no regulations on how much water you can pull out of the aquifer. (Note: to keep the mathematical calculation simple a ratio of river/well use of '0' means all your water needs are pulled out of the river, a ratio of '1' means all your water needs are pulled from the aquifer). However, keep in mind that the aquifer can be depleted if you pull too much water from it year after year.

The table is a rough estimate of the income you will receive planting different crops, as well as the jobs created, and water and pesticide use that they require. (Note: organic farming does not use pesticides).

Crop	\$/acre conventional	Jobs conventional (per 100 acres)	\$/acre organic	Jobs organic (per 100 acres)	water /acre (m3)	Pesticide Use
Cotton	\$ 300	2.0	\$ 210	1	2535	High
Corn	\$ 180	1.5	\$ 288	1	489	Low
Soy	\$ 240	2.5	\$ 225	1	1869	Medium
Wheat	\$ 150	1.5	\$ 294	1	849	Low

In each yearly cycle you will have to decide what crops to plant in the 3,000 acres that you own, the ratio of river/well water use and the salary you will pay your employees. You can switch from organic to conventional every year without any limitations. However, you cannot farm the same conventional and organic crop in the same year.

Objectives

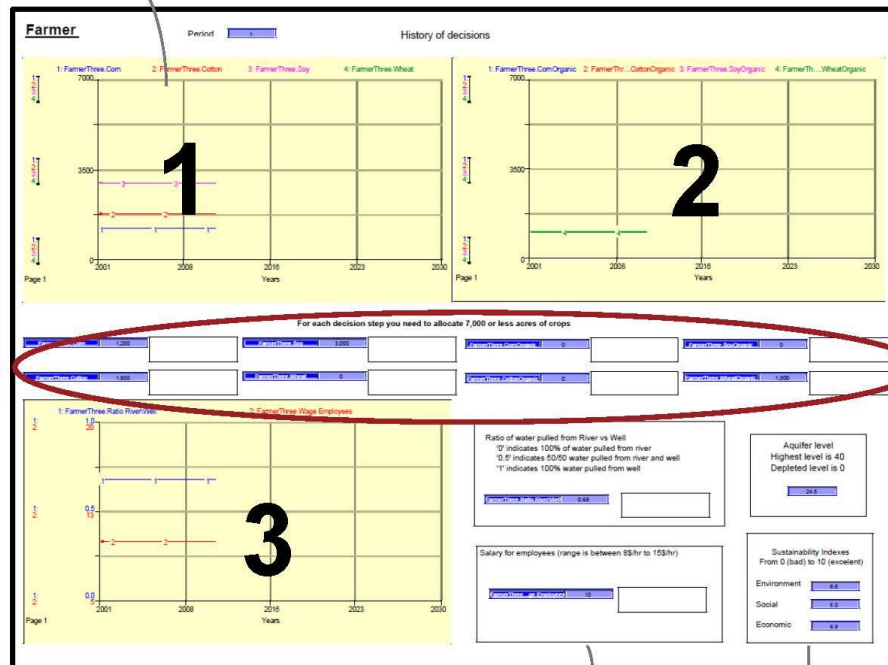
Your group represents an extended family that manages the farm, and as managers of the farm you have multiple objectives to meet:

- Increase the productivity of your farm (dependant on water allocation and rain patterns)
- Come up with adequate strategies of what crops to farm so you can sell them all in the market place

For each decision period you will receive two pages similar to the ones below. These pages chart your previous decisions, as well as provide you with useful indicators that will aid you in making decision for the next decision period. In each decision period you will fill in the boxes with your decision and hand it in to your instructors. Five minutes later you will receive a summary page back with blank decision boxes that you will need to fill in again for the next year.

The three charts on this page keep track of all your previous decisions. For the first ten years of the simulation the decisions were kept constant.

- Chart one: Amount of acres allocated to conventional crops
- Chart two: Amount of acres allocated to organic crops
- Chart three: Ratio of river/well use and salary of employees



In this area you need to notate what crops you would like to plant on the following year.

The blue boxes tell you what you planted the previous year

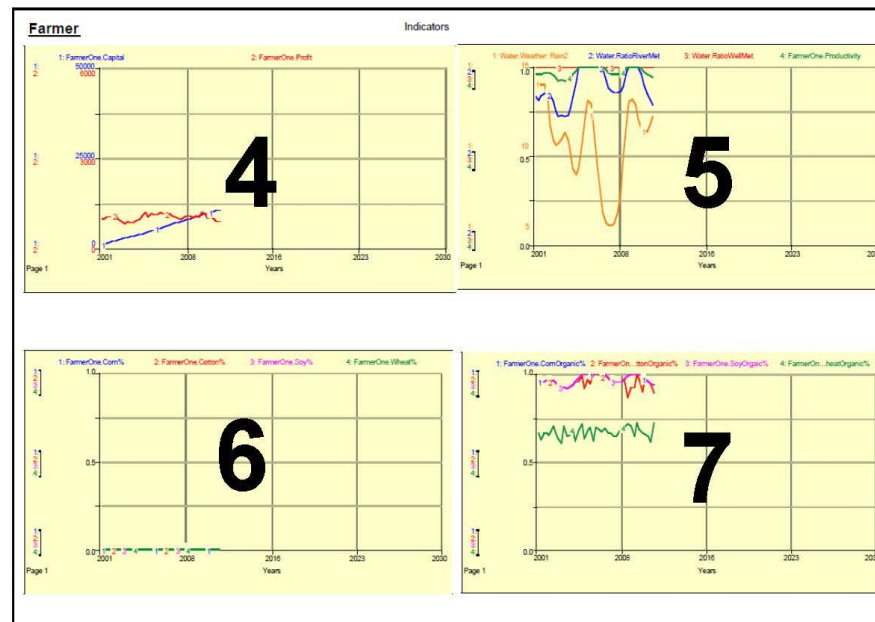
The top box informs you of the height of the local aquifer. The highest amount is 40, the lowest is 0.

The bottom box gives you three sustainability readings for the whole region. The scale goes from: 10 – excellent to 0 – bad.

In these two boxes you need to notate the ratio of river water use vs well use. You also need to decide on the salary wage of your employees

These four charts provide you with the following indicators:

- Chart four: : Amount of total capital and yearly profit your farm makes
- Chart five: Rainfall amount, percentage of the amount of water that you requested from the river that was successfully met, the same percentage for the well, overall productivity of your farm
- Chart six: tells you the percentage of each crop that was successfully sold in the conventional market
- Chart seven: tells you the percentage of each crop that was successfully sold in the organic market

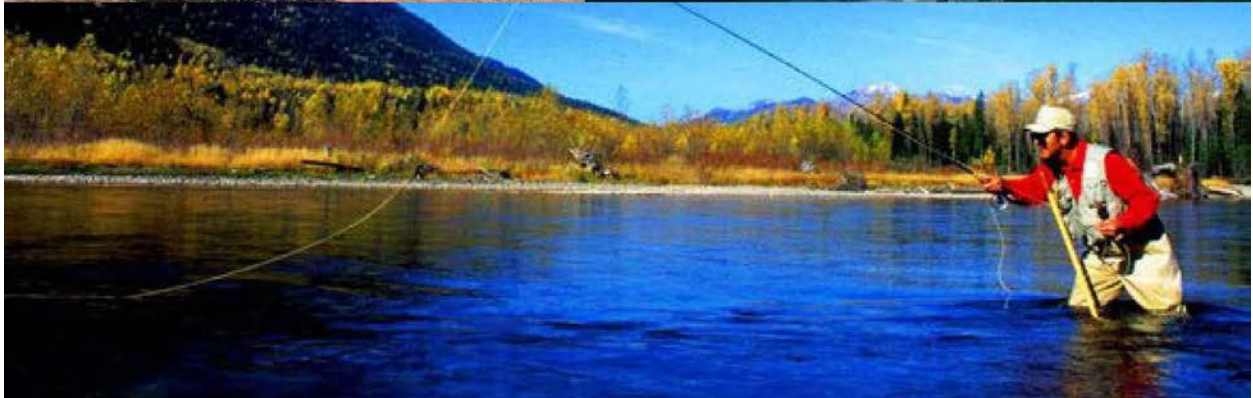


Example: forestry stakeholder



SUSTAINABILITY SIMULATION

Forestry



OVERVIEW

The simulation is comprised of the following eight stakeholders:

- a zinc mining company,
- a forestry company that currently only focuses on timber production but is thinking of expanding its business into mills and biofuel pellet plants,
- three commercial farming businesses that compete with each other in both conventional and organic markets,
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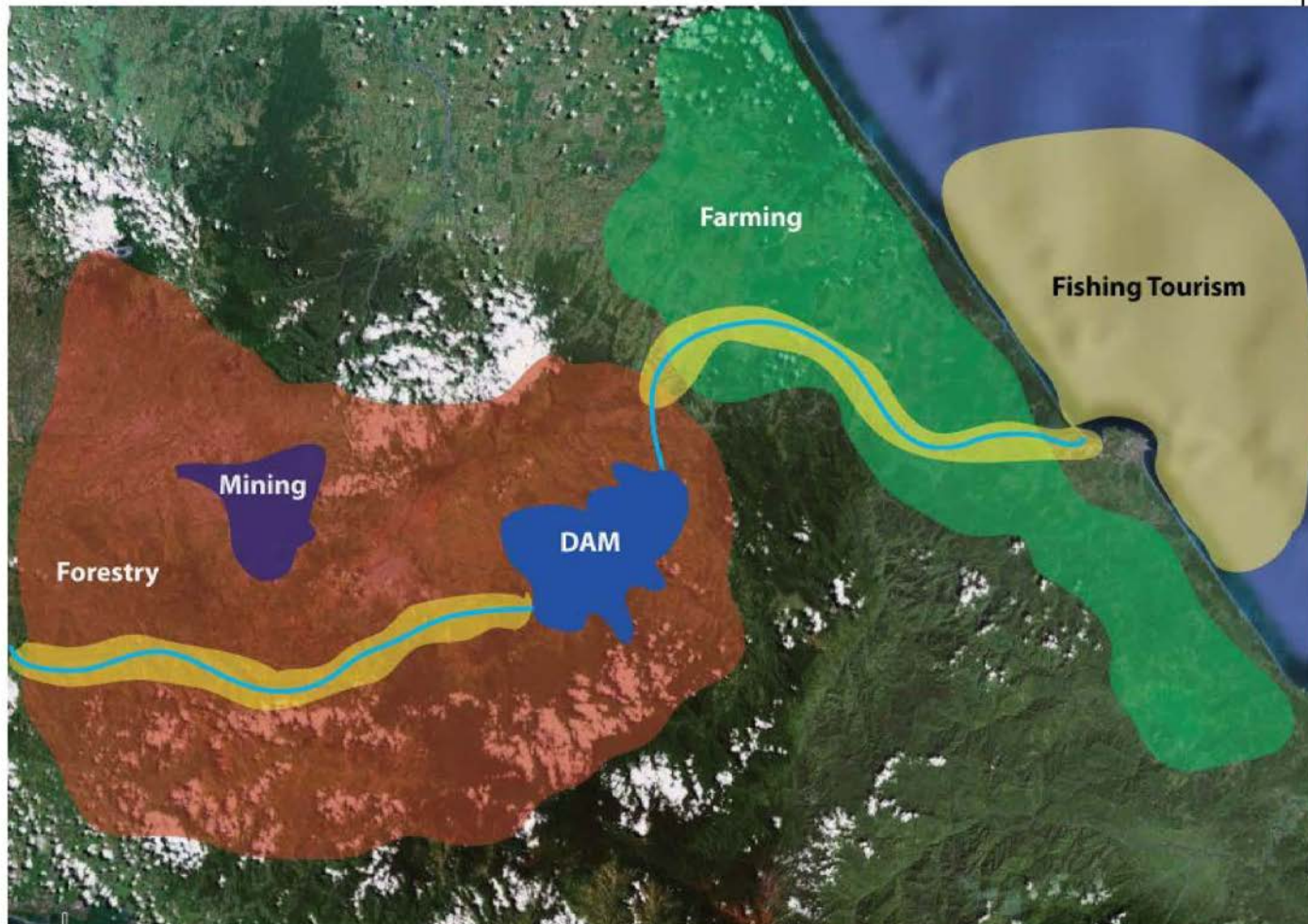
CONTEXT

The region has a sub-tropical climate and is known for its vast lands of forested areas and is a mecca for fishing. However, the region is facing multiple challenges. The economy is struggling with 12% unemployment rates and low paying salaries. The local aquifer is being depleted and water quality is quickly deteriorating. Tensions and emotions are running high in the society as different interest groups focus on competing interests. The international food market has created a lot of competition between farmers as each tries different strategies to stay competitive in the marketplace. The tourism fishing company is struggling to maintain satisfied customers as fish catches decline due to deteriorating water quality. The hydro company is concerned with the increasing soil sediments being deposited at the bottom of the dam reducing the reservoir capacity, as well as, the decreasing rains that are challenging the profitability of the enterprise. The forestry and mining companies are new to the area and are operating at reduced capacity because they are concerned with the pressure that the international environmental NGO watch dog can place on market prices via boycott campaigns.

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5:35	Period 7 decisions	2025-2030



FORESTRY

The forestry company has only been operating in the area for 15 years. The land base where you have license to operate is 14,000 acres. The land base when it has a fully mature forest contains 2,000,000 cubic meters of timber. You took possession of the land base with 1,000,000m³ of timber ready to harvest and have kept it at about the same amount since. The timber regenerates at an average rate of 150,000m³ a year. The regeneration process can be accelerated using silviculture techniques. With moderate silviculture you can improve growth rates by 30%. By adding fertilizer and pesticides you can increase the growth rates by a total of 60%.

Since operating in the area you have been logging at a sustainable yield. However, your profits have been marginal and your parent company is pressuring you to at least triple your profits. To achieve this you have a few strategies to try out. The easiest strategy is to increase your harvest rate of raw logs and implement silviculture techniques to improve growth rates. Another option is to construct a mill; this will employ more people and give you extra profit per m³ harvest. A third option is to construct a biofuel pellet plant. The table below compares the different options. To simplify the simulation harvest costs are assumed to be zero, with an annual fixed cost of \$200,000 for operations (even if harvesting is zero). You have the option of constructing as many as 5 mills and 5 biofuel plants. However, once they have been constructed you cannot close them even if the amount of timber they are processing is zero. Market price is about \$5 per cubic meter of timber.

Option	Income per m ³	Maximum capacity per plant in m ³ (1,000s)	Operating cost per plant \$ (1,000s)	Jobs created	Construction cost \$ (1,000s)
Raw log	market price	-	-	One every 1,000m ³ harvested	-
One Mill	2x market price	50	175	25	2,000
One Biofuel plant	2.5x market price	25	125	10	1,500

Forest aesthetics are calculated for the area. A score of 1 is very high forest aesthetics and a score of 0 is very low. The amount of timber standing on the land base impacts aesthetics positively and the harvest rate impacts it negatively. Your forestry operations also create erosion that is a concern to the downstream hydro company.

Objectives

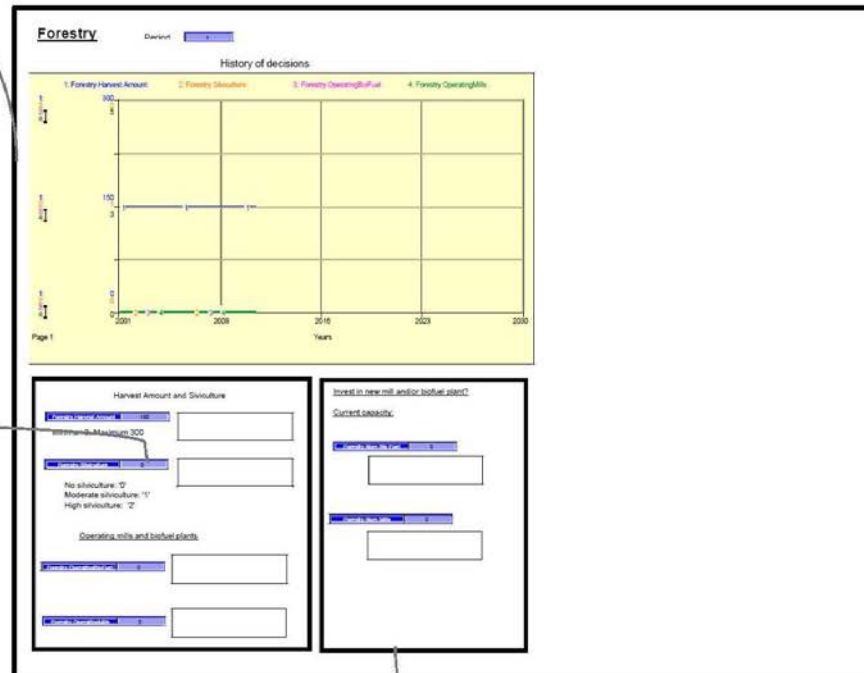
As the forestry management board you have multiple objectives to meet:

- In the next 5 years increase profits to at least three fold
- Employ as many people as possible
- Manage forest aesthetics since they are somewhat important for the tourism in the area.

For each decision period you will receive a page similar to the one below. These pages chart your previous decisions, as well as provide you with useful indicators that will aid you in making decision for the next decision period. In each decision period you will fill in the boxes with your decision and hand it in to your instructors. Five minutes later you will receive a summary page back with blank decision boxes that you will need to fill in again for the next year.

4

This chart keeps track of all your previous decisions. For the first ten years of the simulation the decisions were kept constant.



These two boxes are where you need to type in your decisions for the simulation.

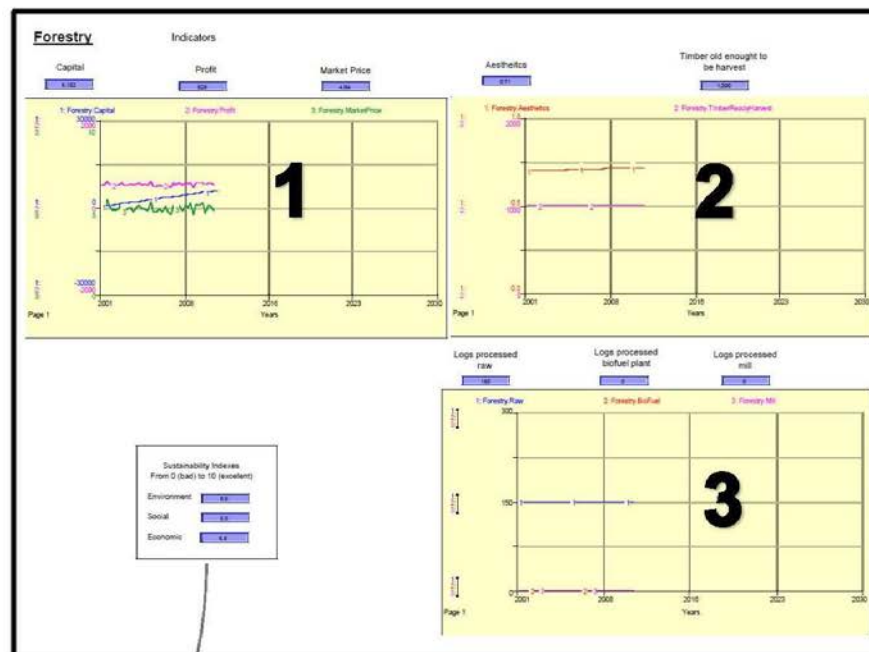
For each decision period you need to decide on:

- Harvest amount
- Silviculture
- Number of operating biofuel plants and mills
- Number of plants to construct

Remember: you cannot operate a plant unless you have first constructed it. It takes one year from the time of constructing until you can operate the plant

These three charts provide you with the following indicators:

- Chart 1: Market price, capital in the business and yearly profit
- Chart two: amount of timber ready to harvest, and aesthetics of the landscape
- Chart three: tells you how much of the harvested wood is being sold as raw log, processed by the mill or by the biofuel plant.



This box gives you three sustainability indexes for the whole region. The scale goes from 10 – excellent to 0 – bad.

Stella control panel

Mining Inputs

Mining Production

Mining Salary Wage

Mining Chemical
☐

Mining Treatment
☐

Hydro Inputs

Hydro Release Rate

Hydro Dredging

Fishing Inputs

Fishery Rod and Reel

Fishery Fly Fishing

Fishery Remote Experience

Fishery Marketing

NGO Inputs

NGO Switch Campaign Mining
☐

NGO Switch Campaign Market
☐

NGO Switch Campaign Forestry
☐

CONTROL PANEL

Period

Constants of Model

Fishery.CONST: Fertility	0.2
Fishery.CONST: Possible Jobs Created	0.5
Fishery.CONST: Remote Experience \$\$	45
Fishery.CONST: Rod and Reel \$\$	20
Fishery.CONST: Fly Fishing \$\$	20

Forestry Inputs

Forestry Harvest Amount

Forestry Operating Mills

Forestry Silviculture

Forestry Operating BioFuel

Forestry Technology Investment

Farmer ONE Inputs - Max 3,000

FarmerOne.Corn	0
FarmerOne.Cotton	0
FarmerOne.Soy	0
FarmerOne.Wheat	0
FarmerOne.CornOrganic	700
FarmerOne.CottonOrganic	1000
FarmerOne.SoyOrganic	800
FarmerOne.WheatOrganic	500

FarmerOne Ratio RiverWell

FarmerOne Wage Employees

Farmer TWO Inputs - Max 5,000

FarmerTwo.Corn	2000
FarmerTwo.Cotton	500
FarmerTwo.Soy	1000
FarmerTwo.Wheat	1500
FarmerTwo.CornOrganic	0
FarmerTwo.CottonOrganic	0
FarmerTwo.SoyOrganic	0
FarmerTwo.WheatOrganic	0

FarmerTwo Ratio RiverWell

FarmerTwo Wage Employees

Farmer THREE Inputs - Max 7,000

FarmerThree.Corn	1200
FarmerThree.Cotton	1800
FarmerThree.Soy	3000
FarmerThree.Wheat	0
FarmerThree.CornOrganic	0
FarmerThree.CottonOrganic	0
FarmerThree.SoyOrganic	0
FarmerThree.WheatOrganic	1000

FarmerThree Ratio RiverWell

FarmerThree Wage Employees

Appendix E – Student quotes

To preserve student anonymity each quote is coded with a SubID number that reflects a student. Some of the quotes have been edited to ensure anonymity and to enhance readability by contextualizing the comment or, in the case of some ESL students, changing the word order or grammar. In all cases, effort was made to keep the remarks as close to the original as possible. Names of students have been replaced by pseudonyms.

Quote 1

The readings and the questionnaires... were challenging for a lot of people. It felt like conventional work and it was easy to want to disengage from that kind of learning but for me the intellectual aspect really brought the course together and it was the sort of knowledge that I was attracted to but didn't have access to in other courses. SubID#7

Quote 2

The sustainability leadership course was the most personal learning that I've ever had in the university, and I know that wasn't even the focus of the course... During the class I kind of sensed your frustration, like I know you weren't against us getting into the interpersonal level but I think that's what a lot of people were craving to do. They really wanted to learn about themselves and how everyday they're engaging with others, so I think it was a huge void in our education. SubID#7

Quote 3

At the beginning, after the course finished, I would notice things a lot; towards the end of the second term I fell back into my old routines. SubID#24

Quote 4

We're all so interested in climate change, but how am I actually going to influence that? That's a really big subject. It's more than just technical skills and having scientific background, and having master's and PhD's and a bunch of years working in the Department of Canada, and what have you, or the U.N. This course has taught me how to learn. And that making progress on sustainability issues is so much about group skills and communication skills. And that is what's going to be the deciding factor in how issues are being dealt with, because obviously technical skills will back up what you're saying but it won't teach you how to deliver results. SubID#13

Quote 5

Coming from an environmental focus that buildings and our built environment produce so much waste and use so much energy and that's what I wanted to tackle but then when I've gone through the course I realized it's more about people and their interactions and the only way we're

going to be able to affect change in the physical systems is by changing our social systems. My focus has shifted so much from physical to social and it's evident in my thesis... It's been interesting for me realizing that we want to change the behaviour. If we want to have effects in the physical realm we need to change things in the social realm. SubID#23

Quote 6

The course grasped for me the concept of sustainability issues and challenges that many disciplines face. In the course I engaged in practicing the 'soft skills' - the know-how rather than know-what of group dynamics. Knowing the economic and environmental issues is one thing - the know-what - but this course taught us how organizations fail to achieve the latter part of problems, and how we can practice leadership. EsQ#11

Quote 7

I've often thought in terms of environmental education and the purpose of education is to build one's character and I think everyone should have the opportunity to learn about themselves because that changes everything. It changes how you perceive things; how you engage, so I'd love to see that in half of the university courses. SubID#7

Quote 8

I took sustainability to mean like environmental sustainability but really I think a lot of what the course was about was leadership in a way that's going to be sustainable. Like making changes that are going to be sustainable whether they're environmental or social. I certainly got away from the idea of the course being an environmental-based course pretty quickly... Sustainability, in my mind, before the course was sort of like a switch: like some big overturn of the way things are versus now. But now I understand more that's not sustainable, you can't just change big things super-fast, just like that... One of the important things that I got from the course is that you do need to work incrementally and understand what you're doing so you can keep moving in the right direction. And I let go of that notion that things are going to change overnight or things are going to change easily or just with me doing things. I need to get other people on board to mobilize change. SubID#1

Quote 9

Definitely my conception of sustainability has changed. Going into the course I was very attached to saying, 'oh I'm studying sustainability at UBC' and that had pretty much exclusively environmental connotations like 'I'm an environmentalist and I want to make things more sustainable'. I now realize that sustainability applies to everything. From relationships to group dynamics to just every facet of life and I guess I kind of moved away from using that word because we have to make changes at all levels, individual and collective and narrowing it to sustainability which has connotations of things environmental is too limited. SubID#7

Quote 10

The first thing that occurred to me is that the follow-up period of one year maybe is a little short. I mean you know it has to fit within your PhD if you're going to use it so it's that balance... The course was the most memorable and transformational course I had at UBC, but I don't feel that I really had a lot of opportunity yet to try and implement a lot of it, right? I mean half of the year was wrapping up my thesis and then the best of it was moving out here and doing some summer sports and stuff but I have a feeling that in a three year follow up hopefully I'll be using a lot of it. SubID#15

Quote 11

When I first entered the class, I didn't recognize anyone. There were no friends there, and only a few people knew each other, which is also interesting. By the end of the class, we were all really, we could consider ourselves as, friends. I remember that being an issue: we were not there to be friends. We were there to learn how to better solve adaptive issues... So the whole course, because it brought up so many internal and external emotions within each of us and within the group as a whole, it allowed us to really grow and confront each other and develop trust and to recognize a person's face and emotional reaction to a certain comment. I think as a result of that, because we were getting comfortable with each other, we were able to explore things. I remember that wasn't the point of the course again, but we're so used to working in a healthy environment with friends and you can, sometimes, explore internal concepts better as a result. SubID#13

Quote 12

I can just read a situation better so I can not only read other people but read myself too. It's like this element of familiarity. So let's just say you go to a party and you don't know anybody. This repeats itself throughout life and then you start to realize 'okay this is how I'm acting. I'm filling this role, this shoe' and then you notice other people as well, 'oh, that person when they're in this situation they always tell jokes.' They have to fill the space. So that's a new level of awareness. SubID#19

Quote 13

In the course I learned how much communication is non-verbal and how much influence you can make, for me it's influencing the other person that's talking by what you're sending back at them and how if you want to receive what someone else is saying I... have to suspend my own energy, and ... quiet myself down... for me the enquiry exercise just brought a lot of awareness to my own kind of judgement. I interrupt people and I don't want to, and I'm a lot more aware of it. I realized that you don't need to talk to interrupt someone. SubID#23

Quote 14

The course helped me to realize that conflict is an important and necessary part of the change process and that's actually okay in itself. I think I've always been more sort of conflict adverse or shy, and as soon as I see the temperature coming up or frustration or anything building, I'd try to dissipate that, smooth things over, change the topic or whatever. But I think now I'm more open to

letting people get steamed up a bit and being in more an 'all's well that ends well' mind set. SubID#15

Quote 15

I have been reflecting on how do you find certainty or do you even need to find certainty to be able to better understand what's going on in that space of uncertainty. After participating in the sustainability leadership course for me there's definitely a lot more curiosity in the question rather than my usual response: 'Ah, I can't do anything!'. But I think that's something that I'm experimenting with this project that I'm working on, is that there is a lot of uncertainty just in terms with what the purpose of the project is and what can actually be achieved and what they want to do with it, and I'm finding it interesting trying to navigate that as a person who's trying to organize it all. I guess I'm now more comfortable in my discomfort. SubID#23

Quote 16

The sustainability leadership course made me more aware of the whole concept of getting to the balcony and I think now I've got a line drawn in my mind, in my operating system I guess. If I'm in a conversation, I'm getting frustrated and feel like it's going where I don't want it to go. That I can step back and just try to see the bigger picture of that interaction and that can help me not be so frustrated and maybe change tack. SubID#15

Quote 17

I'm more comfortable just observing what's going on with the other people who are in my group and not having to engage with their positions and just being able to say okay. I'm recognizing the different perspectives that they hold and then, I think, trying to help uncover what's behind them so that there's better understanding of where everybody's coming from. SubID#23

Quote 18

In the sustainability leadership course I learned to really listen, and really try to see where people are coming from. Another realization is that we all use the same words, right? We all agreed to the language, whatever it is, right? But the meaning of the word changes from person to person, or from experience to experience. The word might be sweet. The word is sweet, but the sweet behind the word is very different. Is it, chocolatey sweet or vanilla sweet? Or strawberry sweet, unless there's another word there or actions, you do not know... There isn't this religious, one steady meaning. SubID#5

Quote 19

I definitely felt like I have more tools to understand what's going on and be able to know whether or not I could have an impact or how to change it. For example, the framework of at what level the disagreements are at: is it the values, is it the objectives, is it the strategies? I've actually used that for one of the conference meetings. So they were like, 'So I feel like there's conflict here and there and then there's a different issue here and there and we're on this side of the faction. Now I'm

able to understand what's going on more and I don't know if I can say that my intervention capacity is better but certainly I'm moving toward being more able to. SubID#6

Quote 20

Now I realized something different. It's not enough to know. I was able to know before. I know the material but now the system does not allow it. It's not enough to know knowledge. I now deal with the people because every person has his own belief, his own theories, his own background. So... the challenge is people won't allow it. Even if you know, you will see people, you try to convince them this is the way, and then they try to convince you this is the way. So that's the challenge. I mean that's the time consuming part. I was able to see this portion. And I started to see this even with my peers, with my friends... they are motivated. They would like to change things, and they would like to make things happen, organize for our country to make everything better, for example. And then they face a conflict and they give up. SubID#22

Quote 21

I'm less prone to be shut down emotionally or by emotions. If I come into a situation where something triggers me I'm willing to be more, 'Okay I will first come out, take some distance and look at it objectively. What is going on? Why is that person doing that? Why did they feel the need to challenge me?' SubID#26

Quote 22

I'm a better listener. It is not just a better listener. I just do it all the time. It's one of those things that I got. It's changed my behaviour... In one of the classes, Pow! You like punched us in the face about listening, and how everybody was talking and nobody was listening about anything, and that was a shocker. Then it clicked, very deeply. SubID#5

Quote 23

I think for me being able to speak in that group was an accomplishment, there are a few of us that are perhaps introverted I guess by nature. I learned a lot about myself to become comfortable speaking in a crowd especially when I'm speaking about something that I don't know much about... There's a lot of fear complex, and just being able to step past that boundary because of the practice that the course was providing was pretty awesome. I'd say that was one big thing that I took away. Public speaking I guess if you want to term it like that, but not so much as public speaking I guess. Just speaking in a group of people if there's an issue in a group of three for that matter, and being okay with that. Just to speak out loud. SubID#13

Quote 24

When facing ambiguity and contradictions I reach out more and try to get different people's opinions, and that's something that I actually learned from this course. To rely on others, we used to use the word: to 'lean' on others. Now I try to consciously lean on other people and get their ideas... Because I used to keep things to myself and that's how I naturally work. SubID#24

Quote 25

I now realize that mobilizing change would require building and getting some allies on board, getting some people also thinking the idea is really good and then try to get them and the rest onboard. SubID#15

Quote 26

In another course when I was trying to accomplish something I very quickly learned which people in the class shared my world view and those values, I was able to connect to them with their projects and what not, and in some of the dialogues we held. I knew I could rely on them to follow up on whatever intervention I made because they held those same values. SubID#7

Quote 27

What stuck the most from the course was when you intervene it's not reflective on yourself... It's almost like putting out a question. You're putting it out there and you're not getting attached to it. You're just seeing how it runs in the group and see what kind of information you gain just by that intervention. SubID#17

Quote 28

One of the best things I learned from the class was actually how to end group experiences and individual relationships well. And how to deal with all the pain, and the regret, and the celebration of an ending. I saw that incredibly! And I didn't tell you this Julian, but that was definitely an enormous learning experience for me because I feel I do spend a lot of time in different places and engaging with different groups and working for different people. That being able to deal with that anxiety of endings has been incredibly useful and I definitely go back and re-read a lot of the readings from the course but especially the ones on endings. I actually have been walking through a few friends on relationship, huge relationship break-ups... Going through all the different experiences and being able to anticipate ways people react in endings like that. That has been so useful... I have worked in all these different places and left and I feel I've had so many endings, and I've been able to deal with them. So that my memories of those places and the lessons on them last a lot better and I have been able to use them a lot more. SubID#10

Quote 29

The sustainability leadership course has given me the confidence to have more influence with large international problems... I now feel I can work for the World Bank or for the United Nations and suddenly I have this ability to get on this world stage. There's no reason why I can't be there at all, and I think the skills from this course will be the large helping factor... It's probably given me that interest. I had that interest before, but now I have the feel of confidence to go to the tables. SubID#23

Quote 30

I still have personal things that I'm working through, but I think in terms of having confidence in my abilities it has really grown. I've noticed that I have all these tools that I can use in terms of my social life so when I try to use them I'm confident... I think that the incident in our small group where I was able to create conflict in the group and change the way how everyone was reacting, seeing that I actually changed something, that was really empowering. SubID#24

Quote 31

I would say it was pretty empowering to kind of accept who I am as an introvert and someone who needs time and space to put things together before intervening and leading. Rather than beating myself up for that because we live in an extrovert's world where I've always found that I can't compete because I can't meet those standards of extrovertedness and feeling that I am insufficient, but realizing that it's a strength, and that it's kind of unique in a way. Because it's not the dominant way of interacting I was able to lead in both my small group and then later in a PBL [problem based learning] course. So it was definitely an expansion and kind of acceptance of what my strengths are. SubID#7

Quote 32

Before the course I was a kind of person who believed that there are certain people who are leaders. And it has something to do with when maybe they're born or how their parents raise them. Something in the early years caused them to be better leaders. So always I had this thought that I'm not one of those types of persons and they are special... There are some people where their fate is to be a leader, to be a manager, to be whatever, someone to make change, make history, do something. But it wasn't until [talks about an event in the course] I realized, okay no, even the leaders are not special... After that I started to notice more, to observe more behaviours and it was after that, that something happened inside me,... maybe I can be a person that makes history and I'm not sure if I will go through with it but at least at this point I started thinking about it that I can go to my country and be part of the government... The more important impact of the course for me was when I started thinking about that there is a possibility for me to go and do something. I believe this is a new thing for me. For the first time I believe that leaders are not different... I started thinking about being someone that can mobilize people instead of a person that just takes orders... I want to try to mobilize people at the very big level in my country. SubID#12

Quote 33

In my other courses at UBC there is more dialogue than probably other disciplines but now I realize it's not really experientially based... In the seminars we would discuss readings and we would have certain expectations, norms and standards, and you could probably predict more or less what's going to happen in each class, whereas the leadership class was sort of learning about learning. SubID#19

Quote 34

The dancing exercise definitely brought out fear... Fear of judgement and fear of, am I doing this right? Or, is what I'm doing sane? And I realize it doesn't matter and just feel it... and then in the music exercise when I had to sing. Oh my God! It was so scary and it was interesting what I ended up being afraid of; it had nothing to do with anything that was going on in that class at all... it was that I'm not using my voice. That I have a voice that needs to be heard in a lot of ways. And it's silent, and it's been silenced for a long time... There were a lot of things going on, and here's an audience that has no idea of why I am crying. I don't know and I think in that moment it was a lot of this side of me which is my dad's side and my ethnic side that has been silenced because I'm not visually recognized as coming from that ethnicity but, it's so much a part of me that I'm trying to explore, and a lot of that was there that day. Sub ID#23

Quote 35

It's a different type of learning and I don't know if you can compare it to other courses... because in one you're learning knowledge in terms of information knowledge and the other one you're learning... more difficult to define, I don't know... I feel like it's much more lived knowledge, that you experience a lot of what you're meant to learn. Come to see things in a different way... The learning style was completely different like just a different type of learning. SubID#8

Quote 36

This course was a lot more effective than the lecture based courses because if we're just going to listen to the lecture about leaders we might as well watch 'Ted Talks' and that doesn't teach you to be a leader. It only teaches you about the leader. I think that's the difference. Are we trying to train students to become leaders or to read textbooks? SubID#19

Quote 37

Learning in the course was more contemplation than a taking in of knowledge. I guess it was contemplation versus analysis in a way for me. Most courses are analyzing information. In the sustainability leadership course we were just taking it in and trying to organize it a bit, but it was more like analyzing yourself than analyzing information that somebody was giving you. I mean, yes we were given information with millions of readings but it was different. You weren't meant just to memorize that information and then apply it to the exam. We were meant to analyze the information and... then just have it as a tool... It's not like science-based courses where they're telling you this is how it works... It's like you're using a different part of your brain than most other courses... I feel like it was embodied what you got out of the course because it was forcing you to bring it into your consciousness, make it part of who you are. It wasn't so much like in other courses where you're trying to just keep memorizing these things, but it was never about memorization so much. It was more about just developing myself. SubID#1

Quote 38

I've been reflecting on this course for a year. I really haven't forgotten about these things... Let me give you an example. It comes up with my girlfriend regularly and I don't go to the books... It is all

very present in my mind. Most of the dynamics were very shocking and I absorbed them very well... I guess since it's just not a matter of numbers or learning the chapter or something like that. We associated that number or chapter with an emotion. I think that's why it got so stuck for us or for me at least... Depending on what I am facing in the present...it just takes me back to a point in the class, some dynamic that we did or some material that we learned...When something in my life triggers me, it brings me back to a certain learning, and 'poom poom poom' the concepts and skills kind of jump up to me. One concept or skill lands and then other concepts and skills start jumping around... I kind of compare the learning style to Martial Arts and boxing... at the beginning you don't know and you have to keep your arms up. It's like that. SubID#5

Quote 39

The course was more personal rather than like a normal course experience at UBC. It was more about my personal growth rather than handing in assignments or learning things that are required... I think it changed the way that I look at every interaction that I have with people overall... I learned things that stayed with me. From the courses before I probably wouldn't remember anything from them, but from this course I don't even need to read more on it to be able to exercise what I learned. You know, it's embedded in me. SubID#24

Quote 40

I remember on the first or second class I was telling a friend about the class and I said, 'I just had the strangest class. I don't know if it's going to be kindergarten or the best class of my life.'...The fact that you have no expectations when you go to class, that every class is so unpredictable, the lack of direct teaching, peer learning is a very different form. The readings were sort of supplementary. They weren't at the forefront whereas most of the classes I have taken discuss the readings and the concepts directly instead of testing them out like in this class. SubID#19

Quote 41

For me the course was valuable because you need continual practice in an environment that's not hostile or a place where you can practice acts of leadership or interventions and be able to see the results of them in that safe environment. Just because when you do practice in the real world there will be repercussions. And in that classroom environment you just practiced what you wanted and it was just interesting. It just allows you to learn without repercussions. That's the one thing I took away the most. SubID#13

Quote 42

In the beginning a lot of us wanted more guidance. We wanted you to teach us, but once we realized that's not what the class was about we came to see that we can learn a lot from ourselves and from each other too... You were there to guide us and support us but not to give us all the answers. SubID#19

Quote 43

The first part of the experience I think it was very confusing. Confusion is what comes to mind for the first few weeks. There was no vision, no clear vision and I guess most of us failed. Like frustrated because we don't know, we can't handle this thing. What is it? You know, you can't see anything. It's like being in the dark... We talked and talked about it especially in our groups and stuff. We discussed it a lot I remember, both in the small groups and in the big room but also outside of class we went for beers... It always came up. It was so present in our lives, that confusion and you could see it in everybody's eyes! Everybody was trying to figure something out, looking for some direction. Slowly, sporadic things started popping up probably in the form of conflict... And then we started going, 'Oh yes, because remember a couple of weeks ago Julian said blah,' and those things started making a little bit of sense, and meaning... There was always conflict but in general the class started getting along more together. Ideas started flowing way better and counter-ideas as well. If somebody didn't approve or appreciate it, or agreed with it, it was fast. It was like 'No I don't,' and then a discussion came up with a lot of honesty too. Honesty was one of the things that came out of that confusion and conflict like 'Boom!' All of a sudden everybody was very honest... The confusion state and the conflict state really gave us some substance for whatever we were discussing. Discussions became really good, and at the same time really honest... Toward the end we were reflecting a lot on our own stuff. That's how it ended; a lot of people crying, a lot of people really reflecting on who they are. It was very personal and emotional. SubID#5

Quote 44

For me necessarily unique to this course was a sort of special circumstance where I think it was the emotional investment that it was asking for that was hard, because it's easy enough, in other courses, to spread yourself thin and get the work done but when you are asked to really put yourself into it, that's a lot harder than just pushing words in your head and putting it back on paper. SubID#1

Quote 45

At the personal level the course really touched a lot of fibres and experiences, that during the course it was pretty intense to be part of that experience, and I started wondering like asking myself personal questions. Things in my family, whether I have to take a leadership role or not and what kind of impact I wanted to have on the people around me. It felt at that time that I had to do something. I felt like I was, I don't want to say pushed, because it sounds like someone else was pushing me, but I felt like I had to sit down and think about what was happening in my life... It was an experience in my personal life much more than any other course I've taken. Other courses just stay on the articles you're reading, on the papers you're writing, or on the class discussions,... but this was not about someone else, but about me. So I was with myself all the time. It was hard to disconnect from that. It was a course that was there all the time. A lot of questions, and reflections. SubID#9

Quote 46

So the course definitely influenced what was going on in my life away from the course, in my personal life with my relationships... It gave me that chance, in a healthy environment with the people that I can learn to trust, for me to have development... It felt like a safe environment a lot of times and I think for me going through personal things it was a benefit. SubID#13

Quote 47

When I first entered the class, we didn't recognize anyone. There were no friends there.. When we came to the end of the class, we were all really, we could consider ourselves as friends. SubID#13

Quote 48

It was really interesting for me to hold the space, and have someone else feel vulnerable, like the dancing exercise and all that stuff. I just loved learning to do that. I was like, 'I want to see more of this.' SubID#6

Quote 49

In the first class you came in and you were like, 'Do you ever have that feeling where you go into a job on your first day and you have no idea what you're doing?' and I'm sitting there thinking 'Oh this is going to be deep.' And then you said 'That's the position I'm in right now.' I swear that was so funny. There was just like the whole lecture I had all these expectations, what the course was going to be like... Even in the first lecture it was sort of kind of new but you weren't going to get what you expected at all. So that was memorable. Because I just didn't realize all the expectations I had. SubID#1

Quote 50

In the labs you played a more active role, but in the lectures I think about halfway through we didn't expect you to facilitate anymore. That your roles have shifted in a way because obviously in the first class we were all just sitting there and our notebooks out. By the middle we were kind of like, 'Okay Julian when are you going to stop talking? We're going to talk now. We got to figure something out, yes.' SubID#1

Quote 51

My over-all emotion coming to the large class whether it was the large meeting or the labs was one of being in anxiety. I think on the social engagement aspect of it, for most of the course I was really uncomfortable with it and the uncertainty. We often didn't know what the class was going to be like. I had a lot of anxiety for most of the course. I think when I started to receive feedback from the questionnaires and when you would provide feedback on the large class dynamics I started to gain some confidence because I would feel a sense of, not calm but validation, I guess. I think in my small group, after just a couple of sessions I was looked upon as someone that had some authority and something to give. So I think that built a little more ease and confidence. In terms of the readings and the questionnaires, I probably felt a sense of awe and wonder because

intellectually I loved it and I think there was no anxiety there and I can understand it and I can control it and I can really see how it was happening in the class, but at a distance. If I hadn't been pushed to engage I probably would have been quite content to just do the readings. I would've learned a lot but I wouldn't have been pushed into that scary edge of actually engaging with people. SubID#7

Quote 52

And we felt comfortable in those labs where we would sit down and you would speak. That was a more normal environment that we're used to. It was like a holy environment there: we felt very calm, and relaxed our arms, and let our guards down, 'Okay, it's okay.' SubID#13

Quote 53

As soon as we started everybody just went internal and yes you were paying attention to the person who was talking but you were mostly thinking about yourself. And everybody was kind of like that, kind of paused, posture not moving a lot, very internal... very attentive, very present. There was little to pay attention to outside of that circle. The level of importance was very high inside of that circle. That was a very good one too, many people crying and really showing themselves... Vulnerability factor was high there. In the life boat I said I would die because I thought I was completely happy, and you know there wasn't much that I haven't done or haven't experienced, or something like that kind of arrogance in a way. I actually thought that, and that was why I said I would die. I would sacrifice something like that. Then after the course I started thinking differently, completely differently. I was like, 'No I don't want to die.' Some things happened in my life that triggered that and I started thinking like that... I haven't figured out what I want to do but I'm sure it's something like that. I'm sure something that made me see that you're not done yet. There's so much more and I don't know. SubID#5

Quote 54

That was definitely something that helped me to step up and I've never had that experience anywhere or I've never had that safe environment that I could speak up or experiment with myself. So that was something that I think I just realized, that there was something special about this course. SubID#24

Quote 55

A huge way the course helped me is making me more aware of when I'm not listening and helping me to be able to actively switch into listening well... it's a really huge thing! And, listening as a topic, I've heard: 'Oh be a good listener' in countless classes and forums and articles and such but it never really sinks in until you're caught out of the moment that you're not listening several times like I was in the course. I started to be able to feel, 'Oh what is that?' I've noticed since then that I was thinking about that when this guy's talking and I've noticed since then that often my mind would drift to quite unrelated stuff. It often loops things that I've thought about before and I think I've gotten better recognizing that it's almost like meditation, like realizing you got something else and bring your attention back to your breathing but in this case listening... the course taught me what any other number of courses weren't able to and would never have really taught me. I think I

would've gotten better at hiding things or maybe over time and life experience gotten better at listening but it was really a crash course in that... Ultimately it helped me be more open and vulnerable. SubID#15

Quote 56

I remember being very curious watching the kind of strong personalities at the beginning and how much resistance there was as to there not being a set agenda. ... I'm remembering some of the stuff in the bigger group like, 'How is this going to be productive and does it need to be?' I remember really being like, 'What is the purpose of this? How much do we need to be analyzing what's going on here and engaging with what's going on here?' I would just be wondering what is going on? As the course went on, ... I remember... seeing how those kinds of strong personalities at the beginning kind of faded away and how the group kind of loosened up as a bigger group. I think I've seen how the group evolved as a larger group, as a class and I mean the connections that were made between people that wouldn't normally happen in another class. It was actually something very different in this class as it ended up very much about the people who were in it. That's what made the class what it was. It wasn't about your agenda for what we were supposed to learn it seemed like how the people in the class made it. SubID#23

Quote 57

In conventional lecture courses we'd be sitting around on our butts so long and have the professor recite the same things he has been teaching for ten years. Whereas when you come in to the sustainability leadership course there's a big contrast because it just shows us that there are many ways to teach and not just one way: 'Strictly lecture and memorizing information'. Whereas what you did, you were teaching the same things but also modelling and you're also caring for the students. That's a big point because you took consideration for each student, we were not just some student number. SubID#17

Quote 58

I learned that to be the best person you can be you have to grow into your edge. SubID#7

Quote 59

I would've appreciated a little more guidance... and would've liked a bit more structure, and also I thought it would've been helpful to discuss the readings a little more because I think some of the readings were hard to understand and it would've been much easier to grasp if we would've discussed them as a group. SubID#16

Quote 60

I failed quite often, but for some reason it still didn't feel like failure. Maybe because I kind of assumed that this was the process and that it wasn't an absolute outcome that pushed you into a new direction or anything. It never felt like failure. And what is there to fail? I mean there are certain things that are just not that certain. I have failed for sure but I would not consider it failure if you learn something from it and life goes on and it gets better. SubID#8

Quote 61

I thought I was trying to drive the group forward and give them some impetus and some direction but by the end I came to see I was being too forceful and obnoxious and domineering and I came to see different ways people resisted that. Often really oblique ways that I didn't imagine and to me it didn't even feel valid ways to resist something... by the time the course was done I finally came to feel like this issue of 'respect' is a big one. And there are really different personal styles for engaging. Like Rachael, she was very quiet and less active, and by the end I came to respect each person more even if there style was really different to mine. SubID#15

Quote 62

I think maybe towards the end of the class I was feeling more ready to participate and then it was over. SubID#16

Quote 63

I think for me there was most disequilibrium in the start, just because of my personality complex with stepping into or standing up and saying something in a group of people who I don't know... It's a very frightening thing to do and I'm wondering whether I should be here and your brain gets into that objective mode, 'Why am I here? The stress! SubID#13

Quote 64

Learning about the social complexity I found the large class a lot more intimidating than the smaller groups. SubID#7

Quote 65

The course has made it so clear how I was interacting with the world and others (I feel like I got my arrogance served to me on a silver platter). EsQ#14

Quote 66

As the course progressed we were able to learn different tools and different skills and begin to recognize patterns. And then once we had those abilities we were able to practice them, and as a result I found we would go through moments of tension later on in the course but to a much lesser extent. SubID#13

Appendix F – Sex work and the practice of leadership

In this appendix I share a brief example of a project that I have been involved that showcases the exercising of leadership and mobilizing of change in the lives of all those affected by prostitution in Vancouver, Canada, by one of my colleagues.¹¹⁰ Given that prostitution continues to be stigmatized (Nussbaum, 1999) in most places in the world I will first clarify why I choose this example to illustrate leadership challenges.

The topic of prostitution may raise hackles, and even more so when positioned in the context of a harm reduction model. Any discussion therefore needs to acknowledge the complex cultural landscape that exists around sexuality in general and prostitution specifically.¹¹¹ In part 1 of the dissertation I argued that the greatest difficulties for making progress on sustainability challenges is not in the external technical difficulties we face, but in shifting the internal individual and social psyches that not only resist change but also daily re-create the unsustainable world we live in. Prostitution is probably one of the most charged topics in our culture, and common responses to it exemplify our society's approach to sustainability challenges: it is a topic that is often disputed and not easily discussed. Prostitution is a good example of a type IV sustainability challenge as the approaches of how to address it have extreme diverging perspectives; as can be seen by the divergence in those who believe further criminalizing

¹¹⁰ In May 2008 Lisa Gibson and myself were hired to support the steering committee of Living in Community to work towards implementing the Living in Community Action Plan (Gibson & Goldstein, 2007). The action plan identified 27 key actions for addressing the challenges the sex industry creates in Vancouver, however Living in Community did not have the resources to implement all the actions identified. Therefore, for each action identified in the action plan we develop costs, timeline and stakeholders involvement needed for successful implementation. Then we conducted workshops with the steering committee to help them think through priorities and trade-offs between the actions given the resource constraints in place and the diverging value priorities of the steering committee. Once the top actions were identified we support the steering committee to develop operational plans for the top actions, as well as the appropriate organizational structures to support each operational plan. Finally we supported the steering committee in developing a timeline and process for working on the remaining actions not included in the first priority phase.

¹¹¹ As stated, I would like to acknowledge the complex landscape and political thought that exists around prostitution, although these are beyond the scope of my dissertation.

prostitution is the best approach and those calling for legalization and regulation of prostitution as a trade.

From a sustainability point of view, prostitution challenges can be framed as challenges of social justice, where a segment in society, those involved in prostitution, are limited to realize their potential in the society where they live (Rawls, 1999). Scoular and O'Neill (2007) argue that "prostitution reform could be informed by a holistic model of social justice that includes the importance and interrelation of cultural, distributive, associational aspects in order to provide a more sophisticated conceptual framework for advancing social inclusion" (p 774). Nussbaum (1999) argues that we need to get past the criminalization and stigmatization of prostitution and address the challenges of social inclusion and economic autonomy.

The stigma traditionally attached to prostitution is based on a collage of beliefs most of which are not rationally defensible, and which should be especially vehemently rejected by feminists: beliefs about the evil character of female sexuality, the rapacious character of male sexuality, and the essentially marital and reproductive character of "good" women and "good" sex.... But the correct response to this problem seems to be to work to enhance the economic autonomy and the personal dignity of members of that class, not to rule off limits an option that may be the only livelihood for many poor women and to further stigmatize women who already make their living this way. (p. 297)

Without addressing issues of social inclusion and economic autonomy it is unlikely that a more sustainable world will be secured (Agyeman, Bullard, & Evans, 2003). Dobson (1999a, 1999b) argues that for a society to be sustainable it needs to address both challenges of environment and social justice. Prostitution does not have direct links to environmental challenges, and therefore some may argue that it cannot be framed as a sustainability challenge. However, environmental decisions have impacts on the economy which ultimately impact the availability of jobs, especially for the most vulnerable segments of society; and prostitution is generally (but not always) a low-paid job. Therefore, I would, argue that the challenges of prostitution can be framed as both of social justice and sustainability.

Even if the reader does not agree with me that prostitution can be seen through a social justice and/or sustainability lens, I would argue that learning from success in addressing the challenges of prostitution is very relevant to understanding effective sustainability leadership, precisely because prostitution is an extremely challenging and culturally sensitive topic. Simply, prostitution can be seen as an example of a very complex societal issue that draws poignantly different perspectives on how it should be addressed; as such it is an excellent example of a type IV challenge.

In 1985, faced with growing concerns over rising prostitution throughout the country, the government of Canada enacted Bill C-49, representing one of the toughest approaches to prostitution control in western society. The Vancouver Police Department, committed to ending prostitution in the city, implemented Bill C-49 by conducting several major sweeps against prostitutes during January 1986, charging over 90 of them with criminal offences (Lowman, 1989, p. A525). Although visible prostitution and arrests in average declined in sub-subsequent months, neighbourhoods like Mount Pleasant saw an increase in visible prostitution. Residents of the area became increasingly uncomfortable with what they saw in their neighbourhood. They were angry at the Vancouver Police, convinced they were using their community as a 'dumping ground' for street prostitution because of its lower social economic status. The Police department tried to address the concerns of Mount Pleasant residents by experimenting with several 'harassment' tactics and organized periodic 'blitzes' against prospective prostitution customers (Larsen, 1996). These activities succeeded in displacing large numbers of prostitutes into the 'Downtown Eastside' area, including the respectable working class area known as Strathcona. The enforcement of bill C-49 by police activities did reduce the amount of visible prostitution in 1986; however, the numbers rebounded to even higher levels in 1987 (the figures were 1985-44.0, 1986-23.6, 1987- 54.2) (Lowman, 1989, p. 95). Tragically, the murder rates of women working in this trade have dramatically increased since Bill C-49 was implemented (from 1975 to 1979 there were 3 murders of sex-workers, from 1980 to 1984 there were 8, from 1985 to 1989 there were 22, and from 1990 to 1994 there were 24)(Lowman, 2000, p. 990). By 2005 a total of 67 sex-workers had been murdered in Vancouver alone (Oppal, 2012). The enactment of bill C-49 and subsequent enforcement by Vancouver Police is a very sad example of the most common mistake made when facing a sustainability challenge; treating the challenge as merely a technical problem. A technical problem is one that can be solved by the use of authority or by the application of knowledge of an expert, such as creating a new law or a new technology. Prostitution is clearly an adaptive challenge as it is a highly charged topic with radically opposing factions of beliefs and values, and differing opinions on how the problem should be addressed. Bill C-49 was the imposition of one faction and its worldview over many others, unfortunately with terrible consequence for the women involved.

Addressing prostitution exemplifies what Kahane (2007) calls the social complexity of sustainability challenges. What is required is a participatory approach that involves not just individuals who share our worldview, but also those across the factional divide with whom we might radically disagree and who we sometimes even villainize. Unilateral interventions, even if implemented with the formal authority of

the law, are not likely to make progress on the issue. Coming from the perspective of taking a collaborative approach to the problem of prostitution in 2004, Living In Community (LIC) was founded to support communities that are healthier and safer in relation to sex work and sexual exploitation for each and every community member.¹¹²

In 2008, fifteen LIC steering committee members from a community project were deliberating a policy idea that would be of great benefit to sex-workers in the streets of Vancouver. The only person missing from the steering committee was Jane, the official representative of the community policing centres in the Downtown Eastside.¹¹³ The steering committee was comprised of individuals who represented many of the voices affected by sex-work in the city, among them neighbourhood associations, local government, health authorities, business associations, policing centres, service providers, and a number of sex-workers. Samantha, who started working the streets at age 14, was now 25 and had exited the trade a few years ago. She was there as an official voice for women sex-workers and could see how the new policy idea being discussed could provide significant benefits to the well-being of these women, something that she lacked when she was working the streets. However, regardless of the benefit of this policy for sex workers, Samantha spoke up and said “we cannot proceed with this policy. Jane would never agree with what is been discussed here”. The rest of the group nodded in agreement and the conversation shifted to discussing what the voice of Jane would bring to the conversation. Why did this happen? Here was a woman who had often been subjected to abuse and violence by the police as a sex-worker, willing to stand up and represent a voice; a voice that had caused her harm in the past and that she did not agree with in the present.

Lisa Gibson, the coordinator of Living in Community, said that the first steering committee meeting she was charged with coordinating back in 2006, was like entering into a war zone.¹¹⁴ It was extremely conflictual, members came from highly entrenched positions and frequently displayed aggressive behaviour, but only two years later she witnessed how an individual was able and willing to bridge a

¹¹² The Living in Community example that follows is based on my professional experience working with Lisa Gibson in the LIC initiative.

¹¹³ Names have been changed to protect the privacy of individuals.

¹¹⁴ Personal communication February 2nd, 2011.

precipice that in the past had deeply separated them. Not agreeing with the other person's opinion, but able to see issues from their perspective. Willing to represent the voice that was absent so the integrity of the whole could be kept.

Bill C-49 and LIC show radically different ways of approaching the same problem of prostitution or sex-work. The first example, criminalizing prostitution, illustrates a technical approach to the problem that did not work; one could argue that it created even more problems. The second example illustrates a collaborative, coordinated multi-stakeholder approach to a sustainability challenge; a challenge of providing well-being for ALL citizens, including sex-workers.

What might be hard to see from these examples is the enormous underlying shift in leadership that is needed for the second example to succeed. The unseen mobilizer of this story is Lisa, the coordinator. How was she able, in just a few years, to create an environment in which individuals could see past their differences to the common cause that united them? Lisa explains that a situation like that was possible because of how the process was carried forth, how relationships were built and trust cultivated.

My role was like a gardener, I tend to multiple needs and perspectives. At an individual level I work one-on-one with individuals helping them process their experience, working through their own personal turmoil of the past that are being triggered in the meetings, their own personal shadows. At the group level, I was one more on the dance floor, sometimes trying to coordinate how we danced, most of the times trusting the group and the dance that would arise spontaneously. However, I would often step up to the balcony and see if someone was being left behind, if the group was slowly separating in two, or if the music playing was not adequate. With the perspective of the balcony I could intervene where it was necessary. From the balcony, I would also look outside at the surrounding world, the context where we were situated, the local politics, community and neighbourhood dynamics that sometimes required that I intervene to better align the work 'Living in Community' was doing. Almost like permaculture, working with every aspect of the system at all levels. To function in this way I needed to be really aware of my values, where I was coming from. I have graduate degrees that helped me understand parts of the problem better, yet unlike academia where you are trying to prove a hypothesis I needed to be adaptable, open and ready to engage whatever arose. Being able to function not knowing what would arise next, and what would be demanded from me in the next moment. I see my job, not as pursuing an agenda or an idea, but one of tending the garden of each person's individual leadership. You could

*say I'm an expert with compassion; I hold an open heart and mind to the situations, with a clear intention of creating a healthier place for all, and intervening when needed.*¹¹⁵

The work of Living In Community is a great example of exercising leadership to address adaptive challenges. Using the sustainability typology introduced in chapter 3, I would argue that prostitution is a type IV challenge because at its root are strong, diverging and conflicting values, beliefs, and perspectives of how to address the problem. There is no doubt that structural changes are also needed, as the recent supreme court ruling in Canada striking down prostitution laws (*Canada (Attorney General) v. Bedford*, 2013) came to bear. However, mobilizing change to improve the health and safety of all those impacted by sex work requires deep seated value and behavioural changes in large segments of society. Sex workers, women and men, are stigmatized, looked down on, and the focus of aggressive crimes, homicides, and serial killings (Oppal, 2012).

The work that Living In Community has done utilized the three challenges of mobilizing change introduced in chapter 5.1.3: activist, coming together, and developing solutions. The first activist challenge of ripening the issues was unfortunately self-generated by the backdrop of the horrifying evidence that started to emerge related to Vancouver's 67 missing women (Oppal, 2012), and the lack of action from all levels of government. This reality ripened the issue enough that a coalition was formed (coming together challenge) to critically look into the problem. The coalition included resident groups, business improvement associations, community policing centres, neighbourhood houses, advocacy organizations, and sex workers. The coalition received funding for two years, which turned into the LIC project.

With the two year funding, LIC engaged in the three challenges of mobilizing change simultaneously. Taking such an approach was possible because of the low neighbourhood scale they were working at. Through workshops, focus groups, and surveys (coming together challenge) LIC was able to build a strong holding environment at the local level so that community members, some with visceral and dramatic responses, could engage in conversation and move beyond convictions. The workshops, called dialogues, created a space where individuals from all ideological and political backgrounds could engage

¹¹⁵ Personal communication February 2nd, 2011.

in a conversation about what matters to them, moving from positions to interest (Ury, Fisher, & Patton, 1992), and generating trust even between groups that historically have been in opposition; like the police and sex workers.

The community engagement process also served to continue ripening the issue of sex-work and its impact on people in the trade and the communities where they work (activist challenge). The workshops drew attention to many of the hard realities of sex-workers and how pervasively charged the topic is within most of society. One of the limitations of the workshops was that it did not attract attention from some key stakeholders. To overcome this, LIC organized focus groups inviting key representatives of different stakeholders in the community. The media, journalists, and news outlets also played a key role in bringing attention to the subject.

Through the community engagement process LIC harvested a wealth of ideas that were categorized into five overarching strategies: community development, prevention/education, intervention/harm reduction, exiting the trade, and legal responses. These strategies, documented in the action plan (Gibson & Goldstein, 2007), can be seen as the developing solutions challenge. However, LIC did not have the resources or authority to implement some of the actions outlined. To address this LIC presented the action plan to the city of Vancouver, which served to further ripen the issue and scale-up the impacts of the project.

The way LIC mobilized and continues to affect change is also in line with the recommendations discussed in chapter 3. I will briefly discuss how the work of LIC relates to each of these recommendations:

Recommendation 1 – Adaptive work (type III and IV) demands experimentation: In the first year of the LIC project, monthly meetings were held in the neighbourhood with the goal of bringing everyone together to discuss the issues. This first attempt at dialogue was mainly a failure as the meetings were filled with anger and resentment, and little if any progress was made on discussing the root issues. Instead of continuing another year with the same approach, the LIC committee decided to hire a community developer; Lisa Gibson. Lisa introduced a number of facilitation techniques to address conflict, such as the World Café (J. Brown & Isaacs, 2001), and gradually expanded the factions invited to the meetings so the bonds of trust could grow; allowing for heated conversation.

Recommendation 2 – Distinguish between the technical and adaptive aspects of the challenge: LIC draws on expert judgements and science when needed (technical aspects), for example the MAKKA project (Shannon et al., 2007) led by BC Centre for Excellence in HIV/AIDS, and the phase 2 of the longitudinal study titled AESHA (An Evaluation of Sex workers' Health Access) evaluating female sex workers' health and safety. However, it clearly knows that the hard work is in the realm of values and beliefs (adaptive aspect). LIC saw the problem of prostitution not as technical problem that could be solved via authoritative expertise, but fundamentally as a political act. This is perfectly in line with how Robinson (2004) frames the concept of sustainability:

The power of the concept of sustainability, then, lies precisely in the degree to which it brings to the surface these contradictions and provides a kind of discursive playing field in which they can be debated. This in turn encourages the development of new modes of public consultation and involvement intended to allow multiple views to be expressed and debated... [This] is to suggest that sustainability is necessarily a political act, not a scientific concept. (p. 382)

Recommendation 3 – The people with the problem have to own and take responsibility for the problem: LIC knew that the problem of prostitution should not be on the shoulders of sex workers alone. The problem of health and safety regarding sex work impacts many stakeholders and therefore LIC purposefully built a steering committee with representation of most of the factions that had a stake in the problem, including sex workers. By including sex-workers in the committee, LIC protected voices of leadership that have no formal authority and very little, if any, informal authority in today's society.

Recommendation 4 – Distinguish between what's precious and what's expendable: The process of dialogue that LIC engaged the community with focused on clarifying what values and beliefs were most important. Over the course of the conversations, community members came to see the unacceptability of the current status of violence towards sex-workers, as well as understand the larger impacts it has in the neighbourhoods. People started to see that health and safety for ALL members of society was a value and priority over other values. One common value that people had to let go off was the idea that their neighbourhood was prostitution free, which commonly led to a 'not in my back yard' (NIMBY) behaviour of complaining to the police so they would move the sex-workers to another part of town.

Recommendation 5 – Address the work avoidance generated through the process of loss: Coming to terms with the reality that sex-work happens in your neighbourhood was not easy for many people. The common NIMBY response avoided the real work of engaging with the difficult realities of sex-workers. Calling the police to deal with the sex-workers created a vicious cycle where sex-workers became afraid

of the police and therefore did not report violence they experienced. This made it very difficult to track the serial killers preying on them (Oppal, 2012). Another pattern of work avoidance was placing all the responsibility on the sex-workers for the fate of their tragic deaths, and focusing attention on the problems of addictions, mental health, poverty, and involvement in sex work; rather than responding to the issue that over decades women were going missing at alarming rates, and the police and justice system failed to respond (Oppal, 2012).

Recommendation 6 – Start addressing the problem at the lowest decision making scale possible: LIC started working at the lowest scale possible that would address the multiple stakes of the challenge. Its initial work was focused at the neighbourhood scale with the purpose of both ripening the issue and strengthening the bonds of trust between stakeholders.

Recommendation 7 – Abandon universalism where everyone needs to agree on the solution: Even though LIC has an inclusive mandate it is not limited by universalism. At the beginning of the project, LIC did not include an advocacy group that the police refused to work with. Strategically, LIC deemed it more important to have the police engaged in the process and therefore was able to accept the loss of representation of an important advocacy group. To this day the LIC committee represents many of the diverging perspectives on sex work; however the committee does not include an abolitionist perspective that calls for the criminalization of buyers of sex (johns) and procurers (pimps), not because they are not invited to participate but because the abolitionist group decided not to participate in the process.

Recommendation 8 – Think silver buckshot, not silver bullets: The 2007 LIC action plan (Gibson & Goldstein, 2007) takes a clumsy solution, buckshot approach to the problem; suggesting actions that are implementable at a local scale and address the challenge from multiple angles, including community development, education and prevention, intervention and harm reduction, supporting exiting, and legal responses. In 2011 the city of Vancouver, drawing from the LIC action plan, recommended (General Manager, 2011) a similar course of distributed action (see below).

Recommendation 9 – Develop solutions at multiple scales: In 2010 LIC started working with the Collingwood Neighbourhood house, supporting them in the implementation of the LIC model in the Collingwood-Renfrew neighbourhood; this is an example of replicating the model in a new neighbourhood. From 2009 to 2013, LIC played an important role in advocating for the city of Vancouver to break the silence on the topic. This led to a city council motion in 2009 (Councillor Jang, 2009) where

the city took responsibility for addressing the challenges of prostitution, which further lead to a series of recommendations passed by council (General Manager, 2011) that are currently overseen by a task force and working groups. This is an example of moving from a neighbourhood to a citywide scale. Recently, LIC has received support from the B.C. provincial government to expand its scope of work to the province; and hence is an example of going from a city to provincial scale. Simultaneously other work was being done in Vancouver, for example Pivot legal society's (Childs et al., 2006) work with sex workers from all segments of the industry; at the provincial level the Honourable Wally T. Oppal was overseeing the missing women commission of inquiry (Oppal, 2012); and federally a number of supreme court cases were won regarding criminal laws of prostitution (*Canada (Attorney General) v. Bedford*, 2013, *Canada (Attorney General) v. Downtown Eastside Sex Workers United Against Violence Society*, 2012)

Recommendation 10 – *Create mechanisms that foster dialogue and learning:* Dialogue is part of the foundation of LIC work and the tool by which to engage in the diversity of perspectives on such a difficult topic. There were numerous times when the process of dialogue helped shift a long held prejudice. For example, at an early community meeting a group of abolitionists, who hold a strong conviction that sex-buyers should be placed behind bars, were sitting around a small table, alongside a male sex buyer. This particular male fully disclosed his procurement of sex and his reasons for doing so, while sitting in a wheelchair; he was handicapped. This male created a lot of dissonance for the abolitionist group because he did not fit the stereotype of a sex buyer. The dissonance allowed the voice of judgement and voice of cynicism to be suspended, at least momentarily, and allowed the table to have a powerful dialogue about the complexity of the challenges and possible means to address them in ways that does not necessarily vilify and name one side as perpetrator.

Appendix G – The challenges of evaluating unconventional work

Studying how individuals and groups change their behaviour and values is a very complex matter that has a long history of inquiry. Of prime importance when working to effect change is our ability to diagnose a situation in order to develop possible interventions to move a change initiative forward (Heifetz et al., 2009). There is no one set of globally applicable rules or steps of how to diagnose a situation so we can better understand it and therefore develop appropriate actions. At best our actions get it half right and the next step is to diagnose again to take corrective measures. In essence, failure is inevitable when working with humans to change our ways. What is important is that we learn from our failures and that we are able to stay present with an open mind and heart, so we see and experience what works and what does not. Curiosity, perseverance, and courage are indispensable predispositions for this type of work. The same is true for this dissertation: by tackling the question of change in human systems I will likely fail in providing definitive answers to the reader. There will always be a “what if?” or “not in my experience”, and for that I apologize in advance, as I am likely to fail the *reader's* expectations of clarity. The interesting point is that most of us long for clarity, yet the longing for clarity, in my opinion, can be one of the main barriers impeding change in groups, organizations, and society. Ambiguity and uncertainty are natural companions of change processes and to some degree this dissertation mirrors that reality. The scope of the dissertation is wide and naturally there are many details that I will be unable to address completely.

To tackle the breadth of the topic of change in human systems, the dissertation uses a trans-disciplinary approach as defined by Max-Neef (2005). For Max-Neef, a transdisciplinarity approach requires coordination of four hierarchical levels: (1) the empirical level that asks the question *what exists?* This includes disciplines such as mathematics, geology, ecology, psychology, sociology, and economics; (2) the pragmatic level that asks the question *what are we capable of doing?* This includes disciplines such as agriculture, engineering, forestry, and commerce; (3) the normative level that asks the question *what is it we want to do?* This includes disciplines such as planning, politics, and law; (4) finally the purposive level asks the question *what should we do?* This includes disciplines such as ethics and philosophy.

Transdisciplinarity is distinct from multidisciplinary and interdisciplinarity. A multidisciplinary approach would simultaneously use knowledge from multiple disciplines with no attempt to integrate across them. An interdisciplinary approach coordinates research and knowledge from two hierarchical levels.

For example, a purposive interdisciplinary approach could coordinate between planning and politics while asking the ethical question of *what should we do*. Or a pragmatic interdisciplinary approach could coordinate between sociology, ecology, and economics to ask the agricultural question of *what are we capable of doing*. In contrast, a transdisciplinary approach coordinates across the four hierarchical levels outlined above (Max-Neef, 2005).

The dissertation tackles questions that span the four levels of transdisciplinarity. For example, the case study in part 1 uses empirical tools from a sociological perspective such as grounded theory to better understand behaviours and beliefs, and this is done within a pragmatic context of agricultural practices in Costa Rica. The Costa Rica research explores normative planning questions of the applicability of a payment for environmental services policy to better address soil erosion in the watershed. It concludes with a discussion of ethical and philosophical questions regarding the trade-offs of replacing social norms with market norms in a payment for environmental services policy.

As a consultant in the wide field of sustainability practice I begin, in context, with a particular challenge that a client is facing. Working together with the client on the challenge we draw on existing knowledge, methods, and practices; judging them only by how well they help clarify and make progress on the challenge we face. The field of practice is naturally transdisciplinary. Unfortunately, in my experience, such pragmatism is uncommon in higher education. What for me is a natural way of working with a problem, of crossing boundaries of knowledge and methods, seems to challenge the predominant academic culture. Horlick-Jones and Sime (2004) argue that the practice of transdisciplinarity is difficult in academia because in essence it crosses “policed boundaries” (p. 445).

There is a very good reason why the disciplinary boundaries are guarded. The virtue and reputation of disciplines requires gate-keepers that ensure quality work that furthers the reaches of the disciplines. This is a real concern, which requires that academics monitor and control what is allowed through these ‘policed boundaries’ so as to maintain the integrity of each discipline. However, the challenges of sustainability that we face in the 21st century call for action research that cuts through disciplinary boundaries (V. A. Brown, Harris, & Russell, 2010; Funtowicz & Ravetz, 1993; Hirsch Hadorn, Bradley, Pohl, Rist, & Wiesmann, 2006; Jahn, Bergmann, & Keil, 2012; Lang et al., 2012; Rittel & Webber, 1973). Lawrence and Després (2004) argue that “the compartmentalisation of scientific and professional knowledge” (p. 398) is one of the four reasons that society is incapable to deal with sustainability

challenges. They follow to argue that disciplinary boundaries, in the context of sustainability, are impediments to progress.

Current shortcomings of traditional scientific research and professional practice are,... above all, the logical outcome of the narrow vision of so-called experts who do not address fundamental issues but only topics isolated from their societal context. In order to deal with these limitations, various sets of obstacles need to be revised or dismantled: first, ontological frameworks that do not embrace the complexity of the natural and human-made environment; second, epistemological positions that value rational, utilitarian approaches to interpret the layout, use and management of human and natural ecosystems; third, specialisation, segmentation and bureaucratisation of knowledge and expertise; and finally, the lack of transfer and communication between professionals, politicians, interest groups and the public. (p. 398)

This places disciplinary academics in a difficult situation, maybe even a paradoxical one. It seems that for academics to continue to be of service to society and support the process of addressing the sustainability challenges that we collectively face they need to lower the guards that protect their disciplines, however such an approach places the integrity of each discipline at risk; as different and many times contradictory knowledge, epistemologies, and values interact. Lawrence (2004) states that transdisciplinary work requires a fusion of disciplines.

Interdisciplinarity can be considered as the mixing together of disciplines, whereas transdisciplinarity implies a fusion of disciplinary knowledge with the know-how of lay-people that creates a new hybrid which is different from any specific constituent part... [Transdisciplinarity] requires an ingredient that some have called "transcendence". This implies the giving up of sovereignty over knowledge, the generation of new insight and knowledge by collaboration, and the capacity to consider the know-how of professionals and lay-people (p. 488-489)

The problem of transdisciplinary research for a PhD candidate is especially acute, not necessarily because of the difficulties of carrying out transdisciplinary research, but fundamentally because it is unclear how the guardians of disciplinary knowledge will evaluate transdisciplinary work (Wickson et al., 2006). In essence, how do the examiners, who are embedded in different disciplines, judge the merits of students engaged in transdisciplinary work as they tackle a real-life problem but fumble with mastering the disciplines?

To my knowledge, the only attempt at answering this question was conducted by the Institute for Sustainable Futures in Australia that looked into quality criteria for inter- and trans-disciplinary doctoral research outcomes (Mitchell & Willetts, 2009). The authors of the report found that over time more students are interested in tackling real-life problems, which naturally leads to applying inter- or trans-disciplinary approaches. However, they found that in Australia, and I would argue in Canada as well,

there is a lack of clear mechanisms for the evaluation the work of PhD students engaged in inter- and transdisciplinary work. They state the following.

Our experience in working in the [interdisciplinary] ID and [transdisciplinary] TD field has exposed us to strong differences in how people judge quality in different disciplines and their expectations of ID and TD work. For instance in seeking to publish ID and TD work, papers have received outright rejection from a particular journal, whilst being strongly complimented and accepted to another highly ranked journal. Equally, another example is a doctoral assessment process in which a panel member of one disciplinary background said 'I just can't see a PhD in this work', while another replied 'I can see three'. (p. 1).

Mitchell and Willets (2009) argue that a key problem with the current mechanisms for evaluating PhD students is the requirement of arm's length examiners that "do not meet or converse with each other, the candidate, or the supervisor... [and therefore, the] opportunity to create and monitor interdisciplinary learning is, for now, severely restricted" (p. 1).

Transdisciplinary work will naturally challenge disciplinary beliefs, values, and epistemologies (Wickson et al., 2006). Because of this, one of the key characteristics of transdisciplinarity is collaboration (Russell et al., 2008), where all those involved are engaged in a process of discovery and learning as beliefs and values are being renegotiated in the context of practical in-the-world challenges. The current mechanism of evaluation where the external examiners have to judge the work of a student with limited or no ability to engage in dialogue, in the context of transdisciplinary work, severely restricts learning (Mitchell & Willets, 2009), and therefore limits our collective abilities to tackle sustainability challenges. Furthermore, it places a disproportionate burden on the PhD candidate to meet differing and many times contradictory expectations from the different academics evaluating the work.

As a PhD candidate involved in transdisciplinary work I have struggled with three questions in regards to how my work is evaluated. The first question is in regards to who evaluates the quality of my work. Mitchell and Willets (2009) wonder if the quality of transdisciplinary work should be evaluated "through social accountability rather than peer review" (p. 3). In my case this might be the stakeholders in Costa Rica or the students from the sustainability leadership course. Or should it be my peers, other practitioners, who evaluate the contribution of this work to the field of practice?

The second question is in regards to knowledge. PhD work is evaluated by the criteria of whether it constitutes a substantial contribution to knowledge. Here lies one of the biggest difficulties of doing 'border-work' (Horlick-Jones & Sime, 2004), which is engaging with the boundaries of academic

disciplines in the world of practice. There is a gap, sometimes substantial, between what practitioners claim as knowledge and what scholars would agree is knowledge (Schön, 1983, 1995). Furthermore, in the world of practice *tacit knowledge* is more valuable than *explicit knowledge* (Nonaka & Takeuchi, 1995), yet in academia *explicit knowledge* is more valuable because it is more easily “subject to quality control by editors, peer review and debate” (Eraut, 2000, p. 114).

The third and final question I have regarding the evaluation of my PhD studies is why the final examination is solely based on a written document, this dissertation? As a practitioner I find this troublesome. For me higher education is in essence about learning, and therefore I believe that the emphasis of evaluation should be on how my work has increased, at least in myself, and ideally others, the capacities for learning and acting in order to more effectively mobilize change in the pursuit of a more sustainable world. These three questions bring to mind a well-known teaching story about how we normally look (and evaluate) in those places that are more comfortable for us.

*One dark evening a man was on his hands and knees under a street light looking through the grass. A pedestrian asked what he was looking for.
‘The keys to my car.’ replied the man.
Having some time and feeling helpful, the pedestrian joined the man in his search.
After a while, with no success, the pedestrian asked: ‘Where were you when you lost your keys?’
‘Over there by my car’, the man gestured.
The pedestrian was puzzled. ‘Why are you looking for them here?’
The man without keys explained: ‘The light’s better!’*

Notwithstanding these questions, one needs to be responsible for one’s choices. I have chosen to embark on a PhD and therefore must acknowledge and respect the traditions of the culture of academia, even if those traditions are limited in how well they empower people and mobilize learning. This need for respect is no different than when I work with a government agency, an international NGO or an Aboriginal Peoples’ community; I work within the confines of both the beauty and limitations of each culture. Given that there are no clear mechanisms on how to evaluate transdisciplinarity research (Carew & Wickson, 2010; Russell et al., 2008), I will draw on Mitchell and Willets (2009) suggestion that transdisciplinary doctoral work should be evaluated in three outcome spaces:

1. *Peer reviewed ‘knowledge’*: This refers to the contribution to academic knowledge in the more conventional sense. Mitchell and Willets suggest however that knowledge should be interpreted broadly.

2. *Problem of practice*: The focus of evaluation should be in regards to the contribution of the research to addressing a societal challenge, or contributing to an aspect of practice.
3. *Transformative learning*: Refers to evaluating the transformational learning of the candidate and/or mutual learning by all those affected by the research.

In a traditional PhD, the candidate is evaluated primarily on outcome space one, which is the contribution to academically peer reviewed knowledge. As a candidate ventures into the other two outcome spaces an inevitable tension arises between how much a candidate can contribute to each outcome space (Mitchell & Willetts, 2009). For now, as students and academics learn how to navigate the difficult terrain of evaluating transdisciplinary work, there is no clear way of reducing this tension. I trust that the tension created by this work is received in a spirit of learning and creativity, with the intent of exploring together the difficulties that we collectively face in creating more sustainable futures.

Looking back: self-evaluation

In the previous section I discussed the challenges of evaluating transdisciplinary work, and how as a PhD candidate I struggle with three questions regarding my evaluation: who evaluates my work, why is a written document the main and in this case only artifact evaluated, and what counts as knowledge. Back in 2007, as I embarked on the PhD journey, I did not think about these questions. I knew and accepted the predominant system and culture; that a panel of academics will evaluate a written document for its contributions to explicit knowledge.¹¹⁶ Now, seven years later, I am more critical about this process, especially when a student engages in transdisciplinary work.

In well-functioning human organizations, structure follows strategy (Chandler, 1962), meaning that the systems of an organization align and support what the organization aims to achieve; its purpose of being. What is the purpose of higher education? What is the purpose of engaging in PhD studies? The stated mandate (purpose) of a graduate degree for the Faculty of Forestry at UBC is “the advanced training of tomorrow’s scientists and leaders” (Faculty of Forestry, 2014). With this purpose in mind, I think the current structures and systems of higher education at UBC align well with only one of these

¹¹⁶ Explicit knowledge as defined by Nonaka and Takeuchi (1995) which is distinct from tacit knowledge

two purposes. The process of preparing scientists, which is developing authoritative expertise in a discipline, I believe is well supported by the current structure of education and its evaluation system. Regarding preparing leaders, I have my doubts that the current process prepares an individual to exercise leadership.

The work of becoming a scientist is about gaining authoritative expertise in a given discipline or field. To gain authoritative expertise, a student is guided from beginning to end on how to develop the knowledge and skills necessary to ultimately jump through the hoops required to gain informal authority (trust) from those evaluating him or her and eventually a graduate degree is conferred by those in power. The current graduate educational process trains individuals to function in strongly hierarchical and authoritative environments; where to succeed a student needs to learn how to follow rules and meet the expectations of those on top. This system is well aligned with the purpose of training disciplinary scientists where there is a clear body of knowledge and methods a student needs to master. However, as I discussed in the previous section, transdisciplinary work requires that everyone involved, including those evaluating the candidate (Mitchell & Willetts, 2009), enter a process of double-loop learning (Argyris, 1991). Unfortunately such learning is highly restricted in organizations that have hierarchical and authoritative structures (Argyris, 1993; Burns & Stalker, 1994; Mintzberg, 1992). Therefore, the current higher education system is well aligned for developing individuals with disciplinary expertise, not with transdisciplinary ones.

Regarding the purpose of training leaders, in this dissertation I have used the definition of leadership as the work of mobilizing groups to make progress on adaptive challenges. An important aspect of the work of leadership is failing people's expectations at a rate they can stand (Heifetz, 1994). While the work of becoming a scientist is meeting the expectations of those in authority, the practice of leadership is likely going to fail those expectations. In higher education, failing expectations of those in authority is not a skilful way of gaining their trust so they will positively evaluate a student. Similar to the assistant professor who is unlikely to carry out actions outside of the norm and place their tenure process at risk, a graduate student in the current educational system will be less inclined to engage in unconventional

research that is more likely to fail the expectations of those in authority, and therefore place their degree at risk. In essence the current system of education and evaluation is aligned with and conducive to supporting and developing authoritative expertise (scientists), not to developing the skills necessary to exercise leadership, or venture into the less known terrain of transdisciplinary research.¹¹⁷

The problem is that the societal challenges that we are now facing require transdisciplinary education, research, and work (V. A. Brown et al., 2010; Funtowicz & Ravetz, 1993; Hirsch Hadorn et al., 2006; Jahn et al., 2012; Lang et al., 2012; Rittel & Webber, 1973). A review in 2001 of courses and research at U.S. colleges and universities found that transdisciplinary courses and research are scarce (Lattuca, 2001). In addition, Wickson et al. (2006) state that transdisciplinary research is difficult because the process of crossing disciplinary boundaries will naturally challenge expectations of disciplinary beliefs, values, and epistemologies. For all these reasons transdisciplinary work necessitates practicing leadership, and yet the structures of higher education are not conducive to developing the skills needed to practice leadership.

As a PhD student who has no interest in pursuing a path in academia and who has arrived at the last step in the PhD journey, I am willing to be compliant with the current system and not argue this point further. I trust that those inside of the system of higher education will continue to work on better aligning the structures and systems to support the development of the knowledge and skills needed to address the challenges we are collectively facing. For the rest of this section I will engage in a self-evaluation of my own work, drawing on the suggestion of other scholars (Mitchell & Willetts, 2009) in regards to one possible way of evaluating transdisciplinary research.

In the previous section I laid out three outcome spaces of transdisciplinarity, drawing on Mitchell and Willetts (2009) suggestions, which I will use to evaluate my work here. The first outcome space is the contribution to 'knowledge', which is true to the traditional academic system, as well as the culture of

¹¹⁷ As discussed in chapter 5 the word 'leadership' is commonly used as synonymous to a person in a position of formal authority. I suspect that the Faculty of Forestry refers to 'leadership' as someone with authoritative expertise who can contribute knowledge to society, which is very different from how I have used the word leadership in this dissertation. However, contributing expertise and/or knowledge to society is not an accepted definition of leadership in the literature.

the rite of passage of a PhD candidate. The second outcome space is in regards to the contribution to aspects or domains of practice, and to addressing tangible societal challenges. The last outcome space is in regards to my (transformative) learning through the process and those affected by the research process. I will address each one in order.

Knowledge contribution

Boyer (1990) provides a framework for better understanding scholarly contributions in higher education. My understanding from Boyer's writing is that the four scholarships he outlines are in reference to the different types of knowledge that a scholar can contribute to. I will use his framework of four scholarships as an aid to reflect on my contributions to knowledge. According to Boyer, the four scholarships are not discrete entities of knowledge but interconnected to some degree. As I review the contributions of each chapter in the dissertation I will locate them in relation to one of the four scholarships. The reader may disagree with me regarding which scholarship I believe I have contributed to. That is understandable as there is some disagreement on how to interpret Boyer's scholarships (Boshier, 2009; Glassick, 2000).

Chapter 1 and 2 primarily contribute to the 'scholarship of integration'. Boyer defines it as the interdisciplinary work that encompasses synthesising, interpreting, and connecting knowledge in new and novel ways. In those chapters I bring together scholarly work from diverse fields; attempting to sequence the written presentation in such a way that it becomes clear to the reader, as I move from the outside-in, from the systemic to intrapersonal, how at the root of the difficulties of change is the concept of loss and grieving. I also integrate concepts into the discussion of how at different orders of mind we construct meaning differently, and the implications this has on change initiatives.

In my opinion, those two chapters are a substantial contribution to knowledge in the field of sustainability; because in my experience those working on trying to mobilize change in sustainability challenges rarely see or acknowledge how personal and collective loss is a powerful barrier to creating change. More commonly the approach to change is either to sell and try to get buy-in on all the positive reasons why we should move to a more sustainable future, or use threat and scare tactics to get people on board. The synthesis and interpretations provided in chapter 1 and 2 aim to elucidate how acknowledging and explicitly working with personal and collective loss might help surface the hidden barriers to change and therefore make the process more workable.

Although the concepts of 'orders of mind' (Kegan, 1994) and their potential impact on the process of change are less tangible and more complex than the notions of loss and grief, I still think it is an important contribution to the scholarship of integration. As a person whose work frequently revolves around the facilitation of group processes, I feel these conceptual distinctions bring some clarity to the many difficulties I face in mobilizing change in groups, and I trust it will also contribute to others' understanding. However, clarifying and operationalizing the implications of different 'orders of mind' in change processes still requires more research in order for this to provide additional guidance to practitioners.

Chapter 3 also primarily relates to the 'scholarship of integration' and its contributions could be significant for the right audience. I suspect that a large audience of sustainability scholars and practitioners will not agree with my arguments in that chapter. The reason I say this is because in my experience many sustainability scholars and practitioners have very strong beliefs about the future, have published substantially within a given belief system, and/or have developed substantive technical skills that contribute to their vision of the future. By arguing that the appropriate interventions depend on context, it is likely to draw resistance. Chapter 3 aims to call this monologue approach (Thompson et al., 1998) into question and proposes a pragmatic approach to developing solutions in context that can draw from a wide spectrum of sustainability worldviews and their contributions to action.

Chapter 4 primarily contributes to the 'scholarship of application'. According to Boyer, this scholarship creates knowledge in the dynamic process of applying and discovering knowledge as one tries to solve or clarify tangible worldly problems. Soil erosion is a very serious threat to the environment, our health, and food security (Pimentel, 2006; Pimentel et al., 1995). In chapter 4, working in collaboration with two other scholars, I tried to understand how the application of payment for ecosystems services (PES) schema would influence soil conservation practices of farmers working on small and medium fields in a watershed in Costa Rica. I believe this work will contribute to and expand the ongoing conversation between PES scholars and practitioners on how to better avoid soil erosion. I believe it will expand the conversation because we analyze farmer's motivations not only from a market perspective but also from a social one, and highlight the tensions and trade-off that PES schemas involve..

Chapter 5 primarily contribute to the 'scholarship of integration'. The chapter weaves together different ways of knowing, transformative learning and teaching, and leadership development within the context of skills needed for sustainability practice. I think this is a substantial contribution to knowledge,

especially around how we understand sustainability education. The chapter also serves to frame and explain the approach taken in the sustainability leadership course and therefore could be argued to contribute to the 'scholarship of teaching'. For Boyer, the scholarship of teaching relates to the practice of teaching and how we reflect and learn on how we teach. Within the context of this discussion on knowledge contribution, I see the scholarship of teaching as the more narrow contributions to knowledge that increase our understanding of the educational experience.¹¹⁸

Chapter 6 primarily contributes to the scholarship of teaching. Through a case study approach, relying on qualitative and quantitative data, this chapter is in my opinion a substantial contribution to the field of education in a context of sustainability and leadership. Though some audiences might find a weak link to sustainability education, I believe it contributes substantially to sustainability education because the teaching methods supported students to gain greater perspective of what sustainability means. Many students experientially realized the shortcomings of just understanding sustainability from a substantive point of view and recognized the need to develop practical skills to mobilize sustainability action. The chapter also introduces a number of experiential learning activities that I have not seen in the literature of experiential and transformative learning. The chapter also contributes to the wide field of transformative learning, both as a case study and through applying Kegan's (2009) more narrowly defined framework for understanding transformative change in individuals.

Chapter 7 is a short chapter which includes conclusions and suggestions for further research. Excluding the conclusions section, the chapter contributes to the scholarship of integration by bringing some old and some new questions to the foreground for higher education institutions. I do not see these contributions as being either substantial or novel as others have already argued similar points. However, the discussion aims at resurfacing these questions and conversations with the objective of continuing to ripen the issues so that mobilizing change regarding the shortcomings of higher education becomes more possible.

¹¹⁸ Sometimes referred to as scholarship of teaching and learning (SoTL), for example see the International Journal for the Scholarship of Teaching and Learning.

As I reflect on the dissertation as a whole, I believe it is an original and substantive contribution to knowledge; especially as it attempts to critically integrate and bridge many fields and disciplines in regards to the question of creating more sustainable change in society. This dissertation is clearly influenced by my perspective and experience as a consultant in the large field of sustainability. I have never argued or attempted for this study to be ‘values free’, or carried out from a removed objective perspective. To the best of my abilities, I tried to be critical of my perspective while at the same time being critical of other perspectives. I am sure that if life gifts me ten more years I will look back at this document and find a number of shortcomings that I cannot see right now. The nature of the questions that this dissertation asks and the process of investigating them is a fertile ground with many unknowns. I say this because in my experience the practice of mobilizing sustainability change is like functioning in a fog of unknown. At times the fog lifts and one can orient better, but many times one is simply making an educated guess.

Contributing to practice, and/or addressing a societal challenge(s)

The second outcome space in which I will evaluate my PhD work is in regards to how much I contributed to mobilizing some change within (a) tangible societal challenge(s) and/or contributed to an aspect of practice in some domain.

Within the boundaries of what is considered my PhD work I do not think I have contributed to aspects of practice. However, within the context of my professional practice as a consultant, I have contributed substantially to aspects of practice in how the firm I work for and other organizations I have worked for engage in mobilizing change. Through my work I have also contributed substantially to addressing societal challenges. These contributions have been made during the period of my PhD studies as I have continued to work throughout this time. And the contributions made during my professional consulting practice were born from the reflective thinking that the PhD context allowed for. The difficulty with evaluating my contribution to this outcomes space is that it is not clear where to draw the line between ‘university’ work and ‘professional’ work.

Boud and Tennant (2006) propose that universities offer a Doctor of Professional Practice (DProf) for those individuals, like myself, who have primarily engaged with doctoral studies to improve their effectiveness in practice. The evaluation of a DProf, the authors suggest, would be on the significance of contribution to improving practices of the workplace, enabling the organizations to be more effective in

what they do. This is a very interesting concept, however, the journey I have embarked on is one of a PhD and not DProf, and therefore I believe any contributions I have made to both practice and addressing societal challenges during my time working as a consultant are beyond the scope of evaluation of the PhD. With this framing, I will reiterate that I do not think I have contributed to aspects of practice within the scope of my PhD work.

In regards to making progress on societal challenges, chapter 4 addresses the difficult societal challenge of soil erosion. However, my role in that work was more of a traditional researcher as I carried out the data analysis, writing, and synthesis resulting in chapter 4, which contributed to the outcome space of 'knowledge' described before. The work in the field was not done by me, and I have not been part of the continued work that Rafaele Vignola and CATIE engage in to address the challenges of soil erosion in the area. Therefore, I would argue that my contributions in creating tangible change to the soil erosion challenges in the Birris watershed of Costa Rica are negligible.

Finally, chapter 6 also tackles a tangible societal challenge regarding the skills needed to address sustainability challenges. Notwithstanding the shortcomings I discussed in chapter 6, I do believe that for the cohort that completed the sustainability leadership course I did contribute to increasing their skills and awareness so that they can better tackle sustainability challenges. In the larger picture I think this a very small contribution to addressing the societal challenges that we are facing in regards to our shortage of skills for adequately addressing complex challenges. Especially as I only taught the course once during my PhD studies. However, within the context of a PhD journey I think this can be evaluated as a contribution to helping address a societal challenge.

In summary, by drawing the boundary of contribution tightly around what can be safely included as PhD work I would argue that my contributions to this outcome space are small but not insignificant.

Transformative learning of candidate and/or those affected by the research process

In keeping consistent to how I have defined transformative learning in this dissertation, I cannot evaluate if my meaning making structures gave grown; as I did not perform a pre and post quantitative test to adequately measure this learning. The same would be true for both Mike and Carissa who have been affected by this research as we spent a long time together during the three months teaching the

course. From the results presented in chapter 6 it is clear that this research has substantially contributed to the transformative learning of the students who partook of the sustainability leadership course. Therefore I would argue that my PhD studies have substantially contributed to this outcome space.

If I relax the definition of transformative learning and use Mezirow's (2009) broader definition there are a few personal aspects I can reflect on that would fall within Mezirow's definition of transformative learning. First of all, Mezirow (2009) defines transformative learning as "the process by which we transform problematic frames of reference (mindsets, habits of mind, meaning perspectives) – sets of assumption and expectation – to make them more inclusive, discriminating, open, reflective and emotionally able to change" (p. 92). I will share one limiting assumption that has shifted dramatically though the course of my PhD studies.

About four years ago, my committee argued strongly that the course I was designing should be delivered in a university context with undergraduate and graduate students. I was very resistant to the idea as I wanted the audience to be professional practitioners. Individuals, like me, who were working and experiencing similar limitations in their abilities to effectively mobilize change in sustainability contexts. I did not believe university students, especially undergraduates, and young graduate students would be interested and/or have enough work experience background in which to anchor what the course aimed to deliver. The committee convinced me that precisely because it was a more difficult audience the course would have more merit and the findings would be more interesting.

In the first weeks of the course, I very quickly came to see how unfounded my prejudice was. It was eye opening for me to see the passion, commitment, and perseverance the students displayed in wrestling with an experience that was challenging for all of us. The thirst students displayed for exploring the territory inspired me, as well as the other two instructors. I believe that the students and instructors went far beyond what was expected from us because we were inspired by each other. By the end of the course, I came to experience very deeply how limiting the university instructional experience is for those students that are willing to commit far beyond what is expected of them. I came to realize how far university education in general is from creating the liberating structures (Torbert, 1978) that promote human growth in its fullest sense. Teaching the course quite profoundly changed my assumptions about university students and opened my eyes to the shortcomings of university education to both foster human growth in its fullest sense, and to provide students with the skills needed to help our societies

thrive in a changing and complex world. I count that as a transformative learning experience for myself, which has clearly influenced the focus of this written document.

In summary, I believe that my PhD journey has contributed significantly not only to my transformative learning experience, but also to the transformative learning of the students who participated in the sustainability leadership course.

Conclusion

As I discussed in the introduction to this appendix, a traditional PhD candidate is evaluated primarily on the outcome space of knowledge contribution. Given that I am a PhD candidate in a traditional university institution it is likely that I will be evaluated primarily or solely on my contribution to the outcome space of knowledge. If I was to evaluate myself solely on this outcome space; how well have I done? This is a difficult question for me to answer as I have no experience evaluating other PhD work. I have read a few PhD dissertations, yet the ones I have read are not adequate comparisons given their disciplinary nature and the primary focus on depth, and not with the intent of breath and integration from which I have approached the dissertation. In this regard I trust that my supervisory committee believe that this dissertation contributes original ideas, primarily in the synthesis and integration of a wide range of fields and disciplines, and therefore provides a substantial contribution to knowledge.