The Green Don Quixotes

Values Development of Education for Sustainable Development Teachers

by
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ABSTRACT

We, as a society, have been presented with a massive problem to solve. As the northern hemisphere (and increasingly parts of the southern hemisphere) continue efforts for economic growth, security, and personal comfort; topics of ecological damage, climate change, hunger, disease, poverty, exploitation, and war become more and more commonplace in our collective psyche. In order to find solutions, we must stop using old ways of thinking in favor of a 'new story', one that places humans within nature instead of in control over it. While top level efforts are important, even more critical to this topic are the people charged with teaching these new ideas, beliefs, and behaviors. The question that arises from this is, what are the beliefs and values of the teachers who are viewed as passionate or leaders in the field of Education for Sustainable Development (ESD)? What have they learned or experienced that has led them to teach from an ecologically literate perspective and/or towards a greater understanding and acceptance of social responsibility?

This study collects the stories and experiences of six high school science teachers and ESD practitioners currently working in Winnipeg, Manitoba, Canada. Stories were analyzed to discover: individual values and belief sets of teachers as well as their progression from childhood to novice teacher to ESD practitioner; and experiences that promoted currently held beliefs and values. As a result, the data shows ESD practitioners to be dedicated and committed individuals, whose values and attitudes stem directly from childhood experiences in nature coupled with parental/adult encouragement. From their stories and experiences, it is clear that successful implementation of values based ESD programs rests sole on the shoulders of the people asked to teach it.

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CHAPTER ONE

Introduction

During the first decade of the 21st century, issues surrounding the challenges facing global peace and security, economies, civilization, and the future of the planet began to become more and more engrained in the collective consciousness of the entire population. As the global discourse has started to shift from arguments as to whether or not climate change (or some other euphemism) exists to awareness that we, as a global community, are at a crossroads of survival or non-survival, spaces have opened to have frank and creative discussions regarding the future of the planet and of humankind. The consensus of many summits, conferences, reports, and meetings is that we as a species can either continue what appears to be a downward trend of environmental degradation, poverty and suffering, and human rights abuses or we can honestly and collectively seek and create a new path for ourselves and for future generations. Currently, a number of different conceptual frameworks and terminologies exist; Education for Sustainable Development, The New Story or The Great Work, Transformational Education, and The Great Transition to name a few relevant theories and directives (Berry, 1988, 1999; Mezirow, 1991; O'Sullivan, 1999). While they differ slightly in their specifics, important commonalities exist such as: 1) our current course is unsustainable, 2) humanity must begin to reflect on current values, attitudes, and behaviors, and 3) significant change must occur if our species and the planet are to survive.

The Earth Charter

With any great journey, the first steps are often the hardest. Given the great diversity amongst the collective nations and cultures of the world, creating an inclusive

and concise statement of intent and direction is no small task. Still, with great diligence and effort, an organization of individuals was able to forge just such a document. During the bridge years of the 20th and 21st century, the Earth Charter (2000), described as a "product of a decade-long, worldwide, cross cultural dialogue on common goals and shared values", was published and presented as an ethical framework to guide us through the difficult choices and challenges that lay ahead. It is a document that is gaining momentum and may soon exist on par with documents such as the UN Charter of Human Rights and Freedoms. While the charter is not binding international law, the authors hope it will stand as a set of moral codes that governments will look to when drafting policy and action. A truncated version of the charter's principles is as follows:

I. RESPECT AND CARE FOR THE COMMUNITY OF LIFE

1. Respect Earth and life in all its diversity.
2. Care for the community of life with understanding, compassion, and love.
3. Build democratic societies that are just, participatory, sustainable, and peaceful.
4. Secure Earth's bounty and beauty for present and future generations.

II. ECOLOGICAL INTEGRITY

5. Protect and restore the integrity of Earth's ecological systems, with special concern for biological diversity and the natural processes that sustain life.
6. Prevent harm as the best method of environmental protection and, when knowledge is limited, apply a precautionary approach.
7. Adopt patterns of production, consumption, and reproduction that safeguard Earth's regenerative capacities, human rights, and community well-being.
8. Advance the study of ecological sustainability and promote the open and wide application of the knowledge acquired.

III. SOCIAL AND ECONOMIC JUSTICE

9. Eradicate poverty as an ethical, social, and environmental imperative.
10. Ensure that economic activities and institutions at all levels promote human development in an equitable and sustainable manner.
11. Affirm gender equality and equity as prerequisites to sustainable development and ensure universal access to education, health care, and economic opportunity.

12. Uphold the right of all, without discrimination, to a natural and social environment supportive of human dignity, bodily health, and spiritual well-being, with special attention to the rights of indigenous peoples and minorities.

IV. DEMOCRACY, NONVIOLENCE, AND PEACE

13. Strengthen democratic institutions at all levels, and provide transparency and accountability in governance, inclusive participation in decision making, and access to justice.
14. Integrate into formal education and life-long learning the knowledge, values, and skills needed for a sustainable way of life.
15. Treat all living beings with respect and consideration.
16. Promote a culture of tolerance, nonviolence, and peace.
(Earth Charter Initiative, 2000, p. 2-4).

While The Earth Charter is a well crafted, well written, and a seemingly inclusive document, the principles contained within are not consistent with the behaviors regularly demonstrated by Western culture. The principles may mirror those to which our society may aspire, but it is difficult to believe that we collectively work towards these on a regular and sustained basis, especially when faced with news that the U.S. Government is trying repeal health care, weaken EPA legislation, and the Canadian Government is trying to brand Tar Sands product as 'Ethical Oil'. Faced with such opposing values and actions, it would appear that more awareness and education in the area of sustainability is urgently needed and it would be a natural assumption that schools would be charged with, or play a major role in, such an endeavor. In order to make such a great leap in thought and practice, a significant amount of support and direction will be required. The direction needed has been crafted into a theoretical framework called Education for Sustainable Development.

The Decade of Education for Sustainable Development

At the time of this writing, The United Nations Decade of Education for Sustainable Development (2005-2014) is in its waning years. In order to fully comprehend the mandate of this undertaking, the definition of Education for Sustainable Development (ESD) as stated by UNESCO (2009) is as follows:

- A transformative and reflective process that seeks to integrate values and perceptions of sustainability into not only education systems but one's everyday personal and professional life;
- A means of empowering people with new knowledge and skills to help resolve common issues that challenge global society's collective life now and in the future;
- A holistic approach to achieve economic and social justice and respect for all life; and
- A means to improve the quality of basic education, to reorient existing educational programmes and to raise awareness (p. 26).

With the briefest of analysis, it is clear that the above principles combine to form one of the largest, and likely the most challenging, of reforms. It is also one of the greatest opportunities to refocus and reshape schools that Western education has been faced with in a century. The undertaking of educating students to incorporate sustainable practices in their personal lives and, later, their professional lives is no small task. It goes beyond innovations/reforms such as whole language, new math, or assessment for learning. The expectation now is that teachers and schools should educate for awareness, action, and transformation. It is the last term, transformation, which concerns this study the most.

Raising awareness can be done by anyone at anytime. The passive transmission of information is the most basic and concrete of teaching activities. It is at this level where we find the majority of ESD actions at this time. According to the International Institute for Sustainable Development (IISD) some teachers, schools (though not entire schools), and divisions are taking steps to behave in a more sustainable manner; reducing the amount of resources used in the learning process, engaging in active recycling programs, taking children out of the classroom and into nature, and offering students participatory experiences in the areas of social, economic, and environmental justice (International Institute for Sustainable Development, 2009).

As first steps go, Canadian schools, and particularly Manitoba schools, are well ahead of where they were nearly twenty-five years ago when the Bruntland Commission (1987) first defined Sustainable Development and laid the groundwork for what is now ESD. One might question how much has actually been achieved in that time. Are mere initial steps toward sustainability acceptable after a quarter of a century of awareness raising activities? If not, what obstacles are holding back Western countries from achieving more?

The research done by IISD and UNESO suggest that North American schools are beginning to adopt policies and practices concurrent with sustainable development, but that many efforts exist within the operational stage:

> A less integrative approach focusing primarily on addressing individual issues related to the "greening" of facilities (e.g., anti-idling, recycling, energy management); programming (e.g., advocating for school-ground greening initiatives); or instructional goals and learning objectives (IISD, p. 2, 2009).

Some are surprised that more ESD efforts are directed at entry-level activities than to integrative or transformative activities, especially when there is clear support from the Provincial government, Manitoba Education (2000; 2012b), as well as (in a much more limited sense) some of the larger urban school divisions such as the Winnipeg School Division (2008) and St. James Assiniboia School Division (2010). The drafting of unregulated policy, the greening of school spaces, and fitting SD into current curriculum presents a veneer of concern and action, but cannot qualify as potentially transformational activities.

Another concern is the lack of whole school initiatives, whether at the operational (basic greening), integrative (curriculum change), or transformative (behaviour change) level. The majority of sustainability-oriented projects at schools, with or without stated policies or directives from their respective divisions, are created and maintained by one or two faculty members with a handful of very committed students. Often, there is no sustainable plan to keep initiatives in place as staff or student populations change (IISD, 2009). When I reflect on this topic, I have found parallels between ESD, cross-cultural, and anti-homophobia awareness raising efforts directed at teachers. The aim of all three initiatives is to bring about a significant attitudinal and behavioral change on the part of the participants in order to create healthy, empathetic, and successful classrooms, schools, and communities. Promoting behaviour change that is different from the thinking of the dominant culture is not an easy task. As Western culture is characterized by individualism, competition, and consumption, integrating a new mindset based on interdependence, cooperation, and conservation will be a great challenge to teachers and teaching. If it weren't, students on the fringes of mainstream/dominant culture wouldn't

feel marginalized, isolated, or unwelcomed. There is, and I suspect always has been, a small percentage of teachers who quickly adopt and adapt to new ideas and change and an even greater number who ignore or rebel. The question is, why do we not put into practice the values we hold? One answer may lie in priorities. We all may hold values consistent with social and environmental justice and interdependence, but they are ranked much lower than other competing values such as employment and the economy (Leiserowitz, Kates, & Parris, 2006). Another theory suggests that once we reach adulthood, our worldviews are set. As differing or competing information is introduced into the mindspace, we engage in a process to deal with the dissonance. Through this process of coding and interpreting, space is created to explore, reflect, and practice new mindsets and ways of being (Mezirow, 1991; O'Sullivan, 2002). A final theory suggests that we, especially those who benefit from being a part of the dominant culture, have no vested interest in reflection, learning new ways of being, or putting new ideas into action (Kanu, 2005). Similarly, it will take a major event to shift individuals out of their comfort zones or sense of privilege and complacency. Once the epiphanic event(s) has occurred, space is then created for the possibility of significant attitude and behavior change. Information alone will not put the process in motion, although it may play a significant role. A transformational experience must coincide with awareness to act as a 'push' in order for change to occur.

My experience and observations have led me to believe that awareness and information have not yet had the required effect to produce widespread behavioral change, nor have top-down efforts in the form of laws and policy. As the Decade for Education for Sustainable Development draws to a close, more attention and more space

must be devoted to grass roots efforts and, more specifically, to the individual motivators that drive educators to adopt sustainable mindsets and lifestyles.

Perception Shift: From External to Internal

Much of the reporting on ESD efforts on a national, regional, or local level tend to focus on the external approaches, drivers, and challenges to schools and educators. Many of the reporters in the IISD (2009) study remain steadfast that a top-down approach is vital while others maintain that individualized grassroots efforts are the best path toward sustainability. Similarly, there appears to be a lack of a cohesive effort driving ESD in schools. In one situation, parents are the catalyst. In another it is a single teacher and in yet another, the entire project is student-initiated (IISD, 2009). In terms of the challenges, every single roadblock previously mentioned places the responsibility for the lack of progress in the hands of someone or something else: not enough funding, time, training, policy, sustained interest, leadership, communication, or understanding (UNESCO, 2005; IISD, 2009). Thus far, much attention is afforded to external factors that initiate or stall ESD efforts, yet it is rare that topics of ethics, attitudes, or values enter the discussion. Could it be that it is easier to point out external barriers than to have to reflect on one's life and professional practice? Are educators prepared to begin examining how their values and beliefs impact the larger ESD discourse?

The purpose of this project is to add another dimension to the ESD dialogue and to offer a glimpse into the stories, thoughts, experiences, and values of those who would be termed 'early adopters' (IISD, 2009). This study, therefore, is not as concerned with the policy, stakeholders, methods, outcomes, or educational leadership elements of the ESD discussion. It also does not follow the participants into their classrooms. While these

perspectives are all important, they are for others to examine and discuss. Instead, within these pages, attention will be paid to the people who are charged with the task of planting seeds to promote transformative experiences, to empower the marginalized, and to pull the apathetic and disinterested out of Plato's proverbial cave and into the light.

Educators who swim upstream against a dominant culture (inside and outside schools) are a rare breed. They work to create a sustainable future within a system that chooses to be guided by and to promote a moribund and destructive story. Their efforts go beyond the transmission of information. They recognize that awareness is important, that humanity must wake up from the languid semi-slumber of modernity's bread and circuses distractions, but actions and experiences are key. They do not seek a formulaic or universal route to sustainable living, are wary of indoctrination, and understand that each person's path is unique. They live simply, creatively and see ESD as way to help children discover new life stories, new paradigms, new thought patterns, new ways of consuming and conserving, and new ways of relating with others and with nature. They are the teachers who understand that to solve the problems we all face we cannot think in the same ways that put us in this position. They are, as the title of this thesis suggests, the green Don Quixotes. They, in their own ways have found inspiration and motivation to challenge the windmills of Western culture. While many who have read Cervantes' novel view Quixote as a madman or a fool, while others can identify with his commitment to his dreams and idealism and view him as heroic. It is a similar fate for the teacher who teachers against the norm. They may be silently supported, but more often openly mocked or derided, or worse, ignored.

It is also important to state that while this project is interested in Education for Sustainable Development, it is not exclusively about ESD. In fact, I employ the term ESD even though I find it to be rather ambiguous and unfocused. I tend to agree with M.G. Jackson (2011) that Education for Cultural Transformation (ECT) would be a much superior term for these efforts, as it is a clear description of the intended outcome. However, as will be discussed in chapter two, there is so much resistance to change in the societal and educational realms, that employing provocative language and terminology may well be counterproductive to any prospective transformative efforts. Thus, ESD will be the preferred term when referring to societal/systemic change.

This phenomenological case study will examine the teaching experiences and life stories of six science teachers working at the Senior Years levels. Using qualitative research methods, the study will seek to provide insight into the values and actions of teachers identified as being strong advocates of Education for Sustainable Development (ESD) in the classroom and/or who teach/exemplify sustainable living practices in non-formal educational settings. Using teachers working in urban contexts in Winnipeg, Manitoba, this study presents the stories of ESD educators who are committed to ESD and are guided by an ecological ethic as well as ideas as to how their experiences and values may shape future ESD efforts at the secondary level and post-secondary levels of education.

The questions I want to explore are:

1) What are the values that ESD practitioners hold and what led them to position those values above other values? and

2) Are there common experiences and beliefs among teachers and what can we learn from them?

In other words, as Sefa Dei (2002) has asked, "What can we learn from the success cases: the sites and sources of local people's resisting and empowering themselves through their own creativity and resourcefulness?" (p. 129). The purpose of this project is to create space for the stories, reflections, and experiences of individual educators who have become early adopters of ESD (before it has become policy or curriculum). In doing so, insights may be gained into how to better serve students, teachers, pre-service teachers, educational leaders, parents, and members of the community. Empowered and creative teachers can then assist the community in seeking out experiences that renew a connection with nature and each other and, in turn, create spaces that may trigger transformational experiences that lead to positive and sustainable behavior change.

The Conceptual Framework

At the heart of this thesis are the values that ESD practitioners embrace as their guiding principles. They may be based in environmental or social justice concerns or both. In my experience, the path toward sustainable living and teaching can be seen as a process depicted in Figure 1 on the following page:

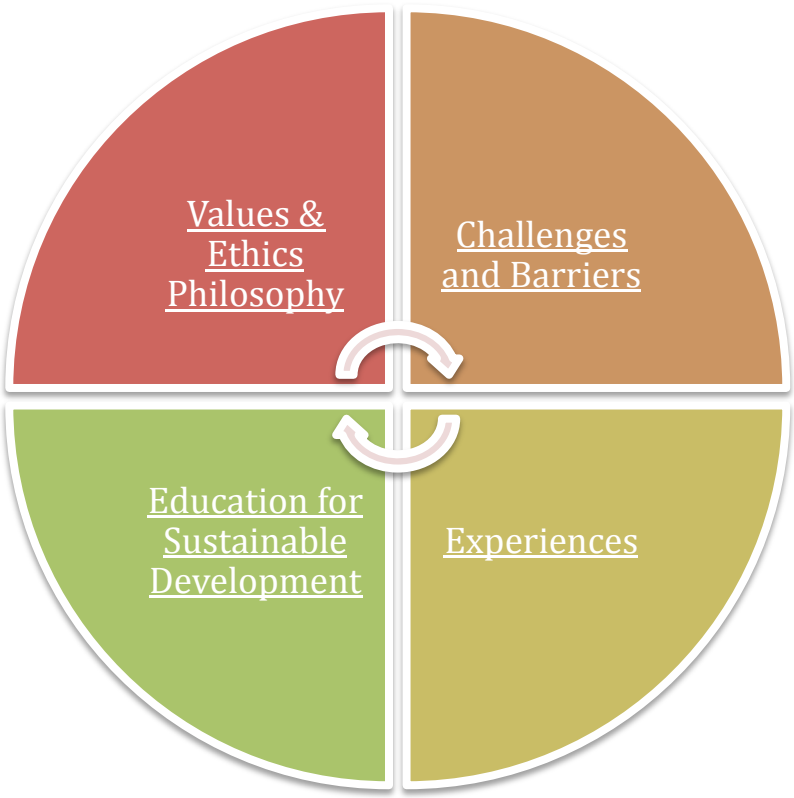

Figure 1

My values, ethical outlook, personal & professional philosophy (worldview), have been in conflict with the guiding stories of North American culture for many years. Upon reflection, I understand that my mind has been fertile ground for many of the left leaning social and political ideas that I have held for many years, but I did not fully comprehend the cause of the dissonance until I found myself alone in the woods in Whiteshell Provincial Park. Here things began to make sense. As I listened to the wind blowing through the trees, studied the colors of the leaves, and smelled the distinct scents of autumn, I began to realize the problem wasn't with me being unsatisfied or "difficult". The problem I was experiencing was that the dominant societal discourse did not speak to or include me. It did not offer me guidance or comfort; in fact it created distress and

unhappiness. Not having been raised to like or even respect nature I had spent nearly thirty years of my life as a distinctly urban dweller. However, in that moment and in that spot, I felt more connected to everything than I ever had before. It was one of the most, as Chawla (1998; 1999) suggests, significant life experiences I had in becoming ecologically aware. My experience in the woods can be viewed as a watershed moment in my transformative learning process (Mezirow, 1991; 1997). It was the point where I began to change my worldview, and where I also understood how my behaviors and actions would need to change as well.

As I emerged from my denial of the disconnect between my worldview and the stories of society, I experimented with or tried out new ways of thinking and being until I found the concepts that are held in what is widely known as Education for Sustainable Development (see Mezirow (1978). However, it wasn't until I began the Master's of Education program that I was introduced to thinkers such as Thomas Berry (1988), Edmund O'Sullivan (1999), and David Orr (1992). Through study of their works, the concepts they introduced, and the language they used help me to develop a personal and professional philosophy that guides my teaching and assists me in becoming a good global citizen and a good person. It is these lessons that I turn to when I am confronted by conflicting dominant culture worldviews or am actively engaged as an agent of cultural resistance. Thus, from my time in the woods to this thesis, I have made one full revolution of the cycle as depicted in Figure 1. I realize that my experiences have been a lifelong evolution from my pre-adolescent dissatisfaction to my current efforts at becoming more ecologically aware and active. My experience in the woods was a clarification of my thoughts and aspirations. It was an awakening of dormant desires and

motivations rather than the jarring moment of disequilibrium described in Mezirow's theory.

This thesis focuses on the transformative experiences of ESD teachers; the experiences that inform their values and, in turn, influence their teaching. Do they mirror my conceptualization of the process or are they completely different? Are there any similarities in how teachers become ecologically aware and active or are their paths and motivations unique to them? Are we as teachers of ecological ethics looking to create epiphanies or help students begin their personal evolutions to becoming ecological aware and sensitive citizens?

Limitations

Some limitations of the study include the following:

1. The size and scope of the study: The focus of this thesis is on the values development of a select group of teachers in a mid-sized city on the Canadian prairies. As the data is derived from a relatively small source the results of the study may not be generalizable across other studies and contexts.

2. The study uses qualitative methods: In order to create space for the stories and experiences of participants, I chose to create a qualitative phenomenological study. In other words, I am examining the phenomenon of the high ecologically aware and active ESD teacher. Semi-structured interviews with open-ended questioning were employed in order to obtain the kind of information unobtainable through quantitative methods. Thus, the research findings may not be generalizable, but are meant to exist as a part of the larger discussions of values in education and Education for Sustainable Development.

3. Personal bias: My worldview, experiences, and perceptions will shape how I interpret any information presented to me. Regardless of how aware I am of my potential biases, they may affect how I analyze and present the data I collect. Even though I will endeavor to minimize the impact, my position as a supporter of radical reform of education may have an effect on the findings of the study.

4. Interviews are the only source of data collection: This affects the ability to triangulate my findings with the literature.

5. There were only six participants included in the study.

6. The study relied on the self-perceptions participants had regarding their attitudes, behaviors, and actions toward sustainability.

7. The study was not designed to follow teachers into their classrooms to assess their effectiveness as ESD teachers. Rather it focused on their stories and experiences of how they became ESD practitioners.

8. Codification of the data: As the lone researcher, my biases may potentially influence the coding and analysis process.

Although there are limitations inherent to this study, it still holds the potential of informing our understanding of how early adopters of ESD come to hold the values they have.

Chapter 2

Literature Review

The following chapter will explore the literature relevant to the topic of values development in Education for Sustainable Development practitioners. Space will be given to a discussion of the current situation of the planet as well as how the international community has responded to the growing ecological crisis. Following this, the philosophical foundations of ecocentrism and the cultural barriers to ecological action will also be examined. The focus will begin to narrow from global concerns to national, provincial, and local ESD efforts. Within this section, initiatives that have been endorsed by Manitoba's Department of Education, as well as specific school divisions within the city of Winnipeg will be documented. An examination of the barriers to the implementation of ESD in classrooms will follow. The purpose of this section is to demonstrate the uniqueness of ESD educators as well as to outline how society or Western dominant culture works against their best efforts to create change. The final section of the chapter will be concerned with transformative learning. As this study is most interested in discovering what, if any, transformations ESD teachers have experienced, it is necessary to understand transformative learning, especially within an ecological context.

Context of a Crisis

Humanity currently resides in a "moment of grace", an opportunity for evolutionary transition to grow beyond our inward focused destructive behaviors (Berry, 1999, p. 196-199). In the space of approximately two hundred years, human activity has placed the environment in a position where it is becoming more and more likely the

planet will not be able to sustain life, as we know it, for much longer (Berry, 1988; Orr, 1992; O'Sullivan, 1999; Suzuki; 2007). The climate of the planet is changing. We may be faced with a warming trend or the onset of an ice age: holes have appeared in the ozone, habitats are disappearing, once arable land is turning to desert, forests and oceans are being depleted, and the extractive economy continues to rip apart the Earth with an insatiable thirst for the last remaining drops of oil hidden within the crust (Berry, 1988). Exactly how much longer we have before we are faced with irreversible negative consequences is unknown. What exactly will become of the biosphere and those that inhabit it is, again, unknown. The mass media is rife with contradictory documentaries, reports, and statements. One program may say we have to make massive societal changes immediately if we wish to survive while another may suggest a more workable figure of 50 to 100 years. In the midst of the opining, speculation, arguing, and posturing of scientists, politicians, and media pundits, the public at large is left waiting, confused, and frustrated to the point of inaction and ambivalence (Leiss, 2003). Populations of Western nations have signed away decision making to elected officials and continue to look to science for conclusive proof, guidance, and solutions (Suzuki, 2007).

Humans have lived relatively sustainably within the biosphere for thousands of years (Berry, 1988). Great civilizations have come and gone. Some fell to pieces by extending empires too far, thus making themselves unsustainable and vulnerable. Others were conquered and colonized by competing empires that chose to solve a sustainability problem by taking the resources of another. During the early modern era, the tradition was carried on by European nations across four continents (Berry, 1999, p. 5). These behaviors have been amplified over the last 160 years with the onset of the modern era

and the institution of modernity, which for the purpose of this study, is viewed as the introduction of capitalism, industrialism, positivism, and secularism into the collective conscious of the world population. Modernity is characterized as a historical era that set in motion a chain of ecologically destructive behavior under the guise of progress and growth. As Western society crawls into the postmodern era, many of the lessons and myths perpetuated by modernity, coupled with human agency, continue to stand in the way of the concept of sustainable growth and the potential survival of all life on the planet (Bowers, 2003 p. 67-8). Within the last 60 years, the threat of unchecked industrial growth has been coupled with massive population growth, and the rise of Western consumer culture (O'Sullivan, 1999). In the space of a few decades, values of community, family, and interconnectedness were usurped. In their place, individualism, greed, desire, and consumption became normative behaviors of Western society (Orr, 1992; O'Sullivan, 1999; Suzuki, 2007).

An Evolution of Education for Sustainable Development

Responses to environmental concerns are not new. In recent history, the roots of current environmental activism and education can be found in the pages of Rachel Carson's *Silent Spring* (1962). Carson's work stands out not only as an example of how one voice can change public opinion and policy (Suzuki, 2007), but also as an example of commitment in the face of "rejection and hostility" (Orr, 1992, p. 87). Earth Day, Gaylord Nelson's national day of awareness, on April 22, 1970, has grown into an international event (Rome, 2003). Within the Canadian context, the late 1960s and early 1970s saw the creation of Greenpeace and Sea Shepherd, and David Suzuki has become the face and voice of environmental values and ethics.

Environmental topics have been discussed at the global political level for decades as well. Orellana & Fauteux (2000) produced an analysis of what they determined to be fifteen basic texts of environmental education. Covering twenty-five years and ranging from: *The United Nations Declaration on the Human Environment: United Nations, 1972* to the *Draft Thessaloniki Declaration*, the article tracks the process of awareness to action on behalf of the international community. The publication of Recommendation 96 (UNEP, 1972) recognizing education as an important practice in ceasing environmental degradation was echoed three years later in *The Belgrade Charter* (UNEP, 1975). Notable additions to the charter are the considerations of: economic growth and development, an interdisciplinary approach to problem solving, as well as a universal ethic that places humans within the biosphere and within, instead of outside or above, nature (Orellana & Fauteux, p. 4). The charter classifying environmental education objectives as promoting: awareness, knowledge, attitude, skills, participation, and evaluation ability (Carlsson & Mkandla, 2000). The international discourse makes a significant shift in 1977 when the United Nations Educational, Scientific, and Cultural Organization, UNESCO, assumed responsibility for the discussion and future efforts. *The Report of the Intergovernmental Conference on Environmental Education* or *Tbilissi Declaration* (1977) began to view the environment holistically, recognizing the interdependent roles of ecology, economics, culture, and social domains. It is also noteworthy for its recognition of life long learning and the call for the development of formal and informal education systems: individual and collective acquisition of awareness, knowledge and skills. The report also continues to focus on values as playing a role in the larger environmental discourse (Orellana & Fauteux, p. 5).

During the 1980s, the primary concepts that would eventually come to define Sustainable Development (SD) and Education for Sustainable Development (ESD) came to prominence. In 1980, the International Union for the Conservation of Nature (IUCN) published the *World Conservation Strategy*: "The principles of sustainable development were… established in the context of the world strategy, which from then on set the course for environmental education" (Orellana & Fauteux, p. 5). Derived from a meeting of UNESCO, ICUN, World Wildlife Fund (WWF), United Nations Environment Programme (UNEP), and the Food and Agriculture Organization of the United Nations (FAO), the report called for a change in human behavior in regard to ecologically destructive practices (ICUN, p. 13). Education and the participation of the public were viewed as vital in order to achieve positive change in terms of the human relationship with the biosphere. In 1987, the United Nations World Commission on Environment and Development (WCED) published what has become widely known as The Brundtland Report or *Our Common Future*. It has been recognized as the first document to coin and define the term Sustainable Development (SD) as meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (p. 8). Sustainable development involves three distinct spheres: Environmental, Economic, and Social. The concept of sustainable living exists at the point where all three spheres intersect and become interdependent. Within the SD overlap, economic growth is supported by a protected environment, which in turn, contributes to the health and security of the world's population. It is a positive and progressive feedback loop where changes in one area support and maintain the other two, those two simultaneously make efforts in order to sustain themselves and the other dependent spheres (1987, pp. 8-9, 65).

Our Common Future examines the challenges facing the global population in terms of environmental degradation, poverty, food and personal security, population growth, energy development, urban development, and international economics. More than that, however, the report called for action. Initially, change at the institutional level (government, laws, industry, and commerce) was expected (p. 343). However, a few years later, in an afterword to *One Earth One Future* (National Academy of Sciences, 1990), Brundtland widened the scope to include all individuals and issued a "particular challenge" to youth to use their "energy and dedication to transform ideas into reality" (p. 156). More importantly to this study, however, he ends with this statement,

> If we are earnest in our desire to solve some of the most pressing problems facing humanity, we can no longer separate the global environment from political, economic, and moral issues. Environmental considerations must permeate all decisions, from consumer choices to national budgets to international agreements… . This is our ethical challenge. This is our practical challenge. A challenge we must accept (p. 157).

During the same year as the Brundtland Commission, the *Moscow Declaration* or *International Strategy for Environmental Education and Training for the 90s* (UNSECO-UNEP, 1987) reiterated the belief that the "origins of environmental problems were to be found primarily in social, economic, and cultural factors" (Orellana & Fauteux, p. 6). Again the challenge was set for

> educators to reorient and redirect the "knowledge and value systems linked to people's habits and behaviour with regard to the environment in order to find appropriate solutions to environmental problems" (ibid).

In the initial fifteen years of the environmental education-sustainable development discussion, the majority of the energy was directed at defining the problem and identifying the most likely causes of the problem. Once that task had been satisfied with *Our Common Future*, the next step was finding paths to solutions and sustainability. The U.N.'s publication of *Chapter 36 of Agenda 21* or the *Planetary Green Plan* (1992) signaled the beginning of an education action plan. Where environmental education began, as Smyth (2000) states, "a scissors-and paste job, using content of established disciplines" (p. 31), Agenda 21 called for the establishment of national sustainable development education plans that stood as their own. Teaching the environment and ecological issues would become part of all curricula and would thus be interdisciplinary (Orellana & Fauteux, 2000). The initial role of education in Agenda 21 was to act within the transmission model. Critical knowledge was deferred in favor of:

- Changing values and lifestyles (consumption, production, etc.);
- Dissemination of knowledge to allow the emergence of a culture of change conducive to sustainable development; and
- Informing people that they are in a position to support these changes and promoting them (p.7)

While Agenda 21 is generally acknowledged as the starting point of Education for Sustainable Development (ESD), the report has received some criticism for not emphasizing critical thought, for increasing the potential of the transmission model to indoctrinate, for lacking a systemic approach, and for having a limited framework of SD (Hopkins & McKeown, 2002; Jickling, 1994; Sauve, 1996; Smyth, 2000).

During the Earth Summit in Rio (1992), a parallel meeting of Non-Governmental Organizations (NGOs) issued a response to Agenda 21 titled *Environmental Education for Sustainable Societies and Global Responsibility* (1992). Within this alternative treaty a more inclusive, integrative, interdependent, and ecocentric vision was unveiled. Many of its principles echoed earlier UN statements on environmental education, but there are some notable exceptions. Instead of a transmission model of learning and teaching, formal and informal processes should be based in critical thinking that promote societal transformation and construction. Education is not viewed as a neutral activity, but as an ideological and political act that integrates knowledge, skills, values, attitudes, and actions. It is an individual and collective act that promotes an ethical awareness of all forms of life. The act must be holistic, an interdisciplinary approach that would focus on the relationship between humans, nature, and the universe. Finally, the responsibility of teaching and learning should be to empower and "promote opportunities for grassroots change and participation" (Earth Summit, p.1-3).

Concurrent to the discourse surrounding Agenda 21, the Earth Charter Initiative (2000) began the consultative process that would result in the publication of the *Earth Charter*. Where other declarations and reports signified and established the importance of education for knowledge, skill, and value building, this document added a new dimension to the discussion. Elements of respect, ethics, justice, and the (inter)connection of humans with nature and each other repeatedly appear in printed statements, but some of the fundamental components of humanness were not fully explored. The charter remedies this by through the recognition of spirituality, morality, creativity, and the mysteries and wonder of nature, as essential components in addressing the challenges that face the

planet (p. 1-4). In terms of sustainable development education, learning opportunities were to be: life-long, empowering, and cognizant of the role of moral and spiritual education. Arts and humanities disciplines were included in what was once considered the singular domain of science. In addition, recognition of indigenous knowledge and perspectives were added (p. 3). The charter ends with this summation of expectations:

> Life often involves tensions between important values. This can mean difficult choices. However, we must find ways to harmonize diversity with unity, the exercise of freedom with the common good, short-term objectives with long term goals. Every individual, family organization, and community has a vital role to play. The arts, sciences, religions, educational institutions, media, business, nongovernmental organizations, and governments are called to offer creative leadership (p. 4).

As the Earth Charter was being prepared for publication, two UNESCO supported documents that appear to synthesize the general spirit of the Earth Charter were made public. Submitted as a report by Jacques Delors (1996), head of the International Commission on Education for the Twenty-First Century, *Learning: The Treasure Within* examined the role of education in the larger ecological context. In the report, teaching and learning guide a union of understanding, responsibility, and solidarity to promote an evolution of society (UNESCO/Delors, 1996, Orellana & Fauteux, 2000). The goals of life-long learning in a sustainable context are built on four pillars: learning to know, learning to do, learning to live together, and learning to be (UNESCO/Delors, 1996). A year later UNESCO published *Educating for a Sustainable Future: A Transdisciplinary Vision for Concerted Action* (1997b), a background paper for what was then the

upcoming International Conference on Society and Environment in Thessaloniki, Greece. The report presents an interesting synthesis of *Chapter 36* and the *Earth Charter* providing a clear guide for sustainability to all educators. The intent of the document was to act as the discussion basis for the Thessaloniki conference as well as to, "refine the concept and key messages of education for sustainable development" (p.7). It built on the ideas and energy manifested in Rio, incorporated the alternative Rio declaration, and sought to include invested stakeholders (UN, NGOs, Governments) to call for a massive reform of the educational system worldwide.

The general attitude of the global community appeared to make a great leap during the 1990s. From the publication of *Our Common Future* to *Agenda 21* to the *Earth Charter* a definite shift in the scope and shape of what was once considered a solely 'environmental' crisis began to become multi-dimensional. Definitions of economics, technology, education, poverty, and social justice were expanded and recognized as playing fundamental roles in where we have been and where we could go. Responsibility is placed on individuals, communities, and institutions. Attention on education not only grew exponentially, but its role was defined as well. It was viewed as potentially a life-changing act that promotes individual and societal transformation (UNESCO, 1997b). Science and environmental education were viewed as no longer solely responsible for progressing SD. Curricular and structural reform was viewed as necessary. An interdisciplinary approach from elementary to post-secondary that stressed problem solving, critical reflection, as well as one that gave teachers and students freedom to take more control over the process was suggested. The discussion of values also became more definite. Progressing from opaque ideas, the language becomes stronger using terms

associated with spirituality, virtue, and utopia combined with calls for common values and ethics that predicate responsible behavior changes (UNESCO, 1996; 1997b). As humanity prepared to enter the twenty-first century, its selected leaders and education systems appeared to be ready to keep up step.

At the turn of the millennium, the United Nations released the Millennium Declaration (2000) cementing a commitment to the values of freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility (p. 2). While nature was second to last on the list, protecting the environment was in the top five UN objectives among peace and security, poverty reduction and development, and human rights (p. 4-6). The Johannesburg Summit two years later reaffirmed Agenda 21 with another call for all nations to implement sustainable development strategies by 2005 (UNESCO, 2002). Most recently, UNESCO designated the years 2005-2014 as the "Decade for Change" or the Decade for Education for Sustainable Development (2005, p. 4).

This brief historical analysis presents a process of future-focused policy and legislation creation that is intended to guide action from government to individual classrooms. The global response to the ecological crisis was swift in word and glacial in deed. It was twenty years from Stockholm to Agenda 21 and another ten years for those recommendations to even begin to creep into the psyche of the North American education system. Still, gains have been made in awareness and attitude. Topics of sustainability and social justice are being discussed in schools, but to what extent? Are curricula being re-written to include ESD perspectives throughout or are select teachers fitting in information where they can? Has educating for an environmentally sound future taken a step backwards from Smyth's remembrances of a cut and paste approach to filling holes

and gaps or, worse, been overlooked and ignored? What of the widespread value, attitude, and behaviour changes required to inspire, motivate, and console us individually and collectively (O' Sullivan, 1999, 2002)? What are the internal qualities we will need to ensure our own survival?

Philosophical Foundations of ESD

Education in the twenty first century will be about attempting to undo the psychological and ecological damage of modernity. In addition to completely rejecting the failed lessons and stories guiding Western culture for the past two centuries, a shared global ethic and values need to be offered to take the place of the old (Selby, 2000). In order to avoid the acceptance/condemnation dichotomy of pre-modern societies, common values should be presented, analyzed, critiqued, reflected upon, internalized, and ultimately assimilated autonomously (Morin, 2004; Selby, 2000). The stated goal of the United Nations Decade of Education for Sustainable Development is "to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behavior that allow for a more sustainable and just society for all. UNESCO defined ESD as: "fundamentally about values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit" (UNESCO, 2006, p.4-5).

The lessons of the modern age have provided us with a culture that is built on and perpetuates the myths: growth cloaked as progress, the anthropocentric view of the human as the pinnacle of evolution, the cult of individualism, instrumentalism, consumerism, the positivist object-subject dichotomy, and that we live in a fair and just democracy where success is possible if you work hard enough (Bai, 2004; Bowers, 2008;

Chapman, 2004; Orr, 1992; Taylor, 1991). This dying story has not only led to the denigration of the environment, but to our physical, mental, and spiritual selves, relationships, happiness, and satisfaction with life (Berry, 1988; Suzuki, 2007). The goal of ESD is to transcend the old story or, as Chapman (2004) and Bowers (2001) propose, to create a new paradigm and expose the myths of modernism. The language and behaviors of the past must be dismantled and new ones built in their place. Still, the task of transformation becomes difficult when contemporary education acts to reproduce normative social behaviors rather than challenge them (Chapman, 2004).

Thomas Berry (1988), spoke of the massive unlocked potential of human creativity. Children, and all humans, have become so disengaged from nature that the dialogue with the natural world necessary to allow for the creation of new knowledge and the perception of new ways of being cannot be heard. To make the transition from the current era, which he termed the Cenozoic or Terminal Cenozoic, to a new enlightened age of the Ecozoic, there must be "comprehensive change in control and direction of energies available to us" (p. 30). The anthropocentric community must let go of the deep psychic resentment of the give and take nature of the human earth bond. The commitment to dominating the earth must be altered to "an integral earth community based on a mutually enhancing human-earth relationship" (p. 30). The first step in the repurposing of human potential is to shed individualist and instrumentalist urges in favor of a new perspective; one that supports the understanding that the universe is not a collection of objects; it is a communion of subjects (1999, p. 82).

Berry uses the analogy of the story to examine the guiding principles that humanity uses to live. He proposes that we are in trouble (ecologically, socially, and,

psychologically) because we lack a good story. Stories provide a functional context in which life can progress in a meaningful manner. However, "the old story, the account of how the world came to be and how we fit into it is no longer effective" (p. 123). As we transition out of the modern age and into the post-modern age, we lack a functioning story and society remains without satisfactory meaning (p. 124). Humanity is in a "groping phase" looking for meaning and direction. It lies not in consumption or distraction, but in a unifying story that, as of right now, eludes the human community. No community, according to Berry can exist without a unifying story. As we continue to languish in what he calls the "groping phase of transition", we have found no sustaining values, social problems continue unabated, and the earth "continues to disintegrate under the plundering assault of humans" (p. 130). In order to evolve into a new ecological age, a radical change in language, education, consciousness, and what we perceive to be human must take place. The challenge is to transcend the old story; limited thought patterns, individualism, self-aggrandizement, and competitive way of life (p. 42 - 44). Our duty to the future is to write the New Story. This story will give the guidance, motivation, strength, patience, and comfort to make the transition from a modern industrial wasteworld into a life affirming, sustainable communion with nature. This process is what Berry has termed, The Great Work (1999, p. 7).

The Earth Charter (2000) is a physical representation of Berry's Great Work. It forms his eco-philosophy precepts into a cohesive action statement. It is a collection of sixteen principles stemming from common values that form the basis of a society committed to a deep respect of nature, "universal human rights, economic justice, and a culture of peace" (p.1). The charter is a declaration of promise; to one another, to the

biosphere, and to the future. It is also an action guide that does not promote "ethics as code" but is what Jickling (2004) calls, "ethics as process". In other words, the principles contained in the charter invite "individuals into an ongoing process of defining and redefining their own rules for individual and community conduct…, Ethics is an open-ended process with the potential to expose new challenges and generate new possibilities" (Jickling, p. 16). The values put forward in the document are: respect of the earth and all inhabitants, freedom, knowledge, responsibility, inter-relatedness and interconnectedness, intrinsic value of nature, prevention of harm, restraint, conservation, equity, fairness, tolerance, non-violence, peace, and the integration of the objective and subjective domains (Earth Charter Commission, 2000, p. 3 - 4).

The negativism toward common values or a common ethic that characterizes modern life must be replaced by new modes of thinking. We must all learn and teach how to grow beyond the lessons we have learned to bring about a new beginning rooted in "global interdependence and universal responsibility" (p. 4). Imagination, diversity, and open and honest dialogue at the local, national, and global levels must be honored and practiced at an individual and institutional level. Thomas Berry stated that the project before us is not about adaptation or slight changes in our systems (1988). There will be struggles between competing values and difficult choices will have to be made. The role of teachers will be not only to assist students in understanding the myths and failings of the old story and what Mezirow (1991) terms "frames of reference" and "habits of mind", but to also play a role in the formation of a new story. The story will be on going and ever changing. It will place them in the middle of nature and will be written with the language of ethics, love, justice, and intrinsic value (Jickling, 2004).

Cultural Barriers to Ecological Action

As much as teachers and students may want to engage in sustainable education and sustainable living, it is a new and challenging path. To minimize confusion, apathy, and to be generally successful, one requires direction and guidance in both their personal and professional lives. As has been discussed in the above section, the world community has signaled a call to action. The many summits, committees, reports and declarations discussed earlier have identified the goals of the future. Less clear are how these goals are to be reached. Even more mysterious is the concept of how an individual should prepare him/herself to discover the methods to satisfy these tasks. There appears to be a lack of significant movement in sustainability projects among the population of the West due to lack of proper motivation and guidance. The standoff might be broken with critical self-examination of values and beliefs to discover new perspectives and paths (Di Biase, 2000). As external drivers have not provided the impetus for major changes in education or society on the whole, perhaps the internal may be the catalyst.

Values are difficult to discuss in an educational context as the word has culturally or media appointed connotations of faith-based education or right-wing political agendas. Teachers often work within value-neutral contexts because they were taught to believe that they shouldn't push their values onto their students (Courtenay Hall, 1996). While the positivist myth of neutrality or a value-free education system persists, it has been challenged (Norton, 2008). An argument may be made regarding the amount of relativism in play in schools, but to suggest that classrooms should be value free does a disservice to students, teachers, and the process. Yet values are also criticized as being

unimportant or are ridiculed when introduced into an ESD dialogue, even when a great importance is placed upon them in the literature (Morin, 2004, p. 41).

For the purpose of this thesis, values are defined as beliefs, principles, concepts, and objects dear to our minds and hearts, which we strive to protect. They provide guidance and form attitudes that lead to action (Leisserowitz, Kates, & Parris, 2006, p. 414; Maffesoli, 2004). Values of a moral, aesthetic, or intrinsic nature exist on the same plain as 'The Good' in Plato's *Republic*. We cannot know them, but we can know of them. Once the individual is made aware of 'The Good' they will strive to achieve it. Sustainable values have similar characteristics in that we may not know them explicitly but we can learn about them and become aware of their existence. Once made aware, the individual will aspire to live those values as they have foundations in 'The Good'. There are, however, other factors, in terms of values and sustainability, that need to be discussed.

For thousands of years, values of principle were universal, transmitted by God, the church, or the sovereign. These rules for life were, by and large, abstract and were accepted unquestioningly for fear of condemnation (Morin, 2004). The societal changes ushered in with modernity, afforded time and space for the individual to determine their identity based on something other than work. It also meant it would be possible to redefine and internalize source values that were not conforming to, or simple replications of, the cultural majority. The guidelines that were once abstract communal values were "humanized as a consequence of being believed and assimilated" (Sue, 2004, p. 86 - 87). Within this process, personalized values would trigger a transformation that would see action driven by values. Thus the values progression moves from the external affecting

the internal processes to internalized values ultimately affecting the world outside the individual actor.

While modernity brought great advances in human creativity and ingenuity, the combined effects of rationalism, instrumentalism, materialism, anthropocentrism, industrialism, technologism, capitalism, and individualism have not been as beneficial to the planet (Bai, 2004; Berry, 1988; O'Sullivan, 1999). The reliance on the idea of growth as progress over the last century and a half have brought great advances in science, technology, and a very comfortable quality of life for those living in the zones of the world described as the West, culturally and the North, geographically. The trade off is, as David Orr (1992) describes, an either/or situation where modernity's myths have placed humanity into the position of choosing growth over the environment. The massive growth of industry, science, and technology is, in part, supported by the old stories of Christianity and modernity that place the human not only at the top of the planetary chain, but within the universal context as well. The urge to dominate nature can be found in early Judeo-Christian values as well in the attitudes of modern science (Orr, p. 11-12). As humanity has become more disconnected from the physical and psychic elements of nature, that gap has been filled with an unchecked reliance on science. The development of human societies has been at the direct expense of the organic world. As Thomas Berry states, it is ironic that the efforts of modernity that were to provide a technological wonderworld have in fact created a wasteworld (Berry, 1988, p. 29).

The shift in Western society from the collective to the individual has likely been one of the more ecologically damaging aspects of human evolution. The modern age, with the inversion of work and leisure time, allowed for the creation of time and space for

people to create their own identities. While this process allowed for the internalization and assimilation of values, the final stage of values driving action has yet to be fully realized (Sue, 2004). The societal value placed on the individual has led to two specific concerns in terms of ecological damage and survival. First, the nature of individualism places the concerns of the individual above all else. The result of such shallow and short-term thinking is the gradual withdrawal from collective concerns both physically and psychologically (Mason, 2001). As humans are social creatures, this withdrawal creates an emptiness that demands to be filled. In Western culture, the void created by the lack of connectedness and community is often filled through consumption (O'Sullivan, 1999, 2002; Suzuki, 2007; Takahashi, 2004). The modern age, especially the post-World War Two era, is defined by rampant individualism and consumption. The more disconnected one becomes, the more resources, distractions, or relationships are desired or obtained to fill an unquenchable desire (Suzuki, p. 38 - 43). Orr (1992) describes these as social traps "in which individually rational behavior in the near term traps victims into long-term destructive outcomes" (p. 5). The cultural narratives that we are born into and that guide our lives trap us into a downward spiral. Such is the epic pull of a self-centered perspective (Bowers, 2008; Orr, 1992). Society has lost sight of the connection between the individual and the larger Earth Community (Berry, 1999). Our anthropocentric tendencies have filtered out traditional lessons of how our "health, well-being, and sense of self both influence, and are influenced by, the condition of the planet" (Selby, 1996, p. 49). As we become more and more disassociated, reconnecting with a sense of community or nature is a hard process to conceive let alone undertake (Berry, 1999; Bowers, 2008; Mezirow, 1997; O' Sullivan, 2002). Thus is the pattern of modern life.

Satisfying individual urges leads to isolation and dissatisfaction. Consumption and materialist values replace needs once filled with community and human relationships. The satisfaction derived from consumption is short lived and tends to amplify dissociative characteristics and feelings of unhappiness and loss. Instead of making behaviour changes that recognize the connection and interdependence the psyche craves, more resources are consumed. It is a pattern that has great psychological and ecological costs (O'Sullivan, 1999).

The second negative consequence of individualism is the loss of perspective of place. Anthropocentric trends of modernism have placed humans at the top of the pile as it were, above nature or outside of nature. The environment is viewed as ours to use for our gains and growth. The lack of an understanding of connectedness with nature leads to greater and greater amounts of ecological damage. As western individuals, governments, industry, and economy lose sight of the interdependence between our health and success and the health and success of the organic world, disengagement ensues (Berry, 1999, Takahashi, 2004). Anthropocentric thought coupled with Eurocentric and individualistic urges have warped the worldview of Western culture to the point that it has become ecologically illiterate (Bowers, 2010; Orr, 1992). The combination of entitlement, disengagement, and ignorance allows the human community to inflict massive and sustained damage to the Earth community (Berry, 1999; Bowers 2008). There is a lack of connection between values and actions; between responsibilities and consequences. Mason (2001) adds another perspective stating that, given the complexity of networks within the globalized world, our actions have consequences that cannot be anticipated. We, in the late modern world, do not have the ethical guides to judge actions without

knowing what the outcomes might be. We inhabit a number of roles in our lives, some of brief periods of time and some longer. These are shared roles in a globalized assembly line of outcomes. Since we do not have sole ownership or authorship of end consequences of collective actions, accepting responsibility is not easily done. Throughout our lives, we tend to float in and out of roles with some informing identity and some not. This is because we, according to Mason, do not readily accept and integrate the values of roles we inhabit temporarily. Because of this, we do not take responsibility for the consequences that result from the actions of such roles. However, there are times when, despite the above assumptions, the "moral discomfort" of our action remains with us and we seek out guidance. Yet, given the lack of sources of moral authority in the modern age, we are left with ambiguity and without a clear direction to right action (p. 49 - 50).

The Canadian Context

In Canada, the response to the approaching environmental crisis through the 1990s was generally positive. However, the response was characterized by much talk and little action. In terms of a national strategy, it would appear that the Canadian attitude is one of ambivalence (Leiss, 2003). On one hand, "all levels of Canadian government exhibit a willingness to identify environmental challenges rather than deny their existence or minimize their importance" (Lee & Perl, 2003, p. 3). However, even with awareness and acceptance, "Canadian policies often fail to deliver solutions or even launch efforts to attain those solutions" (p. 3). As the global community rallies efforts and resources to integrate sustainable principles into all curricula, the reaction of our national leaders has been one of rhetoric and inaction. The failure to meet our Kyoto commitments coupled

with the increased oil production of the Tar Sands and a 58% increase in Alberta's carbon emissions (Toronto Star, 2009) appears to be a step backward. In addition, such behavior makes the following statement from an Environment Canada (2002) teaching resource take on a deeper meaning than what was intended:

> Environmental citizenship encourages people, communities, and organizations to think about the environmental rights and responsibilities we all have as residents of planet Earth. Environmental citizenship means caring for the Earth and caring for Canada. And, making our actions speak louder than just words (p. 1).

The apparent inability of national leaders to develop and deliver a focused and deliberate action plan sends a message to Canadians that, while we value the environment, we have other values that take priority (Leiserowitz, Kates, & Parris, 2006). The situation of high-level ambivalence, where a green agenda is given lip service as the extractive economy continues, would appear to be misguided and ecologically illiterate. David Orr (1992) describes this dichotomy in a recounting of Garrett Hardin's (1968) essay, "The Tragedy of the Commons" in which an individual willingly engages in environmentally damaging practices because the immediate end result rewards irresponsibility (p. 5). With this kind of leadership, it is unsurprising that the majority of Canadians, aware as they are, have become complacent and inactive.

The Manitoban Context

An examination of action at the provincial level provides a different perspective. Manitoba, the province at the center of this study, has been identified as an early adopter of ESD (Hopkins, 2010; International Institute for Sustainable Development, 2009; 2011). The Government of Manitoba (2002) released *The Sustainable Development Act*

that addresses the three key areas of sustainable development: environmental, economic, and societal needs. Going beyond the basic acceptance of SD, Schedule B of the statute mentions the principles of integrating economics and the environment in decision making, future focused thinking, social health, conservation, care and repair of the environment, and local and global respect and responsibility (Government of Manitoba, pp. 8 - 9).

Manitoba Education, formerly Manitoba Education Citizenship and Youth (MECY), presents a much more defined role in terms of SD and ESD. The Department's mission statement includes a reference to ensuring students will be prepared for "lifelong learning and citizenship in a democratic, socially just, and sustainable society" (Manitoba Education, 2011, p. 1). The vision of education in Manitoba includes that every student, in addition to completing high school, will complete their studies with a "profound" sense of hope and optimism. At the bottom of the statement in the Goals and Priority Action segments, gaining experience and knowledge of living sustainably and Education for Sustainable Development reside in the top positions respectively (Manitoba Education, 2011). Sustainable concepts and processes have been added to the science curriculum at the grade nine through eleven levels. Curriculum outcomes and courses at the grade twelve level are currently in the development stages (Manitoba Education, 2008).

Commitment and support to all teachers interested in integrating ESD into their respective curricula, is also evident in the resource document, *Education for a Sustainable Future* (2000). The document outlines the principles and values of sustainability consistent with those espoused politically, philosophically, and in the aforementioned mission and vision statement. An ESD primer page, produced by the

Department of Education, identifies and promotes the characteristics of interdisciplinary and holistic processes, values, critical thinking, subjective and objective methods, participatory action, and localism as the components of the new paradigm (Manitoba Education, 2011). More direct, however, is a statement of rationale from the Sustainability Resource Guide, which reads as follows:

> Canadian citizens require new ways of thinking to creatively address and resolve complex social, environmental, and economic issues that affect the quality of life on the planet. Education can facilitate this change. However, in order to do so, students will require a new set of knowledge, skills, and values; they will also need to demonstrate life practices that reflect an understanding of the interdependence of human health and well being, the environment, and the economy. Students must be challenged to understand and apply the concepts of sustainability and to envision a sustainable future. They need to know what to aim for in their future, and to understand that *they have the personal power to make a difference and effect change* (Manitoba Education, 2000, p. 11).

Most recently, Manitoba Education and the IISD collaborated to produce the *Guide for Sustainable Schools in Manitoba* (2011). This document acts as a directive to implement a whole school approach from the operational (greening of the school environment, conservation, and purchasing practices) to the integrative (making curriculum and behavior changes) (IISD, 2011). On a local level, individual school divisions within the City of Winnipeg (the geographic area that concerns this thesis) have also released sustainable development policies, plans, and statements into the public domain via their websites (Pembina Trails School Division, 2009; Seven Oaks School

Division, 2010; St. James Assiniboia School Division, 2009; Winnipeg School Division, 2008). While all four documents contain some mention of, or focus on, sustainable development or sustainable practices, only two move beyond basic or operational concerns to address issues of global citizenship or values consistent with ESD. This reality is echoed by the IISD (2009) in a report on school sustainability policies:

> After solicitation and review of all division policy manuals, 25 policies related to the aspects of sustainability from 18 Manitoba school divisions (out of a total of 37) were identified. The majority of policies (85%) are operational in nature, addressing single issues such as energy conservation, recycling, anti-idling and so forth. Only four are more integrative in nature, reflecting a commitment to ESD by addressing the multiple dimensions of sustainability as well as all the roles that a school plays in ESD (p. ii).

Regardless of the lack of direction via policy, the report continues to add:

> Nevertheless, many individual schools in Manitoba are actively involved in a wide range of sustainability projects and programs. In many cases, individual schools are participating in one or more certification or awards programs and/or have received grants to undertake sustainability activities, even though there are no division level policies in place to require or encourage this (p. ii).

This statement completes an image of a very inconsistent pattern of ESD from the national to school or individual teacher levels. There are recognized gaps between words and deeds from the federal government. Yet, in Manitoba, the provincial government and Department of Education strongly support SD and ESD through legislation, curriculum, frameworks, and financial support. At the local level, school divisions provide

inconsistent leadership through policy and monitoring; yet schools and teachers are undertaking ESD projects without it (IISD, 2009). Concerns have been raised, however, regarding the longevity of sustainability projects and the lack of a systemic response across schools within divisions and among division (Hopkins, 2010). The role of "champions" of ESD is also an area of concern. As the next section will discuss, the role of individual teachers in the areas of acceptance and implementation of ESD is of great importance.

Barriers to ESD Integration

Education for Sustainable Development, while relatively well represented in the government and divisional levels is still "marginalized in Canadian schools" (Hart, 2007, p. 33). The available literature surrounding the obstacles to ESD implementation suggest the following factors play significant roles: time, funding, lack of leadership, teacher awareness, teacher turnover, insufficient staff training, overburdening expectations of teachers and curriculum, lack of proper ESD definitions, and teacher preparedness (Breiting, 2007; Hart, 2007; IISD, 2009; Johnson, 2009; McLeod, 2007). Marginalization of ESD content, however, is not easily explained using examples such as being overworked or not feeling secure enough to take on new challenges (Selby, 1996). The core of success of environmental education or ESD appears to be the preparedness of teachers to make cultural shifts and adopt new frames of mind (Bonnett, 1999, 2002; Hart, 2007; Huckle, 2004).

Some of the principles of ESD have been defined as: freedom, democracy, shared values, creativity, and critical thinking. Transforming these principles from rhetoric to classroom practice will present a major challenge to teachers and students. One of the

major thrusts of ESD is to have students explore their values and questions of ethics and citizenry in a participatory forum. In order for this to occur, two distinct shifts must be made. First, space must be created to allow free discourse between the students and the teacher. This suggests a redefining or perspective shift on the part of the teacher regarding traditional roles in the classroom (Hart, 2007, p. 33). Second, teaching must shift from a transmission model of knowledge to a holistic model that supports praxis; the cycle of action, reflection, and action. Opportunities must be given to students to engage in praxis as well as "articulate their ethical and moral opinions and beliefs and thereby allow them to increase their sensitivity to the subtle nuances of language when it comes to communicating ethical and moral issues" (Öhman, 2007, p.45). Hart (2007) states the barriers to the success of this endeavor lie in the "significant power invested in conventional ways of positioning oneself as 'teacher' or 'student' (p. 33). These assumptions suggest a re-orienting of the normative power relationships is required within an ESD teaching and learning paradigm. Teachers expected to enter into an honest participatory relationship with students would have to be able to share the control and direction of dialogue. It requires a shift from the transmission model to the praxis or transformative model of learning and a reorientation of an understanding of roles and responsibilities in the classroom. To fully create an interdependent narrative, teachers and students must be prepared to create spaces where traditional power roles are muted. If they are not, due to the esteem or confidence of teachers (Selby, 1996) or cultural assumptions (Bowers, 2008), the dialogue will not have room to grow.

Plumwood (1996) suggests the social change that is needed for the creation of sustainable societies is not emerging because of institutions like formal education.

Because schools and teachers continue to work within an objectivist framework of knowledge and knowing, they perpetuate "worldviews and social structures that generate ecological destruction" (p.76). The school, classroom, and the mind have been colonized by dominant cultural ideals. Within the colonizing context there is only room for the experiences of the dominant group. Only their subjective experiences are treated as real. Within this worldview, the positivist myth of an object/subject or science/values dichotomy lives (p. 77). The first step to change is breaking free of cultural myths or what Plumwood terms "decolonizing the mind" (p. 83). The privileged and exclusionary anthropocentric view of the world is replaced with the inclusionary, ethical and equitable ecocentric mindset. One of the characteristics of ESD is its inherent non-neutral stance. It is an ideological and political act. As the modern era transitions into the postmodern, it will not do so quietly. Education should act as a liberator of modernist traditions, myths, normative behaviors, and habits of mind. Using the anti-colonialist framework in ESD, and allowing for the subjective experiences of teachers and students to build knowledge and understanding, "the dominance of these privileged models is potentially disrupted by the presentation of 'different' experience (p. 83).

There are other pressing concerns regarding the lack of a proper understanding of the cultural forces at play within the ESD dialogue. Bowers (2003) decries the deliberate deception of teachers by representatives of the extractive economy (p. 137-38). Using an example of independently produced, pre-packaged curricula, he argues that science teachers are at risk of being indoctrinated by members of the dominant culture. As good as teacher intentions may be, poorly selected materials that are not reviewed critically can lead to the creation of a consciousness where corporations are the heroes of the

environment and the economy and environmentalists are anti-progress "Don Quixotes" (p. 137). As has already been addressed, time and pressure to cover existing curricula impede the integration of ESD into school. As teachers become more aware, and open to, the necessity of integrating sustainable concepts and values into their practice, the possibility of negative influences disrupting the ESD process increases. Outside agents, such as media and corporate interests, feeding misleading or confusing information into the dialogue. The result is ESD activities that negatively impact sustainability efforts while reinforcing the existing dominant culture (Bowers, 2003, 2008; Jickling, 2004, 2009).

Bowers contends that teachers (and other professionals) are being trained in a context that contains "mutually reinforcing assumptions" that support the dominant culture. These assumptions include:

> An anthropocentric view of the natural environment; the autonomous individual; a conduit view of language that reinforces the assumption that words have universal meanings and that the rational process is free of cultural influence; the culturally neutral nature of science and technology; the operation of the "invisible hand" that governs the outcome of competitive discourses and business practices; and the superiority of knowledge that has been encoded in print and other abstract systems of representation over oral modes of encoding and renewing (2003, p. 139).

Thus students are leaving institutions with assumptions, attitudes, and behaviors set without the understanding of "the characteristics of ecologically sustainable cultures and by extension, the culture and patterns of thinking that are unsustainable" (p. 138). So

strong is the encoding of cultural myths in this process that anyone who dares to speak out or question is marginalized as reactionary or maladjusted, making their words easier to ignore (p. 140). The continued reliance on anthropocentric and Eurocentric language in classrooms, the narrative of modernism (which ESD seeks to replace) is perpetuated and celebrated (Bowers, 2008, p. 4).

Acceptance of the concept of biophilia or biophilic ethic and intrinsic valuing of nature may present as another barrier to widespread integration of ESD in Canadian schools. Biophilia, as Selby (1996) defines it is:

> the cultivation of kindness and compassion toward human beings and non-human animals, respect for the inherent value of natural environments and all living things, a concern to maintain biological diversity, a reverence for the beauty of the Earth, its people and other life forms, and an outright rejection of all forms of cruelty, exploitation, and oppression (p. 49).

The anthropocentric and instrumental values of the dominant culture make it difficult for the individual to see beyond their own needs. In order to create the interdependent and co-operative classrooms Selby envisions, an understanding of "the intrinsic worth of each learner and a valuing of everybody's contribution to the learning process" must be in place (p. 52-53). If schools remain institutions primarily charged with socializing children for the perpetuation of existing social structures or exist as factories of commodified knowledge, there is no space for such action. If the consumerist narrative is extended to education where the students "are looked upon primarily as consumers of education and human capital for the labour market" (European Student's Union, 2005,

p. 1) there is no space for intrinsic value in schooling. As long as students, parents, and the supporting community see education as a resource to be consumed as a means toward the ends of the economy, any ESD activities will be undervalued, ignored, or rejected.

A final explanation for the apparent lack of ESD in schools is that teachers, students, educational leaders, and the surrounding community do not value it. Jean-Joseph Goux (2004) writes of the "stock-exchange model of values" where, instead of supply and demand, the desire or need at any particular moment determines the value (p. 58). In the late modern era, it is rare to encounter an individual who outwardly states he or she does not value the environment. Where nature may exist in one's 'portfolio' of values, however, is another question altogether. In a study of trends in sustainability values, Leiserowitz, Kates, and Parris (2006) found that values that would promote individual lifestyle changes exist and are widely held, "although they are not currently prioritized over other competing values" (p. 435). An interview with oil sands workers by David Suzuki (2011) on his show "The Bottom Line", illustrates this phenomenon. Each of the men he spoke with were concerned with the effects of their work on the environment, but the need for money to support themselves and their families took precedence.

The above paragraphs show that research exists to show that people do hold many of the values consistent with ESD. Teachers, students, and parents all say they value nature, the respect of others, co-operation, open dialogue, and democracy. The question is where do those values exist amongst current cultural drivers, attitudes, and competing values? If people are already aware of the risks and challenges society and the planet are facing, will the acquisition of more information help them to close the gap between

attitudes and action? If not, what will minimize or remove the barriers to ESD in educational systems? The final section of this chapter will examine the literature surrounding transformative learning and its connection to learning and living sustainably.

Transformative Education

"Teacher change is the precursor of reform in education. Without it, efforts intended to facilitate reform are thwarted and nullified leaving any apparent progress either incidental or superficial" (Di Biase, 2000, p. 3). Bowers supports this claim when he argues that:

> Educational reforms that reduce dependence upon an economic system driven by the market liberal ideology that has a global agenda will require more than simply adding ecological sustainability to the social justice liberal's long list of priorities… . both the market liberals… and social justice liberals share many of the same deep cultural assumptions that the industrial/consumer culture is based upon. Thus, it is necessary to recognize that ecologically sustainable educational reforms both at the public school and university level will require fundamental changes in long held patterns of thinking, including the deep taken-for-granted cultural assumptions they are based upon.
>
> Changes in these patterns of thinking will be difficult because the personal identities and the careers of classroom teachers and professors are based upon them. That these cultural assumptions are largely taken-for-granted makes them an even greater impediment to change. What needs to be addressed are the silences and prejudices currently reinforced in school and university classrooms. These include the ethnocentrism that is still present in the current emphasis on

> multicultural education and the combination of silences and prejudices that contribute to the indifference that most students exhibit toward ecologically sustainable practices within their local communities. This indifference toward environmental issues is partly a result of their being captives of media sponsored hyper-consumerism and the ability of technological innovations to provide instant self-gratification (2008, p. 4).

These statements sum up the current context of ESD reforms as well as underscoring the necessity for transformational learning of teachers. Much of the ESD literature focuses on transformative aspects for children at the K-12 levels. However, as the last section has explored, systemic change has yet to occur due to operational, cultural, and personal considerations. There is a gap between teachers and learners. In the ESD milieu, teachers should be aware of sustainable values and behaviors in order to integrate concepts into the curriculum. Without teachers who think or live sustainably, schools run the risk of charging unmotivated, unprepared, and ill-informed teachers to engage students in sustainability dialogues. In such a scenario, the best possible outcome may be teachers learning from students. However, a greater concern of inauthenticity, indoctrination, manipulation, nullification, or sabotage exists (Bowers, 2003; Di Biase, 2000, Taylor, 2007).

Transformative learning is a theory pertaining to adult education first espoused by Jack Mezirow (1978; 1991). It is a learning theory based in the constructivist tradition where the learner interprets and reinterprets experience through a reflective process in order creating meaning and learning (Mezirow, 1994). O'Sullivan (1999; 2008) describes transformative learning as a "change in consciousness" that can bring about an era of

ecological and social justice. Changing consciousness, values, beliefs, attitudes, and actions are a radical notion. This is not a process that humans tend to do unless they are required to (Mezirow, 1991). Although the world is in a state of constant change and it is considered an unstoppable force, it does not alter the reality that everyone does not embrace change. Many people are relying on the lessons learned in their formative years for understanding and making sense of the world around them (Mezirow, 1991; 2000). Di Biase (2000) echoes this but adds teachers and all humans operate within their own histories; that is, each individual has a set of encoded information that is unique to them. He continues to explain that, within change "is the process of altering, modifying or transforming the practices, attitudes, beliefs and perceptions" (p. 3). More importantly, he maintains that transformative learning is an individual and highly personalized path to learning. The pressures to implement ESD, or any reform, are significantly decreased when teachers buy into the process. However, sustainability requires personal as well as collective commitments. Thus, a top down approach may not be successful if those required to facilitate the dialogue have not made the necessary transformation of perceptions and attitudes.

Transformation theory works on the following assumptions. We gain an understanding of the world through interactions and experiences during our formative years. These lessons come via socialization, "informal or tacit learning of norms from parents, friends, and mentors that allows us to fit into society", and through schooling (Mezirow, 1991, p. 1). As we enter adulthood, the "interpretations and opinions" that produce understanding and meaning in childhood are no longer viable. New beliefs are built upon past experiences and combine to form a frame of reference (Mezirow, 2000).

Frames of reference are the results of interpreting experience and represent cultural and parental influences. The mind tends to favor frames of reference that are comprehensive and produce minimal dissonance. Mezirow continues to explain that larger frames serve to unite the individual to the universal and form worldviews (p. 16-18).

The frame of reference is comprised of two parts: "habit of mind and resulting point of view" or assumptions that assist in the interpretation of experience (p.17). Examples of habits of mind are:

- Sociolinguistic (cultural canon, ideologies, social norms customs…)
- Moral-ethical (conscience, moral norms)
- Epistemic (learning styles, sensory preferences…)
- Philosophical (religious doctrine, philosophy, transcendental world view)
- Psychological (self-concept, personality traits or types, repressed parental prohibitions that continue to dictate ways of feeling and acting in adulthood…)
- Aesthetic (values, tastes, attitudes, standards…) (p. 17)

Within the transformative model, these habits are expressed as points of view. Our frames of reference, habits of mind, and points of view are what make us who we are. They shape our perceptions of the world, how we react to situations, interact with others, and they also act as filters: of perception, understanding, and also of learning. Once the habits are set they guide both our mental and behavioral actions. Ideas that fit within existing frames of reference are accepted while ideas that do not meet with a strong tendency toward rejection (Mezirow, 1997). That is not to say that adult learners plateau or stop learning. Transformative learning theory suggests that, given the rapid change

inherent in modern society, we go through a number of transformative experiences throughout our lives in order to make meaning of new contexts. Through discourse and experience, one's point of view, habits of mind, and frames of reference can be challenged and potentially transformed.

There is no singular way a person would arrive at a transformative learning experience, as frames of reference are not universal. There are similarities, but ultimately it is a highly personal process. The transformative process always begins with a problem. Cranton (2002) explains: the individual is presented with an ordinary or life-changing situation (i.e., death in the family, job loss, or unexpected question) that causes them to question currently held beliefs, values, or attitudes. The old ways of being no longer hold meaning opening space to identify one's current worldview as distorted or faulty and so one is open to explore new perspectives (p. 65). Mezirow (1994), citing an earlier publication, describes the precursor steps to transformative learning as an eleven-step process:

1. A disorienting dilemma
2. Self-examination of feelings of guilt or shame, sometimes turning to religion for support
3. A critical assessment of assumptions
4. Recognition at one's discontent and the process of transformation are shared and others have negotiated a similar change
5. Exploration of options for new roles, relationships, and actions
6. Planning a course of action
7. Acquiring knowledge and skills for implementing one's plans

8. Provisionally trying out new roles
9. Renegotiating existing relationships and negotiating new relationships
10. Building competence and self-confidence in new roles and relationships
11. A reintegration into one's life on the basis of conditions dictated by one's new perspective (p. 168-169).

Brock (2010) adds that transformative learning can be "cataclysmic or can happen over time" (p.124). Citing Mezirow (1985), she explains that learning in this model can be "accretion" or "epochal" or both (p. 124). This can be taken to mean the transformative process can be one major action or it can happen in stages, and so can the catalyst. It can either arrive as one disorienting event or exist as a collection of smaller occurrences such as new information or discourses that challenge one's worldview.

Within ESD dialogue, critical reflection is stated as being crucial to the process (UNESCO, 1997b). While reflection is useful for children who are in the process of identity creation, it may not be the best course of action for teachers. Brookfield (2000) states that learning can only be transformative if it "involves a fundamental questioning and reordering of how one thinks or acts" (p. 139). The end result must be very different from its original state. He continues:

> Having a more informed, nuanced, or deeper understanding of something (such as an idea, an assumption, or an educational practice) is not, for me, equivalent to transformative learning. Transformative learning would be learning where the learner came to a new understanding of something that caused a fundamental reordering of the paradigmatic assumptions she held about the idea or action concerned (p. 139-140)

Brookfield's description of transformative learning fits with Berry's (1999) reinvention of the human and Bowers' (2008) contention that education and educators must fundamentally change.

Transformative learning as promoted by Edmund O'Sullivan (1999; 2002) shares aspects of Mezirow's vision, but places it within an ecological context. He states that the mind operates though preconceptions. These preconceptions "shape interpretations of the world and impinge on the world itself" (2002, p. 3). Not only does the mind affect the world, the outside world also shapes the mind. In this loop, exist negative feedback, positive feedback and adaptive positive feedback (p. 3). Negative feedback reinforces previously held assumptions and brings the world into line with them. Positive feedback challenges previously held worldviews and leads to changes in "internal codes and presuppositions" (p. 3). Adaptive positive feedback differentiates from positive feedback through a "persistent mismatch between perception and code" (p. 3). In this situation experiences and information cannot be interpreted using old knowledge or assumptions. As the mind is repeatedly presented with positive or adaptive positive feedback it leads to three main modes of "Integral Transformative Learning" (p. 1). Which O' Sullivan identifies as "Survival", "Critique", and "Create" (p. 2). The Survival mode has three phases: denial, despair, and grief. The denial stage, where the majority of Western culture resides, is the human defense mechanism to protect the mind from becoming overwhelmed by size and scope of social, economic, and environmental problems. As the mind exits denial, it enters the second phase; despair. In this process, O'Sullivan states despair will be one of the biggest challenges to humanity. Without "critical understanding and a creative vision", people risk becoming overwhelmed, hopeless, and powerless once

their minds are open to the crisis and the task at hand (p. 5). The final stage of the Survival mode is grief. Working through the grief process in necessary in accepting the profound "sense of loss at the personal, communal, and planetary levels" that we have been closing our eyes to (p. 5).

The second phase of transformational learning is the "Critique" mode, or "Critical Resistance Education". The critique phase is characterized by a deep critical reflection on the stories and myths that guide Western culture and creating spaces to resist the pull of "profound cultural pathology" (p. 5). It is a personal process that is "embodied in our daily resistance to the destructive forces of the modern world" (Takahashi, 2004, p. 171). O'Sullivan, referencing John Ralston Saul (1997), speaks of the "unconscious civilization". We have access to vast amounts of knowledge and information, but much of it comes to us indiscriminately. The result is a saturation of knowledge that is disconnected from usefulness and does not lead to consciousness (p. 6). For a better part of the 20th century, Western culture has fostered notions of the individualistic or "minimal self" (O'Sullivan, 1999, p. 224). Humanity has isolated and alienated itself from the natural world and must be able to identify and critically assess its behaviors. The second phase of the transformative process is to break from the unconscious stupor to reawaken our conscious mind. We must return to being "active agents" not "passive consumers" (p. 127).

Another dimension of this process is a "critical examination of hierarchical power" (O'Sullivan, 2002, p. 6). The Western tradition is steeped in patriarchal and imperialist power that has minimized the role of women and people of color. In the ecological transformative context issues of gender, class, race, and sexual orientation

must be addressed and discussed critically in order to avoid perpetuation of current myths. Topics of privilege, institutional violence, and dominant cultural beliefs must be integrated into the process to educate for peace, justice, and diversity (O'Sullivan, 1999; 2002). Critical resistance education serves to identify faulty worldviews in order to open pathways to a new ecological consciousness. As Takahashi (2004) asserts, "critical questioning of our world and ourselves is the starting point in participation toward social transformation" (p. 173).

The final stage of Integral Transformative Learning is the 'Create' phase or "Visionary Transformative Education" (2002). Similar to Thomas Berry's new story, O'Sullivan sees the need for a new narrative to help us find our way in the much larger narrative of universal evolution. This stage is characterized by the harnessing of human creativity to reach a planetary consciousness. Reconnecting with nature and a sense of community in essential in this stage. In order to awaken our sense of wonder, mystery, and creativity to create new possibilities for ourselves we need to "reaffirm our connection with the world that includes, but is not limited to, the rest of the human community" (Takahashi, 2004, p.176). At this stage in the process, the consciousness and awareness allows the individual to re-enter the Earth community; not as a master or dominator, but as an integral member. The last step of the transformative process exhibits an internalization of Thomas Berry's assertion that "the universe is a communion of subjects, not a collection of objects" (1999, p. 82).

Summary

In this chapter, I have examined literature as it pertains to teacher values, personal and societal transformation, and ecocentric teaching or ESD. Throughout, themes of

change permeate the discussion: negative manipulation of the biosphere, societal or cultural transformation, educational reform, and changes in beliefs, values, attitudes, and behaviors. The purpose of this study is to collect and examine the experiences of ecologically centered educators. More specifically, the study is interested in discovering how these teachers came to be ESD practitioners. To reach the goal of accurately collecting and analyzing the stories of six senior high science teachers, I will employ the tradition of studying significant life experiences (SLE) (Chawla, 1999; Hsu, 2009; Palmer, 1993; Tanner, 1980). As each of the aforementioned researchers have only explored the SLE of environmentalists and activists, there remains a significant lack of research into the experiences of public school teachers and how their commitment to ESD came to be.

Chapter 3

Methodology

Purpose

The purpose of this study was to examine the experiences of urban high school science teachers in order to gain a greater understanding of their commitment to Education for Sustainable Development. As the literature shows, values and teacher values play a role in creating a fertile space for ESD. This project seeks to explore and celebrate the transformational experiences of ESD teachers specific to values and worldviews. Having explored the literature, I determined that not only was there a lack of research in this area but that investigation was encouraged (Hart, 2007; Jickling, 2004). To reach this end, I chose to conduct phenomenological case studies (Chawla, 2006) of six teachers. Studies of life histories and significant life experiences of environmentally minded individuals have taken place within the last thirty years (Chawla, 1999; Hsu, 2009; Palmer, 1993; Tanner, 1980), yet they, aside from Palmer, have focused on environmentalists and conservationists not educators. Values, specifically the values of ecological education and ESD, were not part of these studies either. This study was designed in order to explore teacher values using their own stories and remembrances within a Canadian context. The questions pertinent to this project are:

1. What are the values that ESD practitioners hold?
2. How do they differ from those of the dominant culture?
3. What are the experiences that helped shape participants' current values and beliefs?

4. Can the transformative experiences of participants be re-created for students, pre-service, and in-service teachers?

Research Design

I have chosen to conduct phenomenological case studies (Chawla, 2006) of six teachers. As I have stated earlier, having explored the literature, I have determined there was a tradition of qualitative research in environmental education research (Chawla, 2006). In addition, I decided that using a qualitative method such as a phenomenological study would be the best approach to share the stories and experiences of ESD teachers. Studies of life histories and significant life experiences of environmental activists have taken place within the quantitative and qualitative spheres (Chawla, 1999; Hsu, 2009; Palmer, 1993; Tanner, 1980). The majority of these, however, tend to be quantitative in nature prompting Hsu (2009) to encourage research that is, "concerned with phenomenological richness rather than with issues of reliability, control, and comparison" (p. 515). Chawla (1999) describes her study of life paths of environmentalists as:

> phenomenological in that I describe people's own self-understanding of the sources of their commitment to environmental action and the meaning that these experiences hold for them. I assumed that action is guided by intention and that people's intentions reflect their past experiences and future goals. This self-understanding of motives and goals draws upon the basic material of this study, which is memory (p.16).

As it is very important to the project to be able to create space for participants to tell their stories without limitations and to reflect and explore their experiences, a qualitative research approach was deemed a most appropriate course of action.

Interviews

Semi-structured interviews were employed to collect stories and gain information from participants. Interviews were conducted at times and locations chosen by the participants for their convenience. Interview questions were phenomenologically based (Chawla, 1999) or open ended questions created in order to gain a deeper understanding of participant values, attitudes, and motivations as well as to assist in the meaning-making process. Participants were allowed to reflect on personal and professional growth using memory as source material. Semi-structured interviews were utilized to gain understanding of the personal life spaces, values, transformations, and challenges unique to each ESD educator.

All participants were asked the following questions:

1. Please tell me about your teaching career from your first job until now.

2. Can you describe what sustainable development or sustainable living means to you?

3. How do you demonstrate a commitment to sustainability?

    In your in-class teaching?

    In your outside of class contact with students?

    In your lifestyle?

4. Can you describe the values and beliefs given to you by your immediate or extended family throughout your youth?

5. Can you describe the values and beliefs you held during your time as a pre-service teacher?

6. Can you describe the values and beliefs you subscribe to today?

7. Can you identify any learning or life experiences you have had that led to a re-evaluation of your previously held values and beliefs?

8. What are the experiences that you have had that prompted your shift toward a more sustainable lifestyle that you share, or would like to share, with your students?

9. Are there any other thoughts you would like to share in regard to Education for Sustainable Development?

All interviews were recorded using a handheld digital recorder. Data was first transferred to a password-protected computer and then transcribed. Interviews lasted between one to one and one-half hours, or longer if the participant required more time to tell their story. After transcribing, a few participants were contacted with the request to participate in a second interview for clarification or to expand on topics that arose in the initial interview. At the end of each process, the participant was offered the opportunity to review the transcript as well as the collected data from the interview to ensure they had been interpreted correctly. This was done to create an atmosphere of trust and transparency and to address any issues surrounding validity.

Finally, the interviews were analyzed using an inductive process letting themes come from the data (Patton, 1990). Each transcript was read through closely to identify themes. From this point information was first generally categorized and later reduced to a smaller number of specific categories (Creswell, 2002).

Study Participants

The intent was to have a sample that included six high school science teachers, who self-identified or have been identified by colleagues as ESD educators. Science

teachers were selected over other ESD teachers of geography or world issues, as I wanted to examine the effect the positivist tradition of value free science or value neutral teaching had on their paths to be ESD practitioners. In addition, teachers who worked and resided in an urban setting were selected under the assumption that they may have had a limited or decreased connection with nature during the formative or adult stages of their development.

I identified initial participants through a variety of channels. Superintendents, principals, the Science Teachers Association of Manitoba, Manitoba Education, and individual teachers were approached to participate via e-mail or in face-to-face conversations. The recruitment process was intended to unfold as a snowball sample. One or two potential participants would be identified and through contact with them, other potential participants would be identified and asked to be a part of the study.

The reality of the participant selection proved to be much more difficult then anticipated. While a number of appropriate participants were identified, not all ended up being a part of the study. Two participants emerged quickly and also provided other names for follow up. As I contacted other teachers, many initially showed interest in the study. However, as I discussed setting up interview times, some challenges presented themselves. One potential participant declined because they thought I was collecting information of what they were doing and was not interested in exploring the why questions while another was uncomfortable with the topic. Other teachers were interested but logistics played presented a barrier in meeting with them. Two potential participants were no longer teaching science nor were they involved in ESD activities and declined to

participate on those grounds. As a result I was able to identify and meet with six participants for this study.

The six participants in the study are: Speed, a veteran teacher currently teaching Senior Years science courses at a large suburban high school; Paul, a mid-career teacher teaching chemistry and environmental science at a mid-sized suburban high school; Marie, a novice teacher, currently teaching science at a mid-sized suburban high school; Greg, a novice teacher teaching science and a water stewardship school initiated course (SIC) at a mid-sized suburban school; Melanie, a mid-career teacher teaching a Topics in Science course in a large inner-city high school; and Ivan, a veteran teacher who teachers biology and chemistry at a mid-sized suburban high school.

Confidentiality and Ethics

This project involved six high school science teachers in the city of Winnipeg. Each participant engaged in the process of informed consent where it was explained their participation was entirely voluntary, their identity would be protected in the final document, and that, should they wish to cease their participation in the project, their verbal or written request to quit would be honored without prejudice or penalty. At no point were any of the participants' names or any closely identifying information included in any document generated from this study. All information received from the participants is kept in an area to which only the researcher has access. For the interviews, participants were given pseudonyms at the outset of the study. Identifying names, locations, and other identifying information were excluded or masked with distracting information to protect informants. Identifying roles were excluded to avoid specific

identification. Consent forms are stored in a separate place from data collected. All data is kept in a locked area. The data will be confidentially destroyed after 7 years.

Chapter 4

Results

This chapter focuses on the questions posed to each participant of this study. I was able to make contact with and interview six high school teachers who are currently teaching science at the grade nine to grade twelve levels. I was unfortunately not able to connect with teachers from all six of the Winnipeg school divisions although the participants I did find represent a good cross-section of the kinds of schools and student populations in the city. The data collected from the participants' answers to interview questions has been coded into themes and direct quotations from study subjects will be used to highlight their specific thoughts and experiences.

In order to properly identify themes, I turned to the work of Patton (1990), which suggested an inductive approach and more specifically, a phenomenological study. As the data was categorized, it appeared that some of it was deductive through the use of the questions listed in Chapter Three. The set of questions was used as a guide in each semi-structured interview with each participant. The questions focused on an understanding of and attitudes toward sustainable development, a demonstration of sustainable development or sustainable living, the values the teachers were raised with, the values they hold today, experiences they have had that have reinforced or changed their value or belief systems, and how they share their values and experiences with their students. The results will be presented thematically connected to the questions posed as well as themes that arise from participant answers. At the end of each section, the work of Lincoln and Guba (1985) will be utilized, specifically their approach to theme identification; 1) consensus themes - where the majority states the same theme; 2) supported themes –

where roughly half of participants raise the same theme; and 3) individual themes – where themes are introduced by one or two participants. Finally, themes will be categorized and presented within the summary of each section.

Understanding and Attitudes Toward Sustainable Development

All participants presented a solid understanding of the concepts of Sustainable Development (SD). However, as they answered the question, "Can you describe what sustainable development or sustainable living means to you?" divergent attitudes began to emerge. Some subjects leaned toward the definitions set out in *Our Common Future* responding that SD meant considering the environment and, "making sure that with progress, that other considerations are being made so that progress can continue". Paul resisted the trend toward expanding the focus of ESD wanting it to be, "more focused, less diffuse". He expanded on his view as such,

> From a science perspective I guess, from my bias, to see it as a science topic and a science course, like an environmental science course and an environmental studies course, to the extent that we're viewing it as our relationship with the world around us and developing human society in a sustainable way, caring for the planet and at the same time caring for the people in that context.

Three participants had issues with the term Sustainable Development, identifying "sustainable living" as the preferred terminology. When asked what the term sustainable development meant to her, Melanie found the terminology of SD had become an institutionalized term or a buzzword that people resist and cannot connect with. Instead she preferred sustainable living as it, "puts more on the individual as opposed as onto society." Moreover, sustainable living offers more direction in helping individuals make

conscious choices and decisions that are better for the environment and better for society. Similar sentiments were stated but each respondent had differing concerns within the larger question. Ivan questioned the language stating,

> No development that we do is sustainable... I don't like the term. I like the idea of sustainable living. I think that's – and even the whole idea of sustainable, I think, there might be, how should we say, I have a problem with the word sustainable. To me, sustainable means you can do this in perpetuity. And, I don't believe that's true but what does it mean from what I understand sustainable development is ah, economic, cultural and environmental activities of humans that can continue without significant impact to the environment and it takes into many aspects of human endeavors and the notion is that ah, you know, we cannot supplant or ruin the future for our children by our activities now.

Speed answered the question by stating his belief that Sustainable Development was an oxymoron. He believed too much focus is on the word development and not enough attention is paid to the sustainable aspects of the term. “I’m more on the side that we need to maintain our environment rather than find different ways to work our economy so that environment works rather than make a new economy work differently and still keep exploiting the environment the way we have been”. The last participant, Marie, described her understanding of Sustainable Development as an evolution. It began with an understanding of conservation and examining lifestyle choices and actions that support the concept of enough for all forever. Her updated vision of SD has expanded to include “not the basics of just resources, but what we are doing globally in terms of sustaining

languages and cultures and diversity" as the result of her work with new Canadians and second language learning.

While there is a consensus on the theme of Sustainable Development as conservation and as environmental protection, the data suggests that the meanings attached to the term are as unique as the individuals who held them. Two thirds of the participants made specific statements challenging either current language or the scope of the entire concept. Two respondents raised the issue of SD being an individual lifestyle concern while another expanded the term to include cultural diversity as well as biodiversity.

Commitment to Sustainability

The second series of questions posed to participants asked them to discuss how they demonstrate a commitment to ESD or SD in their professional and personal spheres.

Classroom

All of the participants are currently teaching science within a high school setting. Five of the six are teaching, or had taught within the past school year, a School-Initiated Course (SIC), *Topics In Science* or an environmental science specific course that allowed them to spend a significant amount of time talking about subjects related to ESD. The courses were described as focusing on environmental topics, aquatic science, a survey of environmental science, and a democratic exploration of current topics in science. All five of the teachers stated having a distinct sense of freedom within their course to discuss and teach about sustainable practices. Similarly, all six participants modeled the three Rs, reducing, reusing, and recycling in their classrooms. Ivan and Paul discussed moving away from using paper in favor of transferring much of the course to an electronic and/or

online format. Melanie stated that her classroom has a recycling program even though her school does not necessarily recycle. She asks students to use both sides of paper, tries to regulate energy consumption in her classroom through use of natural light and monitoring of heat and air conditioning. Speed reported not keeping animals in his room as well as being very open about his environmentalism, "I'm fairly direct with it. I tell the kids my bias". He also discussed incorporating some innovative projects, such as the creation of a company that manufactures sustainable products that assist his students in the application as well as retention of ESD concepts. While he is direct in his commitment to the environment, Speed stated that they do not preach environmentalism or sustainable living to students. This sentiment was echoed by all of the study participants. Instead, they prefer to model, give information that piques student interest in ESD topics, and talk with students openly about sustainability whenever they were presented with an opportunity to do so.

Non-Classroom, School Related ESD

Not all ESD activities discussed were course-based or happening within the walls of the school. The data showed that an equal amount of ESD teaching was occurring outside of classrooms. All of the participants responded that they demonstrate a commitment to sustainability with their students in activities outside of their contracted teaching duties. The most common activity among participants is Envirothon[1]. Five of the six teachers involved in the study had organized or taken a team to the event in the past two school years. Outside of this particular activity, almost every participant had a different approach to connecting students to ESD.

[1] Envirothon is a competition held by the Manitoba Forestry Association that allows students to learn about the environment and environmental issues.

Melanie described her out of class contact with students as including conversations with students as to why she doesn't drive a car to school, being vegetarian, and other lifestyle choices. Ivan spoke of building habitats for the Eastern Loggerhead Shrike on his school property as well as at a neighboring middle school. He also discussed a dormant project to create a Sturgeon hatchery at the school he worked at and his desire to revive it. Marie acted as a staff advisor for a number of environmental and social justice initiatives at her school, the most notable being the Youth In Philanthropy group. The project aims to help students become involved in good works while making the connection to the idea that "helping others creates a sustainable world for ourselves". She also headed a project to build an outdoor classroom, a project exploring using available space to "the best of our abilities" that creates viable environments without taking away from others.

Two participants recounted being involved in many ESD-related activities outside of their classrooms. Paul had been the staff advisor for a student council who has spearheaded a number of social justice oriented fundraisers and activities, an HIV/AIDS in Africa group, a gay straight alliance (GSA) group, as well as an environmental group. The last organization has been involved in some recycling projects, hosting vegetarian lunches, and has organized a few school wide conferences on topics that fit within the Sustainable Development umbrella. Within a more outdoor experiential context, he discussed taking members of his environmental science class camping and has also taken students to Costa Rica as part of a Spanish/Environmental Science trip. Speed also reported engaging in a great number of outside of class activities. The most recent project

was the creation of a wildflower garden in front of the school. Its purpose was not only to demonstrate concepts of sustainability, but also to assist other teachers in integrating nature, if not ESD, into their programs. He described being involved in a sustainability committee that is studying all aspects of the school to make it a more sustainable entity. Another ongoing project Speed discussed was a cafeteria waste program in which students are involved. They have been diverting organic waste from landfills by sending waste food out to become pig feed, used oil for soap, and have been monitoring energy consumption in order to discover ways to reduce usage as well. Speed also reported on implementing a bike maintenance group as well as acting as a sustainability integration resource for the school and other teachers.

Lifestyle

The third section of this line of questioning focused on how participants demonstrate a commitment to sustainability outside of school or through their lifestyle. All responded with the expected comments about recycling and reduction of consumption. From this point however, a spectrum of activities and involvement among the participants became more evident. Greg discussed his outdoor activities (camping, canoeing, diving, and hiking) and his commitment to the Leave No Trace philosophy of being in nature. Marie was quite upfront about working towards her ideal of reducing usage, but falling short of her goals. She also stated that she has become more mindful of how she is consuming and is candid with her students about her shortcomings when she leads them in an activity that maps their ecological footprint. Melanie also reported spending time climbing, camping, and canoeing. She later discussed how she makes conscious decisions in terms of how and what she buys. She also stated she is actively

reducing consumption by using travel mugs, water bottles, and reusable containers for lunches as well as riding her bike or using public transport to get to school each day. As was mentioned earlier, Melanie discussed using the opportunities presented to her to talk with students about why she chooses to not drive to school when they see her on the bus. The most significant element of Melanie's demonstration of a sustainable lifestyle goes beyond travel mugs and transit to a mindset that prompts conscious choices about consumption in general.

Older, more established participants like Ivan discussed financial support of organizations that promote sustainability awareness and education. Ivan also discussed never having used chemicals on his lawn, having built four large compost pens to divert organic materials away from landfills, as well as his family's decision to install a high efficiency furnace. He explained it wasn't for financial benefit, but because it was the better thing to do environmentally. Most recently he has downsized his vehicle from a van to a compact car. Paul summed up his commitment with this statement, "I try to live with a very small carbon footprint. I don't drive, I live in a small apartment, and I don't accumulate things. I try to live a relative simple life." What separates Paul from the rest of the participants is that he continued to expand his description of his SD activities to include his activities toward social justice as well.

At the far end of the sustainable lifestyle spectrum is Speed. Of the six participants he is one of two stated vegetarians (Melanie is the other). He has been involved in forest activism in the 1980s and 1990s, most notably having paddled from Pine Falls to the Forks via Lake Winnipeg with bottles of effluent from the paper mill to present to the media as evidence of what was being pumped into the Winnipeg River.

He's been a regular reducer, recycler, and composter since the early 1970s, lives in a small house, doesn't own a vehicle, and uses bike or transit to get to work. Speed has reduced his consumption of processed food and regularly accesses a local organic cooperative. Like Ivan, he has participated in habitat restoration. The one activity that separates Speed from the rest of the participants is his self-levy of a carbon tax when he travels. As he explains,

> I've taken trips, which is hard for my conscience to take. For example, I do a lot of canoeing. I enjoy canoeing and cross-country skiing in the winter and winter camping, but I've done some pretty weird and remote kind of trips. So when we did the Back River, which is 1007 km across the Arctic, Nunavut, six weeks across in one summer right? You have to fly bush planes and I had to fly to Yellowknife. So there was a lot of flying involved. So what I did was I did a voluntary carbon tax and said well, I don't remember what it was, I think I calculated it to be about fifty dollars or something for all the gas I participated or shared in using with all the other people, and so I said, "well $50 seems like a reasonable tax for me" and I sent that money to an organization the David Suzuki Foundation. I gave myself a tax and that's what I did to assuage my conscience.

All of the participants discussed their activities openly, but when asked if students were aware of what they did outside of school, four answered that they do know or that they might know. This was mostly due to the fact that they either were very visible, biking or taking transit to work, or they incorporated personal stories into discussions or lessons involving ESD concepts. None of the responses included mention of excluding their personal beliefs or philosophies in their professional duties but more that the

opportunities did not present themselves or that they simply did not make those linkages within the school context.

Values and Beliefs

The second section of the interview process was concerned with discovering what values ESD practitioners hold. Interviewees were asked to talk about the values and beliefs they were taught through their childhood and into early adulthood as well as the values they hold today. Throughout this section, the values stated were stated explicitly, the participant(s) provided them outright, or implicitly, where values and beliefs were extrapolated from the data. Some of the values would appear and reappear in different contexts as the interviews delved deeper into a participant's belief system or if differing respondents highlighted them in a different context. Because of this interrelation, some of the stated or inferred values may appear more than once throughout the analysis.

Nature

All of the participants expressed valuing, respecting, or loving nature or the environment as a core value in their personal and professional lives. Speed described himself as a "dyed in the wool environmentalist" while other responses included mentions of the importance of spending time in nature or the need to protect the environment. Three of the respondents discussed actively engaging in outdoor activities such as canoeing, camping, climbing, diving, biking, hiking, and cross-country skiing. Greg stated his practice of Leave No Trace camping while Paul and Melanie talked about protecting ecosystem and minimizing environmental impact by making conscious choices whether in consumption practices or daily behavior. Last, the value of the environment or

environmentalism arose from the stated fact that most of the participants are teaching courses that are based on an immersion in environmental topics.

Teaching and Learning

Teaching surfaced as a consensus theme from the interviews. All participants stated a belief that teaching or education was the best way to disseminate knowledge and help make children aware of sustainable issues, practices, and mindsets. Two-thirds of the participants reported having other careers before teaching. Some had taught for a few years and then began a second career before returning to teaching. Five of the six interviewees reported having career paths that did not involve teaching; later switching after completing their Bachelor of Science degree. All of the interviewees had at least one degree with three of the six holding or working on a Master's degree as well. Some participants explicitly stated that learning was a core value. Both Paul and Speed identified knowledge or the acquisition of knowledge as a long held value while Greg cited experiential learning as a key value. All participants spoke of valuing the role they played within the classroom or school. Many expanded on this theme discussing their own opportunities to mentor students to providing information and opportunities for students to learn and practice being sustainable and caring individuals.

Included within this theme were values related to promoting inquiry, questioning, skepticism, curiosity, as well as thinking about environmental and social issues. Paul described his role as acting as a conduit or catalyst for his students by having books, articles, or movies on his desk where students could see them and in turn ask about them.

Awareness and Knowledge

A consensus theme that grew from responses related to learning was awareness. Each of the six participants stated that they valued awareness. The sharing of information and experiences was widely reported as valued, but being open to seeing what was happening outside of the personal sphere was held as important as well. Melanie stated that she was disheartened to discover that her students were very uninformed and unaware of even some of the most basic issues within the ESD umbrella, but was committed to raising student awareness of issues that exist so they can, at the very least, talk and think about them. Paul commented that with social media and the variety of information sources students have today, one would have to work very hard to remain ignorant or unaware of issues pertaining to the environment or social justice. Following a similar train of thought, Greg discussed the need for experiential learning to occur in order to increase student awareness about options and alternate ways of living. Marie shared that without awareness and understanding of how multi-faceted sustainability is and how people and nature are all interconnected, "how can we truly have a sustainable planet"? Speed spoke of his students and how they have learned enough about environmental issues to become quite worried and scared about their futures. In this context, teachers play a vital role in helping children become aware of the actions they can take to make change. Ivan stressed the importance of recognizing or being aware of the mysteries that surround us and valuing the fact that we don't know everything.

Respect and Responsibility

The fourth consensus value was respect; for nature, the environment, for animals, for other people and cultures, for ideas and dissent, and for students. In some instances,

respect for the planet was implied as with Melanie and Paul who spoke of monitoring their consumption and purchasing so their behaviors do not impact the earth negatively. Respect of others was implied every time a respondent discussed purchasing fair trade products, participating in the microloan process, or patronizing cooperatives. For others the value of respect was explicit, as it was for Ivan,

> I would like to think I am a humanist and that every person on this planet regardless of where and who and how they are born, deserves my respect as a human being… . I would not beat on another culture. I would not put down another person. I would not try to destroy somebody or something or some aspect of nature and try to live my life without impacting people in negative ways as much as possible.

Marie's personal value of respect was stated as, "When we care and respect for (sic) each other, meaning our friends or our family or our neighbors etc., but also take that respect to another level, in terms of this idea of local and global citizens".

The theme of respect primarily entered the discussion in terms of environmentalism, but evolved into considerations of the value within a relational context. Melanie first introduced the topic of respect as she recounted early foundations of her environmentalism through spending time outside. Later she spoke of respecting where students are in their ESD process and recognizing their growth whether it was from large or small actions. As Speed discussed teaching and ESD in terms of accepting student ideas and beliefs even when they challenge what he is offering. He stated, "You can't expect people to consider your ideas unless you respect their ideas. I'm very respectful to the kids, their emotions, their needs, their opinions and I get respect back."

For Marie, respect plays a fundamental role in her classroom. As an ESD educator as well as a teacher of new Canadians, building relationships based upon mutual understanding and respect was key as "the only way to truly have these kids want to learn from you, or to maybe consider opinions and your ideas, you have to be willing now to bring in what you truly believe and want to fight for. And you're not asking them to have the same ideas as you and beliefs as you but you want them to respect yours".

The theme of responsibility emerged as a consensus value as well. For Greg the value was explicit when he stated that he valued behaving responsibly and taking responsibility for your actions or "cleaning up your own mess". For other respondents it appeared interconnected with other values. Ivan spoke of responsibility as not taking more than you need, not wasting, or living by the rules. For other participants, it was found as they spoke of being financially responsible, making conscious choices and taking care of yourself, your neighbors, and community. An extension of responsibility was the theme of obligation. While not necessarily stated explicitly, all participants discussed being driven or motivated not from an obligation to curricula or policy, but from a more personal source. The majority spoke of obligations to their students and to future generations, to the earth, to their families, as well as to themselves.

Supported and Individual Themes

As the data collected from the interviews was analyzed, values that were reported by a few or individual participants emerged. Some of these included acceptance, tolerance, caring, humility, wonder, culture, community, diversity, appreciation, balance, freedom to explore, safety, and security.

The first theme that emerged from the interviews was valuing being outside. While all participants are currently urban dwellers, three reported spending a lot of time outside when they were growing up, while others reported taking every opportunity possible to be outside. Many respondents valued having the opportunity to access a quality non-urban outdoor experience within a short distance from the city.

Marie and Paul, whose personal involvement with sustainability projects leaned towards social justice, philanthropic, and economic issues, mentioned acceptance, tolerance, and community. Diversity was stated as a value again as Paul spoke about tolerance and acceptance in terms of anti-racism and anti-homophobia. Marie discussed diversity within the context of culture, language, and religion. Speed, Greg, and Melanie also brought up the topic of diversity, but in the context of biodiversity and the protection of ecosystems. The data also revealed two participants valuing advocacy and activism, while others discussed creativity, anti-consumerism, conscious consumption, and living a balanced life.

Ivan brought the values of humility, wonder, and awe of nature (and the universe) to the conversation. In recalling early lessons received from his father and his own sense of awe about the natural world, he reported on how it affected him so greatly that he continues to live his life by those experiences. He also discussed valuing the sense of mystery that he still feels when he is teaching about organic chemistry or looking at the cosmos through a telescope. The conversation led to the theme of humility or understanding of our place in the larger scheme. As Ivan states,

> I always say that, “we’re just another animal on this planet”. And we do a good job of ruining other organism’s niches… . we should be thinking hard about

> where we fit in this whole system. We've been very egocentric. We've been very selfish in terms of what we do to this planet and it's time we start putting ourselves in our own places and developing that humility… . I think that's also a big thing that came from mom and dad…those kinds of thoughts that you are one of many. You are in a very, how to say it, magical place and don't forget that there are other things and other people around you.

Mindfulness, selflessness, and not being selfish, were other values that were addressed by two participants. Marie and Ivan discussed thinking beyond yourself, not taking more than you need, and sharing what you have with others in need. Greg expressed the importance of being appreciative of what you have and not wanting to accumulate more and more; a sentiment echoed by Marie. Speed, Melanie, and Paul, who stated their value of leading a simple life free of the mindless accumulation of 'things', provided an extension of these statements. Caring was a final theme that arose from the interviews. Two participants discussed how caring for others and the environment led to their becoming more mindful about how they live their lives. Three other teachers discussed caring in terms of awareness, or caring about issues enough to become aware and to take action.

The data shows that there are many common ESD values shared among all participants. Even when the values were not explicitly stated being as shared by the entire group, an analysis of behaviors revealed similarities. The beliefs and mindsets identified as individual were still held by two of the respondents consistently. The values discussed within this section have been presented, at times, as individual entities. The reality is that they were artificially compartmentalized for easier analysis. There was a sense of

interconnectedness through many of the participants' values. In order to present them in a manner in which they could be examined within a context of ESD as well as to ease the flow of discussion, I found it necessary to chunk them under the above headings.

Experiences

The third section of the inquiry asked participants to discuss the experiences that led them to explore and hold values consistent with ESD or to discuss specific moments or experiences that acted as catalysts for their own change. Each participant's story will be presented individually to highlight his or her unique experiences. Emphasis will be placed on the presentation of their words in order maximize the potential impact and understanding of their personal story.

Melanie

Melanie started off the conversation stating, "My parents were hippies. So that should say enough right there". Her mother was raised on a farm, while her father grew up in Northwestern Ontario. The family had an off the grid cabin in Fort Frances that could only be accessed by boat. Having two parents that were very land based laid the foundations for her later interests in nature and the outdoors. Melanie's parents divorced when she was young with her parents relocating to the more urbanized locales of Brandon and Winnipeg. She recounts that even with the family reorientation and move, she often returned to Fort Frances with her father and engaged in a number of outdoor activities such as cross-country skiing, canoeing, and camping. "We did a lot of things outside the city recreationally as opposed to being in the city." Melanie moved to the "middle of nowhere in Northwestern Ontario" to live with her father when she was in high school. She recalled the move requiring her to shift her perspective. "I was a city

girl. That had a rural component, but essentially a city girl… . I found that I hadn't formalized my connection to nature or my environmental views at the time because you're in high school and you don't think about those things".

The isolation was a challenge, but living on a lake reconnected her with nature and activities such as camping, sailing, canoeing, and swimming. It was this reconnection that led to Melanie's first major life event.

Melanie recounted an experience she had in her late teens that connected her earlier experiences in the outdoors with her future commitment to living sustainably.

> It wasn't really until I was lifeguarding in Sioux Lookout at the town beach with all the little kids dropping their garbage and throwing their garbage in the lake – one of the other lifeguards was from Southern Ontario, Guelph I think, and she had a very different perspective of environment and environmental issues. She was living and dealing with smog conditions and dealing with different conditions than we were. And one of the other lifeguards was mopping the deck one day and had some Mr. Clean or something in the water and then just dumped it into the lake. She was, "What are you doing?! What are you doing?!" At that point that hadn't even really crossed my mind that "why"? Why are we doing that? Why are we dumping that in the lake? We didn't have anywhere else to dump it. We could have dumped it on the grass and let it filter through the grass and soil and sand before it reached the water, but that wasn't anything that was taught to us or talked about… it was just the water is there, why wouldn't you dump it in there?

The second event occurred in her second year of university. During a period of searching, she realized that the program she was in was not fulfilling. She began to look at who she

was and what she wanted. As she moved through the process, she reflected on her experiences in nature and came to the conclusion that "if I'm not realizing these things and the impact that I'm having well what about everybody else, then they're not thinking about it either". The realization led her to switch her course of study to environmental science. As often happens, one change leads to another and, as she worked on her degree, Melanie came across "a quote that was part of the program that was 'the conservationist's most important task if we are to save the earth is to educate'". It was at that point she states that she understood she would be headed toward teaching as a profession.

Greg

Greg's path to becoming an ESD educator took him from suburban Winnipeg to near the top of the world. The first experience he shared occurred in the 1990s when he was an elementary student. A teacher had brought in some reusable grocery bags to show the class. Greg couldn't remember exactly why she brought the bags into the class; he speculated she may been harassed about it and decided to talk about it with his class, but twenty years later could still recall the experience. "She told us that she didn't care who laughed at her in the grocery store line because she was doing something right for the environment. And that stuck with me until now".

The second experience Greg discussed was more a collection of events. After receiving his teaching degree, he left Canada to teach in Hong Kong. During this period his visited India, Cambodia, the Philippines, and Nepal. While traveling, Greg was able to immerse himself in a number of cultures and see how different things are outside of North America. Through his opportunity to travel through Asia he was able to expand his worldview and was "able to see something outside of Canada and what it is like to be

Canadian". In terms of ESD, Greg experienced first hand how different cultures behave and was impacted by the differences, especially in terms of rates of consumption.

An extension of his travel experiences, were diving trips Greg took off the coast of Hong Kong. He discussed being a dive master and having worked his way up to being a professional diver. In all his time diving he has never witnessed anything like Hong Kong. Greg was quite direct when he said, "It was shocking. I would rather never dive there again". What he experienced was a complete lack of biodiversity, "All there was were sea cucumbers", and garbage everywhere in and under the water. He reported how even being told about the lack of management of the waterways and bays around the island, the garbage, and the lack of fish still did not fully prepare him for what he experienced.

Ivan

For Ivan, valuing nature was a natural occurrence. His father passed on his sense of wonder and awe of the natural world early on. He recalled his father taking him outside, fostering his curiosity by bringing home books about science and insects, and his mother allowing him to steal canning jars to go out and catch bugs. He also shared that many of the values, such as wonder, curiosity, conservation, and not wasting, that he carries with him today came directly from how his father behaved and what he passed on to him. As Ivan recounted,

> Nature was something just to behold and to love because it's just so fantastic. And so we did lots of camping. We fished. And we ate fish. But there was always, always a respect for nature there… We'd never leave any kind of mess behind. We would always be careful with how we camped. We would only take as much

> as we could eat. We would never go crazy with pulling fish out. And we'd go for hikes and we'd just be looking at all the really cool and neat things and you know, I remember my dad just holding up a small insect, a stink bug or something and saying, "Can you imagine that this has a *brain*. This has everything going for it that it needs to live." And so my respect and my love of nature came from that.

Ivan also recalled spending a lot of time at his great Aunt's farm outside of Selkirk. "I spent all my summers there because I loved it. I was free to explore and she loved letting me explore." Not only did Ivan's aunt play a role in the development of his love for nature by providing him the opportunity to run free through the gardens and the bush, she also helped set a career path as well. During his second year of a chemistry degree at the University of Winnipeg, Ivan remembered talking with his aunt who expressed her surprise that he wasn't studying "something with bugs". The conversation led Ivan to the realization that his aunt was right which resulted in his switching programs to entomology. As Ivan, pointed out, it was the people in his life very early on that influenced him and gave him the opportunities and freedom to explore and discover what and who he wanted to be.

Paul

Having been raised in a home with an alcoholic father and dealing with the effects emotional abuse, poverty, as well as personal issues surrounding his sexuality, environmental and social issues were not often a concern for Paul. While these experiences and issues certainly played a role in shaping his values and beliefs, he cited a later experience where, as he said, "before I came out of the closet, I came out as a Christian". It was this experience and the connections and community that came along

with it that set his course toward his later commitment to environmental and social justice issues.

> That was life-changing, altering in many respects but one of which, which was definitely for the first time, looking at people around you and caring about them even if today I'd be embarrassed that I was primarily caring about them for their souls and not so much for them. But it was an opportunity to, for the first time in my life, look around me and… care for strangers, to think about strangers. That was life changing for me.

Paul's first coming out experience opened up his eyes so to speak to think about and care for others. The second time he came out, as a gay man, tolerance, acceptance, and respect took on an expanded meaning for him. The connections and community he gained from converting, suddenly were gone. Paul discussed the pain he felt from the sudden shift from connection to rejection.

> The friend who was like a brother, who led me to Christianity, spent about a year doing just that. Accepting me. I think, underneath the surface, hoping I was going to change and actively now and then, trying to facilitate that change but not really pressing it. But then, he, eventually under his father's advice, who was a leader in the church, decided he had to shun me. That was like hugely, hugely painful and that drove me away from Christianity but at the same time more towards tolerance and empathy, as I said before, caring, and the pain of being rejected by someone who loved you and who you loved, because of who you are was so, was so difficult that I just couldn't imagine doing that to someone else for any reason. So it sort of drove me to the other extreme of looking at, totally beyond, to the extent

> that I can, looking beyond people's skin color, people's religions, I'll accept you for who you are. Just give me the same respect.

Marie

Like Ivan, Marie's lessons of conservation, sharing, community, and living within your means were received from her parents from an early age. Marie talked about having parents who immigrated to Canada and had very little to begin with and was taught to live within her means and to be mindful of the needs of others. However it was a trip to Education City, Qatar to visit her parents when she was in university where the issues of diversity of culture made an impact. During her visit, Marie had the opportunity to spend time with a group of graduating medical students. During their many meetings, one conversation stood out. The students, who were all from wealthy families, told Marie that their motivation for going to medical school was to benefit their families and communities. It was not the money that brought them to Qatar, but the potential to do good for others. They had gone through the process of deciding why they were doing this kind of work and had the core belief that they were in medical school not to benefit themselves, but the people around them. Without that, no amount of money would have made them happy or satisfied with their lives. However, it was where the conversation went next that made the biggest impact.

> It was interesting because all of them said that, their culture, their language; their religions had become detriments to their progress. And I found that very interesting. Because I thought, here we are in a society where we should want to maintain those things. And yet they see it as a hindrance. And I think that shifted my own mind-set when I came back here as to what is truly important.

Marie returned to this experience a few times as she explained her particular approach to ESD. The experience in Qatar solidified her commitment to educating children to value what they can contribute to the bigger picture rather than to assimilate blindly and give up or forget what makes them unique. While her parents and a distinctive immigrant experience had laid the basis for her later interest in SD, it was speaking to that graduating class of medical students that stuck with her and prompted her to work towards cultural diversity within the context of her professional life.

Speed

Speed's story starts almost right from birth. "From a child I've been concerned… I've always had a notion that things were going the wrong way round in terms of wildlife and nature. My whole life has involved that." Speed was born in Holland and immigrated to Canada in the 1950s when he was very young. He recounted being the thirteenth of fourteen children and along with an older sister being regarded as the "birdwatchers of the family". He was raised in rural Alberta within a very conservative orthodox Calvinist family. On Sundays, the only activity he could engage in, aside from going to church twice, was reading or drawing. Thus his childhood was immersed in consuming the stories of White Fang and Grey Owl, or was spent outside drawing or exploring nature. By grade 4 or 5 he had joined the Audubon Society and the Young Foresters Club.

Speed recalled a few early experiences that encouraged his love and connection to nature. He shared memories of spending a lot of time in the Coulees; foothills that were "half a mile at the most" from his home to camping trips his family would take. Speed spoke as if he collected each experience and held on to them as he solidified his personal bond with nature. As he shared, "I valued very much the experiences I had with nature

whether it was a flower growing in the crack of the sidewalk or when an older sister took us - myself, my brother, and my next older sister - to Banff. That was an amazing thing to me to be in wildlife". The other collection of remembrances involved birthdays. On a few different birthdays he remembered receiving sticker books of animals and bird watching books from his parents, and a view master with a few discs of pictures of the animals of Africa. He stated his parents may have wanted him to soul search instead of bird watch, Speed concedes they did recognize where his passions were and helped him define them and "inadvertently… helped me become more of an activist".

Emergent Themes

A number of themes arose from the data that were not part of the direct questions. As the participants spoke of their specific values, beliefs, and experiences, they would occasionally drift from the direct line of questioning and would share stories that would hold significant relevance to this study.

Parents

All participants identified their parents as playing a role in the development of their values and beliefs. Greg, Marie, and Ivan stated that their parents were major influences on the development of their values. While all three had other factors and influences that lead them to become ESD specialists, they all discussed having adopted many of the beliefs and values that were passed on by their mothers and fathers. Melanie stated the opportunities to be outside and active presented to her by her parents as key in helping her create and expand her worldview. Even when parents weren't behaving at their best, they still could have a profound influence on their child's value development.

Paul's experiences with his father prompted him to make some very conscious choices regarding what he believed and how he wanted to behave.

> I was the second youngest of seven so I was ready to be different… I was reacting against that bombastic kind of personality and became much more quiet, much more intellectual, much more sort of looking, looking at things, like you said – I'm going do things differently. I'm going to not be racist. I'm going go to the other extreme and try and be as welcoming as I can.

Speed initially stated that his parents didn't play much of a role in his commitment to nature. However, after spending some time revisiting his youth and experiences, he came to the conclusion that, even though they hadn't been environmentalists, they recognized his love of nature, fostered it, and allowed him to follow his passion.

Evolution vs. Epiphany

One of the reasons for this study was to determine how ESD practitioners came to hold the values and beliefs they do. Nearly all respondents stated that many of the core values they hold today were learned in their youth; either through experiences in nature and/or lessons handed down by family members. Even when they did report have significant life experiences that promoted their connection to the environment or social causes, not one of them reported having an epiphany or 'ah-ha' moment. Instead, the consensus was they experienced an evolution in their value and beliefs or that their entire life had been a continual process leading to the place they now inhabit. Paul, who discussed having an "awakening" in university, stated that his arrival at ESD was one of inquiry and information gathering. His initial awareness of and concern about climate change led to a self-education from which his connection to the environment intensified.

Mentorship

Modeling and mentorship was a consensus theme that grew from the line of questioning relating to their ESD activities in school. All participants reported not wanting to preach to their students. Instead, they preferred to model sustainable behaviors for their students inside and outside of class. The consensus of the group leaned towards the benefit of showing over telling. Providing examples of sustainability whether it was recycling, biking, or explaining why they made certain behavior choices in their classroom or lifestyle, opened doors to opportunities to educate and challenge students. They wanted their students to either behave in new ways or at the very least get them thinking about how they behave and how that impact others and the environment. Paul termed it as, "being a lifestyle evangelist". Melanie, Greg, and Speed stressed the importance of experiential learning. For them, giving students the opportunities to be outside of the confines of school and in nature was key in raising student awareness and educating students about relevant issues. Speed expanded on this by discussing his belief that children need to be exposed to nature for more than a class or a day outing. He cited immersion experiences that lasted more than three days as an important method of creating lasting relationships between people and nature.

Greg discussed incorporating a project in his water stewardship class in which students create a project that included an activism piece, where solutions and action plans were expected as well. He also spoke about wanting to extend his students' experiences by taking them outside of the city limits to see how other schools and communities deal with sustainability issues. For participants like Paul and Marie, creating experiences and opportunities to become involved were the paths chosen to help students become

involved in ESD. Paul plants seeds of interest by teaching, sharing information, or by simply leaving books in his classroom for students to find. Once he piques student interest, he creates the space for them to take it as far as they want or are prepared to go. Even though many of the respondents came at the topic from a variety of places, their willingness to support and guide students toward exploration of sustainability issues were consistent.

Challenges and Barriers

The challenges to being an ESD practitioner were shared by many of the participants. This section will gather all of the concerns and group them into three specific themes. 1) Institutional barriers: challenges regarding classroom ESD efforts, 2) Students: challenges presented by students, and 3) Personal: barriers that exist to the participants' own sustainability plans.

Institutional Barriers

Those who discussed the challenges they faced inside their classroom discussed the lack of time allowed to explore ESD topics. Unless they were teaching an environment themed course or a topics in science course, all the respondents spoke of having to fit topics of ESD into the discussion where and when they could. Paul reported facing challenges integrating ESD into his traditional science courses and how it sometimes affected meeting curricular goals,

> It's tougher because I teach courses that are very curriculum driven. Advanced Placement Chemistry for example… they have very rigorous curricular demands and it's hard to get through that. Having said that, it is something that comes up regularly here and there. It's not something that I try to teach entire units on but

> we talk about environmental chemistry for example… we don't go into a lot of issues. Having said that I do take a lot of detours from teaching and will spend ten, fifteen, twenty minutes, or half an hour sometimes talking with classes philosophically or about social justice issues whenever there's a moment to do so that can fit into the course… . It's not something that's planned but something that too often happens. It's frustrating sometimes how easily I can be diverted into talking to kids about other issues.

Melanie discussed the barriers that timetabling, student attrition, and attendance have created. In her estimation, the class sizes for her Environmental Topics course have always been small ranging from eight to fifteen students. Some take it as an easy science credit or are placed there by counselors, and a few are there because they are interested in the topic. Due to the varied nature of the students, her numbers tend to be fluid from day to day. Melanie also spoke about challenges of continuity with the class occurring on an alternating day schedule. Absenteeism, coupled with class disruptions such as assemblies and in-services, made it very hard some times to create projects involving fieldwork because she would never have the same students in her class on any given day.

Even when participants reported having the opportunity to create a School-Initiated Course (SIC), or to teach an Environmental Science or Topics in Science course, other factors presented themselves as barriers. Paul stated that the fact that his course was in the Advanced Placement (AP) stream scared some students off while other students who were already in the AP program may not want to add a third or fourth science course to their timetable.

Paul also discussed the expectations that are placed on ESD teachers to transform students and the potential conflicts that might arise. More specifically, he addressed the issue of not only behavior change but changes in values as well. His concern centered on values conflict between the two main spheres of student life; school and home. How do ESD teachers reconcile that what we are teaching them might be in opposition to what they are taught at home? Greg discussed the challenges to an experiential component in his SIC on water quality because of his school and school division's reluctance to open themselves up to potential liability. He spoke of wanting to take a group of students out of the country on an ESD related trip over spring break and becoming increasingly frustrated at the lack of support allowed to him to "take students out and show them the world beyond the Winnipeg perimeter". Other respondents also discussed their frustration with their school division's lack of commitment to ESD. One teacher, while discussing how they believed their school division's P.R. events and one off professional development sessions devoted to sustainability felt very disingenuous, stated, "Sometimes I question where I am and the values of where I'm working; but is the grass greener on the other side?"

Student Related Barriers

A consensus theme that emerged from the data was that of students being a challenge or a barrier to the motivation of some respondents. Paul stated the commitment level of some students was, at times, "deflating". Ivan discussed wanting to have an Envirothon team but couldn't see the project through due to inconsistent student involvement. Paul shared a similar concern as he spoke about the difficulty in maintaining long-term projects. In his experience, students take up a concern or cause

and work on that for a year or two, but once they leave the school, support often tends to lag. Paul and Greg also stated the personal motivations of students being a challenge to implementing ESD projects in their respective schools. They indentified the lack of intrinsic motivation of many participants citing that many want something to put on a college application or school credit for involvement.

Melanie was surprised at how unaware students were about issues surrounding sustainability. She conceded they had some knowledge about some of the "sexy" issues, like polar bears, oil spills, and climate change, but couldn't understand how topics such as poverty and homelessness connect to the larger ESD picture. Student inability to shift perspective or grasp the interconnectedness of issues led to a sense of frustration among respondents. Paul recounted an exchange with a "very bright" student who held a leadership role in his school commenting that she, "cares about children starving, but can't quite bring herself to care about environmental issues". As an extension of that part of the conversation, Paul admitted the lack of caring and curiosity he has experienced has led him to re-evaluate how involved he is willing to be in student oriented activities.

Personal Barriers

All of the participants, regardless of how sustainably they behaved, made apologies for not being able to do more. Two teachers were quite critical of themselves for not actively and consistently engaging in the behaviors they discuss with their students, while others cited issues of time, personal energy, and the culture we live in as barriers. Melanie and Paul discussed their purchasing and consumption behaviors and how, even though they know what they are buying may not be environmentally friendly, "wants sometimes overpower needs". Speed, who presented as living a particularly

sustainable lifestyle, was able to keep things in perspective and not punish himself. He realized that he could do more but that he had to weigh the benefits and consequences of potentially marginalizing himself from being an active resource to others.

> I realize that I'm taking more than I should because when I die I will have taken more out of the earth than I have put back, which is a problem. And I don't know how I can solve that. Growing up in the west, having a style of life that I have, I don't need those things but want don't to lose... I don't want to be powerless. And I'm thinking political power not just buying power. I don't want to be totally sidelined. I remember when I was in university in Alberta and I was taking ecology and the T.A., we had some project to do and we were having some discussion about this. The comment that he made which I kind of shared was "you know the world is getting overpopulated. I'd be willing to go, as long as some other people followed." And you don't know if they're going to follow if you go first. So I wouldn't mind reducing my standard of living but I wouldn't want to reduce it so much that I would be sidelined. There's no point in that.

While the respondents were quick to identify some of their failings, the data presented the teachers as individuals who, regardless of where they are currently at in their evolution, were committed to living and growing towards the ideals they set for themselves and others. As Greg stated, "I think that's where I'm falling short… I'm not starting a movement. I don't want to be apathetic towards things that are going on but I guess I am… I was always told you can make a difference just by doing something yourself. So if I continue doing that I guess I am making a difference, but a small difference".

Motivators

Even though all the participants stated facing personal and professional challenges to being an ESD practitioner, they all presented as being very motivated. Some explicitly discussed personal motivators throughout the interview while others were asked directly, "What motivates you?" The responses will be presented in terms of their external and internal inspirations to keep working with students on ESD projects.

External Motivators

As far as external motivators go, students and witnessing student growth in ESD was the primary motivator for participants. Melanie initially reported being discouraged by the breadth and depth of her students' knowledge of environmental issues. She reported that at the end of one class when she took a survey of what students were getting from the class, one student answered with "I don't litter anymore". While she was initially disappointed by the lack of commitment of her students, a follow up comment by the child prompted a perspective shift. The student shared that not only did she not litter any more but she also was reminding her friends not to do so either. Even though it was a simple action, Melanie argued that it was a first step on this particular student's path toward sustainability. What was initially a deflating moment became encouraging once she realized how her efforts played a role in getting the student "thinking and it got her to change one thing about herself". Speed discussed one student who ardently and vocally denied climate change existed when he entered his class. But by the end, the student had opened to the information and was actively thinking about it and also reported trying to change his parents' views on the topic as well.

Students sometimes play another motivating role in pulling teachers back in even when they've decided to step away. As Paul shared,

> By the end of the year you're just emotionally tired. You're physically tired. And, it can become a little bit deflating and I usually end the year every year thinking to myself, why don't I just spend next fall teaching and only teaching? Right now I'm wrestling with whether or not I'm going to continue with student council next fall. Maybe I should not spread myself so thin, don't try to have so many things going, focus on one or two things and do them really, really, really well! I always end the year thinking like that and spend the month of July… thinking I should cut back, step back. And then the fall starts and you often don't even have time to think about it because kids are at your door and they're wanting to do stuff and want to get things started and it's hard to have a negative attitude because you've got all these kids that are so enthusiastic and motivated.

Internal Motivators

A common theme among all responses was the desire to do what was good and what was right; right for the environment, society, students, as well as themselves. Participants stated being motivated by living and behaving ethically and morally as strong drivers. Many revisited their core values of respect, caring, responsibility, living simply, conservation, making conscious choices, and connection and interconnectedness to nature and other people. A few teachers discussed their motivators in terms of how it made them feel. Some simply stated that they felt they were doing something good and it made them feel good. Others mentioned their efforts gave them a sense of purpose, while

one participant spoke of talking with students about being mindful helped her to practice what she expected others to.

Connected to this theme is how participants view themselves as well as how their colleagues and students view them. The majority of respondents stated they viewed themselves as teachers first and foremost. Within their perception of themselves was the goal to raise student awareness about sustainability issues and to teach them or help them explore ways to behave sustainably. As Paul stated, “They can’t care if they’re not aware”. Some participants viewed themselves somewhat differently. Ivan reported viewing himself as a husband and a father foremost, looking to the term husbandry, or as someone who takes care of others. Marie reported to often switching hats from teacher to activist, sometimes within the same activity or discussion. Speed stated that he viewed himself as an artist. He relied on his creativity to reach students and staff members. In addition to stating that he saw himself as a teacher, Paul also identified himself as “a voice of the left” within his department. He explained that he currently works across the hall from another teacher who is decidedly conservative in his views and how he discussed sustainability issues and how he felt compelled to voice the other side of the conversation. In a few cases, participants discussed motivations in terms of how they were perceived by students and colleagues. Most responses created an image where ESD teachers are generally respected and supported, but not everyone could share that sentiment. Speed reported the perception of him has run the spectrum from being a “crazy quack” to a sustainability resource. Melanie echoed Speed’s statements when she spoke of being motivated by new teachers coming into her building. As younger staff

come in with interests and motivations related to addressing ESD in their programs, she no longer had to be the lone "freaky one" on staff.

Summary

Throughout the data collection process, the participants offered themselves through their thoughts, stories, and experiences. Each teacher created a picture of a committed individual working to make students aware of the issues that affect them; challenging them to think about themselves and their actions, giving them opportunities to interact with nature and each other, and potentially growing into people who give more to their environments than they take. They shared their values that provide the motivation to be ESD practitioners in their personal and professional lives. They shared their challenges and successes and how they continue to work in the face of indifference and sometimes mockery. At no point did any participant refer to school or divisional expectations, policy, or community drivers for the work they do. Instead, time after time, they mentioned the intrinsic motivators and their students as the rationale for why they do what they do.

Chapter Five

Summary of Findings

Even though all six participants are at different stages of their lives and teaching careers, many similarities were present in the data. Their responses created an overall picture of six teachers highly motivated in creating opportunities to raise student awareness and promote action in Education for Sustainable Development. All of the respondents understood what SD and ESD meant and they worked within the accepted definitions even when they took issue with semantics or with what the terminology has become in the more than twenty years since its inception. ESD opportunities were found either within the limited spaces presented within instruction or created specialty classes relatively free of curricular constraints. When no class time could be spared, they offered experiences to students outside of classroom time through clubs, groups, events, and outdoor trips. All of the participants discussed initiating ESD oriented class and activities through their own motivations without the direction of policy, administrative directives, or personal gain. The main motivators identified were student interest and initiation and, more importantly, their own personal inclination to raise awareness and to do good works.

A consistency in the values expressed by participants were: nature and being outside, teaching, awareness, respect, responsibility, experiences, community, and connectedness. Other values that were mentioned by a few respondents or individually such as relating to wonder, humility, diversity, and living simply, were equally as interesting as they expressed the participant's unique perspective. All participants discussed the interconnectedness of their values and beliefs to their personal and

professional lives. When asked if they felt pressured (internally or externally) to disconnect the two spheres or if they had to "leave their values at the door", participants responded not feeling directed to do so. In fact, the data presented individuals whose beliefs were either strengthened by their ESD actions at school and or vice versa. Only one teacher discussed not incorporating more of her values and experiences into the classroom. Her rationale was that she was a beginning teacher and wasn't sure if such actions were appropriate. However, she did begin once she discovered the benefits of allowing her values and personal stories to be part of discussions, and more importantly felt safe enough to do so.

Education, teaching, and learning were themes that were expected to emerge from the data. All participants have made efforts to incorporate ESD into their classroom activities whether through captured moments or through the creation of specialized classes devoted to the topic. Many responses highlighted awareness and sensitivity to finding spaces to bring ESD into lessons and discussions. All of the participants stated that raising student awareness was a primary concern. Experiential learning was also identified as important. Many respondents discussed the need to take ESD and students beyond the four walls of the classroom. Taking students into natural settings and exposing them to new attitudes and cultures was cited as essential for successful transformational ESD efforts.

The role of parents or other significant family members emerged as an important theme in participant responses. Four of the interviews included a discussion of how parents created opportunities, taught life lessons, transmitted values, or simply let their children be outside. One participant cited his parents as encouraging his interests in

nature and conservation even though it was not something they valued or were interested in. Another identified his commitment to social justice and later environmental issues as stemming from a rejection of the attitudes and behaviors that existed in the home. Lessons of restraint, conservation, appreciation, community, and caring were evident in participants who, or whose parents had, immigrated to Canada. While the depth of the connection of the experience to values was not thoroughly examined, it is interesting to note that half of the respondents raised this theme in their interviews.

Five participants identified experiences in natural settings as the basis of their commitment to ESD. Three discussed events that occurred in their childhood and adolescent years while two participants identified having late life experiences that either solidified their commitments to, or spurred their curiosity toward, environmental issues. Being outside, either guided (camping or canoeing trips) or left to wander and explore alone, is probably the most significant theme aside from values and lessons from parents.

The majority of teachers identified barriers that exist in their personal and professional approaches to sustainable living and education for sustainable development. The majority of what was presented as institutional barriers were lack of time, inadequate curriculum, disinterest of school and or divisional administration, or lack of support for ESD initiatives at the school and divisional levels. Lack of awareness and motivation of students was also presented as a challenge by many participants. However, even with the barriers, the internal motivations of the teachers interviewed; their values, commitment to the environment and others, or an intrinsic motivation to do good works, helped them to overcome and continue working with students and staff toward sustainable outcomes

Discussion

The teaching of values consistent with ESD has been discussed in related literature since the publication of Our Common Future nearly twenty-five years ago. However, exactly what values educators should practice, teach, and make students aware of is vague. The purpose of this study originates in the desire to discover the motivations, primarily their values and beliefs, of early adopters of ESD and share them in an academic context. As expected, a number of common values exist within the data. Each of the participants spoke of valuing the following: nature, education, learning, knowledge, awareness, experiences, respect, and responsibility. More interesting were the supported themed values, or values shared individually or by portions of the group. The majority of stated values fell into the environmental or social spheres of Sustainable Development with only cursory ties to the economic sphere. Teachers who identified their ESD focus on people and social concerns spoke of values relating to acceptance, tolerance, caring, community, and diversity. Participants with ecological or environmental leanings discussed humility, wonder, appreciation, balance, and living simply. This is not to suggest that teachers with interests in human activities ignore environmental issues or vice versa. The data did identify some overlap in terms of values between the two groups of participants, but also highlighted their individual and unique paths to ESD. The one sphere that was under represented in the data was that of economics. When participants discussed values in the economic sphere of SD, it was within an interconnected context with human rights (poverty or fair trade), the environment (supporting a shift away from an extractive/consumptive economy), or

within discussions surrounding their valuing responsibility (responsibility to others and behaving responsibly).

Most intriguing were the non-consensus values, as they seemed to come from a more personal place in the participants' stories. The activities, values, and beliefs expressed by participants such as Ivan, Speed, and Paul suggest that there are educators who are striving to think and behave beyond the anthropocentric narratives Western society holds as correct. While Mason (2001) argues we, as a society, operate without the ethical guides to lead us to right action, these six teachers, through their words and deeds, present themselves as potential ethical guides for the children they teach. The data collected from the interviews suggests that teachers who have identified ESD as a priority are working toward the ideal social and cultural change. The efforts of the respondents can be also be seen, as described in the work of Plumwood (1996), as breaking the positivist science vs. values myth as well as taking steps toward decolonizing their minds and their classrooms. Support for this assumption can be found in the data relating to how participants viewed themselves. While the majority described themselves as educators first, they also expanded their reporting to include artist, activist, environmentalist, and change agent. When asked directly if they could leave their values outside of the classroom or out of their ESD activities, all responded that they couldn't or, perhaps more importantly, that they wouldn't.

Another interesting theme that emerged from the data was the assertion from all participants that they do not preach ESD. Bowers (2003), Di Biase (2000), and Taylor (2007) warned of the potential for indoctrination, manipulation, inauthenticity, and sabotage if teachers were not aware of sustainable values and behaviors and/or did not

think or live sustainably. These concerns are mitigated by two factors that appear from participant interviews. First, all six respondents demonstrate an awareness of ESD characteristics, values, and behaviors that they demonstrate in their professional and personal lives. Second, every interview contained unprompted statements regarding the individual participant's unwillingness to preach to their students about ESD or sustainable development. Instead, they chose to: lead by example, offer experiences and information to challenge students to consider new ways of thinking and behaving, foster questioning in their students, and answer student inquiry about their own SD choices openly and honestly without suggesting there is only one correct way of thinking or behaving. They also recognized and appreciated that students need to create their own path to sustainable living. None of the participants suggested that they had all the answers or that they were near living up to the ideals they have set for themselves. Those teachers who could be identified as living very sustainably were apologetic that they weren't doing more. Each participant's response to questioning regarding their demonstration of sustainable concepts in their professional capacities or in their lifestyle showed a great degree of humility. During the course of the interviews not one participant portrayed themselves as the personification of sustainability. In reality, they often downplayed how much they do as if the idea of holding themselves up as an example of sustainability was inaccurate and embarrassing.

The second objective of this study was to determine the process of values transmission or creation among participants. As I approached this study, I was intrigued by the work of Mezirow (1978) and Transformative Learning Theory (T.L.). T.L. was initially examined as a possible process where an individual experiences a state of

disequilibrium once introduced to new information prompting self examination and the subsequent practice of new forms of thinking and behaving. I had anticipated the participants to describe participating in a process similar to T.L. within their adult lives as they became ESD practitioners. Instead of experiencing an epiphany, participants spoke of a gradual awakening or of an evolution from their youth to their adult lives. The data suggests a process similar to the experiences discussed in Significant Life Experience (SLE) studies by Chawla (1998), Palmer (1993), Peters Grant (1986), Peterson (1982), and Tanner (1980). All of the interviews contained remembrances of being outside as a child, lessons taught by parents, or camping, canoeing, vacations, and trips that involved a significant wilderness component. Those who did not identify childhood experiences in nature spoke of being involved in social justice or philanthropic activities in their youth that laid the groundwork for their later interest and motivation to think and behave in a sustainable manner. These findings are echoed in Chawla's (1998, 2001) examination of SLE studies. In her findings, experiences in natural areas, being outdoors, frequent contact with habitat, parents/family, and play are the highest rated influences for creating individuals who are ecologically aware, concerned, interested, and sensitive. I was initially disappointed to discover that no connection to Transformative Learning Theory existed within my participant pool. I do realize now that the evolutionary process toward sustainable living as described by Paul, Ivan, Melanie, and Marie, is much better explained using a framework that includes significant life experiences.

The lack of emphasis on formal education in the data as a source of values transmission interests me greatly. The literature examined in Chapter Two placed great importance on the role of education and schools. Yet within the data, few, if any,

participants identified formal education or school as a source of values that support ESD. One respondent recalled a teacher speaking about reusable bags and another discussed being encouraged to follow their environmental interests. Outside of those examples, no other participants identified teachers or coursework as a major factor in the development of their awareness of issues pertaining to environmental or sustainable development issues. In terms of teaching and learning values, beliefs, behaviors and habits, family and significant experiences were offered as more influential. That said, none of the participants diminish the power of their role as teacher or the opportunities they can create for students to create their own significant life experiences. Within this context, the participants could be viewed as liminal agents, or those who exist in the space between the past and potential future directions of education (Bowers, 2008). The participants were educated in public schools from the 1950s through the 1990s. Their experiences would suggest there was little effort, curricular or otherwise, to foster ecological or sustainability centered awareness, caring, or values during that time period. Instead, ESD consistent values and attitudes were passed down through family lessons to experiences in nature, or similar significant life experiences. Unlike the participants in this study, urban children are now faced with a number of challenges that may not have existed twenty, thirty, or forty years ago (nature not easily accessible, safety risks of being out alone, micromanaged lives) a concern or challenge found in many of the participant interviews. Parents may not be teaching values consistent with ESD, or any at all. Through their efforts inside and outside of class, ESD teachers rely on their personal values development process to maintain focus and commitment as they strive to create idealized institutionalized transformative ESD process envisioned within the literature.

Issues surround the challenges and barriers to ESD activities were expected topics or themes. Participants cited time, resources, or support as barriers to their professional efforts similar to the issues that have been identified and discussed in chapter two (IISD, 2009). I was more intrigued by the discussions that were focused on the personal barriers participants faced in their own sustainable paths. All of the participants hold values consistent with sustainable living concepts, yet at the same time reported not always living up to those ideals. Some participants discussed the struggle of wants vs. needs, while others stated they did not want to behave in a way that would jeopardize the message they are trying to send to students or marginalize themselves into the realm of, as Speed states, "a crazy kook". These statements fall in line with the theories of Goux (2002) and Leiserowitz, Kates, and Parris (2006) which argue that individuals hold a portfolio of values whose rankings are fluid and in constant competition. The challenges the participants face within their professional and personal lives create an image of individuals working against a cultural or societal monolith that pays lip service to their efforts but generally works to undermine the ideals they strive to reach.

I was initially disappointed when participants stated that they were not willing to sacrifice more than anyone else, that they sometimes felt apathetic, or that they weren't trying to be an activist or start a movement. I was unable to determine whether their downplaying of their efforts was due to modesty or if they were truly unable to appreciate the value of the work they do. However, the data shows that all of the participants, while perhaps not working towards ESD on a grand scale, are taking steps daily to think and behave differently. Their stated values and actions are in line with the work of Bonnet (1999, 2002), Hart (2007), and Huckle (2004) who identify as the core of success of

ESD; the preparedness of teachers to explore and adopt new frames of mind and to make cultural shifts. All of the participants, regardless of their age or how sustainably the behave, are continually evolving into constant ESD practitioners. Moreover, they are willing to stand in the face of potential isolation, criticism, and ridicule to work for what they believe in. As is the case with any teacher, the struggles and challenges of the profession leave us tired and, at times, disillusioned. However, there are the internal motivations of knowing that what we are doing is right and good and this drives many to continue on. The participants of this study are no different. Armed with their values and beliefs they continue to work to knock down the cultural windmills that make up the moribund story of modernity in order to inspire and engage their students to play their part in creating a new and sustainable world.

The picture that emerges from the data is a collective of teachers who exist in a variety of spaces in their personal and professional lives. They come from a variety of backgrounds and experiences, yet all share a similar set of values and beliefs. In terms of ESD, they all present as caring and committed professionals who seek to integrate sustainable development topics into discussions and activities wherever and whenever they can. Some have been and continue to be involved in large school-based projects while others have focused on small ongoing sustainable activities. They all have sustainable goals and ideals set for themselves as well as their students and continue to strive for them even when they fall short. Their motivations stem from a desire to help students become aware of the issues that affect them and to encourage them to be cognizant of their impact on the planet. All of the participants see themselves and role models and mentors rather than authorities and preachers. Their actions, both large and

small, challenge their students and colleagues to think differently and behave differently in order to create new cultural stories based on respect, community, creativity, responsibility, and caring so as to help to define a new relationship with ourselves, each other, and nature.

Implications

My findings point to a number of implications both for practice and further research. Within this section I will reflect on my research and how it may affect future ESD efforts. As this study focuses primarily on values and values development, I will adhere to those parameters as I share my thoughts.

Recommendations for Practice

The participants of this study, through their stories and experiences, shared how their values and beliefs drive their actions as ESD educators. A striking theme that emerged from the data was that these values were not learned in a classroom but in their homes and through their experiences in nature. Each participant's evolution toward thinking and behaving in an ethical and sustainable manner appear to hold characteristics consistent with concepts of exposure, awareness, and immersion. We as educators cannot expect children to care for, or connect with, nature if they are not exposed to it, and if they are not aware of the issues that affect them, and are not immersed in ecologically-based ethical or moral teachings as espoused by Berry (1988), Bowers (2001), Orr (1992, 2004), and O'Sullivan (1999). Space must be created so children can learn and practice new ways of thinking and behaving while still under the mentorship and guidance of adults within a caring, respectful, and safe context.

In order for values based ESD to be implemented and survive in any school several changes need to occur. All stakeholders must begin to realize and accept that the role of schools is to engage students in the process of becoming critically literate, good citizens and ultimately, good people. The notion that education is strictly a stepping-stone towards obtaining a high paying job has to be put aside. The idea of selfishly consuming knowledge or 'playing the game' as a means to an end will not create the kind of people required to solve one of the biggest challenges to ever face humanity. Serious discussions and decisions must be made at the highest levels of the educational bureaucracy to determine what values should be taught, how they can be integrated into the existing curriculum, or whether a new curriculum consistent with ESD principles is required. Support must be fostered with the senior administration of school divisions, within schools, and within the communities they serve. Students, teachers, and parents must understand what ESD is and that they all play a vital role in the implementation of sustainability education in schools.

Based on participant concern that students appear to be unaware, uniformed, or misinformed abut sustainability issues, a three-tiered approach to values based ESD should be developed from the primary though senior grades: awareness, practice, and transformation. The first step of awareness would be consistent with O'Sullivan's (1999) initial stage of the transformational learning process which would be a (re)awakening or helping students out of their denial that a crisis exists. Awareness of consistent SD values would be introduced in the Early Years. Middle Years would be devoted to internalizing values and exhibit competency in regards to ethical behavior. Throughout many of the early grades, attention and effort should be directed at recognizing and helping students

through the second stage of the transformational process; despair. Once children are made aware of the realities, the potential to be paralyzed by grief or fear is high (O'Sullivan, 1999). This would be the time to not only identify the risks, but also the actions that can mitigate the risk as well. Senior Years would focus on the transformative component of ESD, thinking and behaving in real world situations with real life stresses and distractions. The teaching and learning of appropriate information and values would be determined and implemented for students to match their emotional, social, and academic levels.

Elementary schools are in an excellent position to implement ESD among the primary and intermediate grades. For example, at my son's school there are combined efforts to not only introduce or enhance student understanding and practice of the concepts of reduce, reuse, and recycle but also to learn and practice the values of cooperation, organization, understanding, generosity, academics, and respect. As students reach the middle years stream, grades five through eight, more information should be made available for them to access so that they can begin their journey from unconscious to conscious sustainable citizens. The Middle Years is an appropriate place to begin this process as students are at a place in their intellectual and emotional development where they can deal with the hard, and occasionally scary, facts of what humanity will be faced with in terms of the social, economic, and environmental consequences of human impact on the planet. To begin too soon may only serve to scare children and create a paralysis of fear and despair that is counterproductive to action (Jickling, 1994; O'Sullivan, 1999). Students who are entering adolescence are already beginning to examine who they are and what they believe as they form their own personalities from those of their caregivers.

They are at a perfect developmental age to process and work through ESD concepts as well as to begin practicing beliefs and behaviors consistent with ESD.

Schools at the Senior Years level need to revisit the inclusion of mandatory citizenship courses, much like the Global Issues: Citizenship and Sustainability course being piloted by Manitoba Education (2012a), that create the opportunity for students to move beyond exposure to and awareness of sustainability issues to become ecologically literate and active. As children at these levels are prepared to engage in analytical and creative projects, efforts directed at self-reflection and self-analysis should be implemented. Time and space must be made to allow students the opportunities to begin to discover, discuss, think about what they value and why, and engage in what Jickling (2004) terms, "ethics as process". They need to compare their values with those of ESD, the dominant culture, as well as their friends and families. Through a sustained process of reflection and practice, students may begin the process of determining who they are and who they wish to become in terms of sustainable citizenship. Of course this process may take some students a few years and others decades, depending on any number of social, psychological, emotional, or intellectual variables. The expectation should not be for schools to create completely moral and ethical beings at the point of graduation, but for all schools to create space for students to engage in the transformational process. All teachers of all grades at all levels assist children in engaging in an evolutionary transformative process from amoral and unconscious consumers to conscious, ethical, and sustainable citizens. At the end of the twelve year school experience, students should have had: an authentic opportunity to learn of the values that promote right and sustainable behaviors, experiences that show them what said values look like in a real

world setting, chances to practice attitudes and behaviors consistent with their personalities and ESD, as well as the expectation that they model their values and beliefs within their school, home, and community.

In terms to teaching values consistent with ESD, schools at all levels could find direction and inspiration from documents like the Earth Charter. As was presented in chapter one, the sixteen tenants of the charter are as follows.

I. RESPECT AND CARE FOR THE COMMUNITY OF LIFE

1. Respect Earth and life in all its diversity.
2. Care for the community of life with understanding, compassion, and love.
3. Build democratic societies that are just, participatory, sustainable, and peaceful.
4. Secure Earth's bounty and beauty for present and future generations.

II. ECOLOGICAL INTEGRITY

5. Protect and restore the integrity of Earth's ecological systems, with special concern for biological diversity and the natural processes that sustain life.
6. Prevent harm as the best method of environmental protection and, when knowledge is limited, apply a precautionary approach.
7. Adopt patterns of production, consumption, and reproduction that safeguard Earth's regenerative capacities, human rights, and community well being.
8. Advance the study of ecological sustainability and promote the open and wide application of the knowledge acquired.

III. SOCIAL AND ECONOMIC JUSTICE

9. Eradicate poverty as an ethical, social, and environmental imperative.
10. Ensure that economic activities and institutions at all levels promote human development in an equitable and sustainable manner.
11. Affirm gender equality and equity as prerequisites to sustainable development and ensure universal access to education, health care, and economic opportunity.
12. Uphold the right of all, without discrimination, to a natural and social environment supportive of human dignity, bodily health, and spiritual well being, with special attention to the rights of indigenous peoples and minorities.

IV. DEMOCRACY, NONVIOLENCE, AND PEACE

13. Strengthen democratic institutions at all levels, and provide transparency and accountability in governance, inclusive participation in decision making, and access to justice.

> 14. Integrate into formal education and life-long learning the knowledge, values, and skills needed for a sustainable way of life.
> 15. Treat all living beings with respect and consideration.
> 16. Promote a culture of tolerance, nonviolence, and peace.
> (Earth Charter Initiative, 2000, p. 2-4).

At first glance, it may seem a difficult proposition to integrate these concepts into curriculum. However, as I have expressed to colleagues and principals I work with on an ESD council in my school division, what is needed most is a shift in perception. Much of what is included in the charter is what occurs in elementary schools on a regular basis. All that is required is for students, teachers, and school leadership to employ the lessons and behaviors within a globalized context. If the values of caring, respect, or integrity are discussed and practiced in an interconnected manner within classrooms, home, and community, then implementing global citizenship or ecological citizenship need not be perceived to be a grand step.

In addition, as Greg spoke of in his interview, experiential outdoor activities that take students outside of their communities and perhaps outside of their comfort zones could play is great role promoting student ability to learn and care about the environment. School-based ESD efforts would be greatly enhanced if opportunities were made to allow each child to have a significant outdoor or nature experience at some point between the ages of twelve and eighteen. I understand the term *significant* can be open to debate, but I envision a school-based program where students can embark on a three to seven day excursion into nature; hiking and camping the Mantario trail, canoeing and portaging the Experimental Lakes, participating in habitat rebuilding in the Interlake or Northern Manitoba, visiting First Nations reserves, or perhaps being involved in philanthropic efforts locally, nationally, or globally. Many of the participants of this study have identified experiences in nature as the roots of their ESD supporting values and beliefs.

Many of the students we are currently teaching do not or will not have the opportunities to have these experiences until they are finished high school. In fact, one teacher, Paul, recounted that while on a camping trip, he asked his students how many had been camping before. Out of a group of 25, only a small fraction said "yes". If this small sample is in any way representative of high school students in general, then ESD in schools is facing an uphill battle. If students don't know nature, they certainly won't find the wherewithal to care for it from a textbook in a classroom. Taking students outside is a ideal first step, but beyond that they also need to be coaxed outside of their comfort zone and challenged to see and experience a world that as of yet may be hidden from them.

Historically, teachers have been held to high ethical standards. If ESD is to become a reality in Manitoba schools, it should also be expected that teachers in Manitoba schools behave ethically and by extension behave sustainably. We, as teachers, cannot initiate ESD as a 'do as I say, not as I do' form of teaching. As the data and literature suggest, it involves role modeling, mentoring, questioning, and reflection. ESD is about making life choices that support the planet as well as all those who live on it. It is not about indoctrination. I also think that students are much more savvy about being conned into doing something that they can see their teachers are preaching but not practicing. Within this context, sincerity is key. If children catch one whiff of hypocritical behavior, they may feel deceived and betrayed and may end being pushed away from identifying and adopting value and attitudes that support a sustainable life.

I do not know how to entice all Manitoba teachers to become SD experts overnight. Nor do I think that such a goal is attainable. As I reviewed the data where participants spoke of the challenges and motivators to their ESD commitment, I was able

to extrapolate some generalized notions of how ESD could be implemented across teaching populations. One such process could occur through moderately paced change through teacher training and attrition. Within this context are three groups of teachers: early adopters, the rank and file, and the deniers and saboteurs. The early adopters of ESD are a select and special group of teachers in a school. As with the participants of this study, they see the value of reorganizing what and how they teach in order to reach goals they have set for themselves. The second group would be the largest portion of educators; the general population so to speak. They are those who are receptive to 'greenspeak' or sustainability talk. They, as the general public is, are slow on action, especially action that requires effort or sacrifice. That said, they are willing to adapt and change with the proper supports and motivation. This group was identified as participants such as Speed spoke of the support they receive in school and how at times they are approached to be ESD resources in their school. A smaller but more concerning percentage of teachers are the active deniers and saboteurs, of whom Paul briefly spoke, who are either so set in their ways or are so threatened by any new initiative that they seek to undermine it and help usher it out the door.

The first step in long-term and sustained change will be found in teacher training. Melanie discussed the motivational factor of having new and young teachers entering her building already versed in sustainability topics. It not only decreased her perceived isolation, but also increased the number of potential projects that could be undertaken and students mentored. Although it is a large request to add to what is currently on their plate, I believe that if pre-service teachers are, at the very least, made aware of ESD principles, and are guided and trained to understand and practice sustainable living precepts their

knowledge and enthusiasm will enhance a school's current ESD initiatives while also helping to introduce new ones. The energy new teachers bring may help sway the silent majority of current school staff to, at the very least, explore SD and sustainable living for their students, classrooms, and themselves. As for those who will never accept new initiatives? The only answer is to continue to offer them the opportunity to join in while waiting for them to retire or leave the profession.

Parents also play an important role, as they are their child's first teachers. The data collected suggests that the role of family as first teachers is vital to the development of values, attitudes, and beliefs that support and foster ESD efforts in schools. Just as there is an expectation for parents to read to and with their children, so should there be an expectation that they take their children outside to let them explore and learn. To expect schools to take on the entire responsibility of this endeavor is a losing proposition. The lessons, experiences, and opportunities given by family to the participants of this study created fertile ground for their ideas and values to grow into right thinking and right action. The lessons they carry with them from their youth allowed them to think critically and make informed choices about their lives when confronted by opposing lessons from the media, peers, or by the dominant culture. While expecting every individual to exit the school system as an entirely sustainable individual may be folly, we can certainly create the expectation that every significant adult in a child's life be able to offer them the tools and opportunities to be able to think about their choices and the corresponding consequences.

In an age where clicktivism or clicking 'like' on a Facebook page is considered environmental or social activism, students require mentors to assist them in

understanding what it is like to think and behave sustainably. The six educators profiled in this study regularly engage in ESD activities, both in their professional and personal lives. Children require guides to help them find the skills and tools they will need to face challenges now and in the future. At one time, lessons about 'the good' were learned in the home, schools, and church. As we progress into the 21st century, lessons once gained from family and religious leaders appear to be less observable in students. This is not to say that parents are not trying to teach their children. What is happening is that lessons learned at home are competing against a dominant culture that overwhelmingly supports competition over co-operation and compassion. Children have to navigate through these expectations to be good people while also living in a culture as illustrated by Berry (1999), Orr (2004), O'Sullivan (1999), and Suzuki (2007); as one based on immediacy and self gratification, values materialism over experiences, the economy over the environment, views endless growth as progress, that promotes consumption and material wealth over responsibility and respect, and that blames those victimized by it's actions.

As a counsellor, I see the gaps and the cracks of the story we hang onto to guide our culture in the students with whom I work. They are sad, angry, disconnected, marginalized, longing for meaningful relationships, disrespectful to themselves and others, directionless, unmotivated, and often unable to cope with the stresses of daily life. The children I work with span the socio-economic spectrum with different experiences and stories yet the disconnection and disillusionment they express is very common. I believe that much of the emotional and psychological trauma children face is due to their trying to work within a cultural narrative that doesn't work. They want to be happy, cooperative, creative, and vulnerable but cannot because of the barriers presented by what

they see and have learned from their peers, the media, and, sadly, the adults that care for them. Children need the guidance of teachers who have the courage and creativity to suggest of a possibility of new ways of thinking and acting. They need individuals such as those presented in this study to help them understand that they are but small pieces of a very large and interconnected ecology. They need teachers to give them hope and to give them the opportunities to connect with the sense of wonder that will help them to internalize their own will to care about and protect the environment (Orr, 2004). Children, by their nature, are in the midst of an evolutionary process, one that lends itself to the introduction of values and ethical consideration that support ESD. The teachers who participated in this study exist as part of a growing group of educators who have accepted the responsibility to challenge students to open their eyes and minds to new ways of thinking, acting, and being. In doing so these teachers offer children the opportunity to discover the values and skills to create the best versions of themselves.

Recommendations for Research

My research into this topic has allowed me to discover that there has been little, if any, examination of the individuals charged with transforming students into sustainable citizens. The teachers who shared their stories and experiences with me offered a glimpse into what makes an ESD educator. The modest data I have collected suggests that we need more research into what needs to be taught, how it should be delivered, and what type of teachers are required to make even more of a difference.

As I have stated numerous times throughout these pages, my study exists as but one piece of a mosaic. I spoke with six teachers working in one specific curricular area in high schools in one city of one province. It is quite obvious that much more work can be

done in this area. To start, this study could be replicated on a much larger scale identifying ten, twenty or more high school science teachers. It could also be replicated among all of the curricular streams. Similar studies could be conducted examining the values of Early Years, Middle Years, and Senior Years teachers and students, pre-service teachers, school administration, superintendents, school board officials, and parents. Studies could be done to examine the reach and effectiveness of values driven ESD teachers and conversely, the values and beliefs of teachers who refuse to participate in ESD activities. Studies could be created to discover what, if any, differences exist between rural and urban schools, teachers, and students. Comparisons between provinces would allow for increased understanding as well. A study on a national scale may also provide insight into who we are and what we believe to inform national educational strategies.

Another avenue of research could focus on the implementation of experiential environmental education programs and their effects on values development in students. It would be helpful to identify green schools or eco-schools where ESD efforts have progressed beyond awareness to the transformation level and study the staff and students to identify what values exist and are at play within such a context. A longitudinal study that follows students for a number of years to observe and record their stories, experiences, and values development as they progress through grade levels of an established eco-school may provide some very interesting data as well. Similar studies could be replicated in independent and parochial schools to see if specific cultural attributes affect ESD values or commitment levels. In conversations with colleagues regarding ESD and schools, I am often asked if I am aware of what is being done in

schools in Europe and Australia. While it isn't my current area of attention, I would think that a comparative study of the values and actions of ESD practitioners in Canada and those in Scandinavia, the United Kingdom, Germany, Australia, or New Zealand could greatly inform current practice as well as future direction in policy, curriculum, and teacher training.

Finally, and perhaps most importantly, I would see great benefit in a study of the attitudes, values, and beliefs of First Nations people (educators, students, parents, and leaders) in terms of ESD. In a Canadian context, no proper ESD strategy can exist without the knowledge and input of those whose traditional beliefs and behaviors are sustainable at their core. I firmly believe that in order to move forward, we must first recognize and understand those who were here first. There is a vast wealth of knowledge that has been marginalized and ignored for far too long. If ESD is meant to recreate a guiding story that will take us into the future, one of compassion, connection, community, and a revitalized relationship with nature - the very first step should be to reconnect and revitalize a relationship with Aboriginal peoples. The stories that exist within this particular group will not only offer concrete examples of the failings of modernity, but may also the be seeds of knowledge we require to make the great leap toward a culture of respect, responsibility, understanding, and harmony.

Limitations

As I have stated in Chapter one, there are a number of limitations in this study. The first is that there were only six participants. The fact that only urban high school teachers were contacted and that the only urban location used was Winnipeg could be cited as well. The scope of the study was limited to teachers and did not include, students,

parents, principals, superintendents, or community members who hold a stake in developing greater ESD efforts in schools. However, even with the small sample, I was able to speak with participants of diverse ages, teaching experience, personal experiences, and values. The data extracted from the interviews suggests a number of commonalities among the participants that bolsters my confidence in the validity of the findings.

Another limitation can be found in the fact that I focused solely on the attitudes and values of teachers without examining what effect they had on their teaching. As stated in Chapter One, I did not follow participants into their classrooms to observe what ESD looked like in their teaching spaces. The main focus of my research was directed at why these teachers have become ESD practitioners and not how ESD was being delivered. There is a lot of space for others to study the effectiveness of ESD programs and teachers as well as what the transformative aspects of ESD look like from the student experience.

Conclusion

When I set out to embark on this study and write this thesis, the title, *The Green Don Quixotes*, was chosen as a significantly provocative title while also paying tribute to the participants of the study. I have always held the view that Don Quixote was heroic, acting on his idealism even though a greater number of people see him as insane. The participants of this study continue to act on their ideals, values, and beliefs through their sustainable efforts whether they are large or small. Their actions are driven by their knowledge that what they do is ethical and good even when they are, at times, challenged, ignored, or mocked. Their work stands in the face of the dominant culture that appears to be in direct opposition to their beliefs; yet they continue. As I worked

through this study, I experienced moments of despair when I considered what effect the participants, and others like them, actually have on the children they teach. Indeed it often would seem that ESD practitioners are tilting at the windmills of a culture driven by selfishness and greed. However, during the period of time it took to complete this thesis, three major social events have occurred: the Arab Spring, the Occupy movement, and most recently, the "les Cassaroles" movement in Quebec. These leaderless and fearless movements have made me rethink how futile the efforts of the participants of this study really are. Within the space of a few months hundreds of thousands, if not millions of people, have left the safety and comfort of their homes to live on the street to voice their dissatisfaction with the ruling narrative. I can't help but connect movements such as these that bring together masses of individuals with varying concerns, lifestyles, and beliefs under a common banner are not connected to the lack of guidance of the dominant culture's story. The silent majority is finding a voice to say, "The way things have been are no longer suitable for the future". The concerns echoing from the streets across the world are mirrored in the lessons and concepts that should be and could be taught in schools through Education for Sustainable Development.

This study was not conducted to discover all the answers to questions surrounding ESD, teaching, and values. Rather it exists as a first step to engaging in a larger conversation that must occur before we can begin to work toward the ideals set before us. I have found that values do play a significant role in the motivations of early adopters of ESD. I have also discovered evidence that parents, significant life experiences, and education are necessary in the creation of values consistent with ESD. As I stated at the beginning of this study, Education for Sustainable Development is not another education

fad, it is an inevitable evolution in teaching and learning. The stories that have led humanity through the last century have placed us at a crossroads where we either choose a new path toward a sustainable way of thinking and living or towards the potential breakdown of the systems that allow us to exist. It will take dedication, sacrifice, and creativity. As the participants of this study have demonstrated, we will not find our direction from personal gain, policy, or laws. It will and must come from within. This is our challenge and our next steps as teachers and as global citizens. We can either answer the call or fall as other civilizations have before us.

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Appendix A

Ethics Application

UNIVERSITY
of MANITOBA

Fort Garry Campus Research Ethics Boards
CTC Building, 208 - 194 Dafoe Road
Winnipeg, MB R3T 2N2
Phone: (204) 474-7122

Protocol # _____
(Assigned by HES Admin.)

FORT GARRY CAMPUS RESEARCH ETHICS BOARD
SUBMISSION FORM

Psychology/Sociology REB ☐ Education/Nursing REB X Joint-Faculty REB ☐

Check the appropriate REB for the Faculty or Department of the Principal Researcher. This form, attached research protocol, and all supporting documents, must be sent in quadruplicate (original plus 3 copies), to the Human Ethics Coordinator, CTC Building, 208 - 194 Dafoe Road, 474-7122.

Principal Researcher(s): _____Christopher Jacques_____

Status of Principal Researcher(s): (please check): Faculty ☐ Post-Doc ☐ Student: Graduate X Undergraduate ☐
WRHA Affiliate ☐ Other ☐ Specify:_____

Address (to receive Approval Certificate):_____xxxxxxxxxx MB. xxxxxxxxx_____

Phone: xxxxxxxxx_ Fax: _____ Email: __chrisjacques@gmail.com_____

Project Title: Values development in Education for Sustainable Development teachers.

Start date __February 15, 2010___Planned period of research (if less than one year): _____

Type of research (Please check):

Faculty Research	Administrative Research	Student Research
Self-funded ☐ Sponsored ☐	Central ☐	Thesis X
(Agency) _____	Unit-based ☐	Course Number: _____

Signature(s) of Principal Researcher(s): _____

For student research: This project is approved by department/thesis committee. The advisor has reviewed and approved the protocol.

Name of Thesis Advisor ___David Mandzuk_____ Signature_____
(Required if thesis research)

Name of Course Instructor: _____ Signature_____
(Required if class project)

Persons signing assure responsibility that all procedures performed under the protocol will be conducted by individuals responsibly entitled to do so, and that any deviation from the protocol will be submitted to the REB for its approval prior to implementation. Signature of the thesis advisor/course instructor indicates that student researchers have been instructed on the principles of ethics policy, on the importance of adherence to the ethical conduct of the research according to the submitted protocol (and of the necessity to report any deviations from the protocol to their advisor/instructor).

Ethics Protocol Submission Form
(Basic Questions about the Project)

The questions on this form are of a general nature, designed to collect pertinent information about potential problems of an ethical nature that could arise with the proposed research project. In addition to answering the questions below, the researcher is expected to append pages (and any other necessary documents) to a submission detailing the required information about the research protocol (see page 4).

1. Will the subjects in your study be **UNAWARE** that they are subjects? ___ Yes __X__ No

2. Will information about the subjects be obtained from sources other than the subjects themselves? ___ Yes __X__ No

3. Are you and/or members of your research team in a position of power vis-a-vis the subjects? If yes, clarify the position of power and how it will be addressed. ___ Yes __X__ No

4. Is any inducement or coercion used to obtain the subject's participation? ___ Yes __X__ No

5. Do subjects identify themselves by name directly, or by other means that allows you or anyone else to identify data with specific subjects? If yes, indicate how confidentiality will be maintained. What precautions are to be undertaken in storing data and in its eventual destruction/disposition. __X__ Yes ___ No

6. If subjects are identifiable by name, do you intend to recruit them for future studies? If yes, indicate why this is necessary and how you plan to recruit these subjects for future studies. ___ Yes __X__ No

7. Could dissemination of findings compromise confidentiality? ___ Yes __X__ No

8. Does the study involve physical or emotional stress, or the subject's expectation thereof, such as might result from conditions in the study design? ___ Yes __X__ No

9. Is there any threat to the personal safety of subjects? ___ Yes __X__ No

10. Does the study involve subjects who are not legally or practically able to give their valid consent to participate (e.g., children, or persons with mental health problems and/or cognitive impairment)? If yes, indicate how informed consent will be obtained

from subjects and those authorized to speak for subjects. ___ Yes __X__ No

Page 3

11. Is deception involved (i.e., will subjects be intentionally misled about the purpose of the study, their own performance, or other features of the study)? ___ Yes __X__ No

12. Is there a possibility that abuse of children or persons in care might be discovered in the course of the study? If yes, current laws require that certain offenses against children and persons in care be reported to legal authorities. Indicate the provisions that have been made for complying with the law. ___ Yes __X__ No

13. (a) Does the study include the use of personal health information? The Manitoba Personal Health Information Act (PHIA) outlines responsibilities of researchers to ensure safeguards that will protect personal health information. If yes, indicate provisions that will be made to comply with this Act (see document for guidance - http:/www.gov.mb.ca/health/phia/index.html). ___ Yes ___X_ No

13. (b) PHIA requires that all employees, students, or agents who handle or are exposed to personal health information take PHIA Orientation and sign a pledge of confidentiality that acknowledges that they are bound by written policy and procedures.

Has PHIA Orientation and pledge-signing been completed by all employees, students, and agents? _____ Yes _____ No

If "No," the Principal Investigator should contact UM Access & Privacy Coordinator's Office to make arrangements, fippa@umanitoba.ca

Where individuals have not completed PHIA Orientation and signed a pledge, and for the purpose of ensuring that they do, Principal Investigator's contact information will be provided to the University Access & Privacy Coordinator's Office.

Provide additional details pertaining to any of the questions above for which you responded "yes", excluding question 13 (b). Attach additional pages, if necessary.

___/___/___ _____
dd mm yr Signature of Principal Researcher

Ethics Protocol Submission Form Page 4
(Required Information about the Research Protocol)

Each application for ethics approval should include the following information and be **presented in the following order**, using these headings:

1. **Summary of Project:** Attach a detailed but concise (one typed page) outline of the **purpose** and **methodology** of the study describing **precisely** the procedures in which subjects will be asked to participate.

2. **Research Instruments:** Attach copies of **all** materials (e.g., questionnaires, tests, interview schedules, etc.) to be given to subjects and/or third parties.

3. **Study Subjects:** Describe the number of subjects, and how they will be recruited for this study. Are there any special characteristics of the subjects that make them especially vulnerable or require extra measures?

4. **Informed Consent:** Will consent **in writing** be obtained? If so, attach a copy of the consent form. (see guidelines on informed consent). If written consent is not to be obtained, indicate why not and the manner by which subjects' consent (verbally) or assent to participate in the study will be obtained. How will the nature of the study and subjects' participation in the study be explained to them **before** they agree to participate. How will consent be obtained from guardians of subjects from vulnerable populations? If confidential records will be consulted, indicate the nature of the records, and how subjects' consent is to be obtained. If it is essential to the research, indicate why subjects are not to be made aware of their records being consulted.

5. **Deception:** Deception refers to the deliberate withholding of essential information or the provision of deliberately misleading information about the research or its purposes. If the research involves deception, the researcher must provide detailed information on the extent and nature of deception and why the research could not be conducted without it. This description must be sufficient to justify a waiver of informed consent.

6. **Feedback/Debriefing:** Describe the feedback that will be given to subjects about the research after they have completed their participation. How will the feedback be provided and by whom? If feedback will not be given, please explain why feedback is not planned. If deception is employed, debriefing is mandatory. Describe in detail the nature of the post-deception feedback, and when and how it will be given.

7. **Risks and Benefits:** Is there any risk to the subjects, or to a third party? If yes, provide a description of the risks and the counterbalancing benefits of

the proposed study. Indicate the precautions taken by the researcher under these circumstances.

8. **Anonymity and Confidentiality:** Describe the procedures for preserving anonymity and confidentiality. If confidentiality is not an issue in this research, please explain why. Will confidential records be consulted? If yes, indicate what precautions will be taken to ensure subjects' confidentiality. How will the data be stored to ensure confidentiality? Will the data be destroyed, if so, when?

9. **Compensation:** Will subjects be compensated for their participation? Compensation may reasonably provide subjects with assistance to defray the costs associated with study participation.

Project Summary

We, as a society, have been presented with a massive problem to solve. As the northern hemisphere (and increasingly parts of the southern hemisphere) continue efforts for economic growth, security, and personal comfort; topics of ecological damage, climate change, hunger, disease, poverty, exploitation, and war become more and more commonplace in our collective psyche (Berry, 1988; Dyer, 2007). In order to find solutions, we must stop using old ways of thinking in favour of a 'new story', one that places humans within nature instead of in control over it (Berry, 1998; O'Sullivan, 2001). On a local level, Manitoba schools have responded with curricula and policy to address these issues and promote widespread mindset and behaviour change (MECY, 2008; IISD, 2009).

While top level efforts are important, even more critical to this topic are the people charged with teaching these new ideas, beliefs, and behaviours. The question that arises from this is, what are the beliefs and values of the teachers that are viewed as passionate or leaders in the field of Education for Sustainable Development (ESD)? What have they learned or experienced that has led them to teach from an ecologically literate perspective (Orr, 1992) and/or towards a greater understanding and acceptance of social responsibility?

The purposes of this study are: (1) to collect the transformational experiences of urban science educators who demonstrate ecological literacy and a commitment to ESD; (2) to examine individual values and belief sets teachers as well as their progression from childhood to novice teacher to ESD practitioner; (3) to analyze stories to discover trigger events or experiences that prompted a re-evaluation of previously held beliefs and values; (4) to collect, analyze and synthesize scholarly research and philosophical writing on ecological and social justice education and transformational education; (5) to determine what implications the experiences of ESD practitioners may have on pre-service teacher training and ESD program delivery.

Theoretical Framework and Positionality: I have come to this topic through my research of the life and work of Thomas Berry (1988, 1999), ecological literacy (Orr, 1992), and transformative learning (O' Sullivan, 1999, Mezirow, 2000). I am a strong proponent for a change in the way school, more specifically high schools, operate. I am critical of schooling that is founded in preparation for work, viewed as a necessary stepping stone to a career, and direction is steered by industrial and economic stakeholders over the needs of those who rarely (if ever) are afforded a voice in policy and curricula creation. I believe it is our (teachers) ethical and moral responsibility to support and help create the opportunities for students to create, dream, be vulnerable, to reawaken their senses and imagination, and put to rest old mindsets and behaviours in order to search for new solutions and new ways of being.

Methods: To achieve these ends, I will conduct semi-structured interviews (one to two per research participant) with high school (grades 10-12) science teachers, each interview consisting as a case within a multiple case study, documenting their

career path and Education for Sustainable Development (ESD) activities, while investigating their perceptions and experiences in regard to the following questions:

(1) What are the values and belief systems of teachers who are openly and actively committed to ESD?
(2) How do currently held values and beliefs differ from those held during earlier stages of their lives?
(3) What were the trigger events that led to a re-evaluation of previously held values and beliefs?
(4) What commonalities exist between individual teachers' values and trigger events?

I will continue to build cases until a total of 15 teachers have been studied. At this point I should have reached what Bertaux (1981) has called a "saturation of knowledge", the point at which new ideas seldom emerge during interviews. If I have not reached this point, I will add up to 5 additional interviews.

Interviews will be conducted at the interviewee's place of work or at a mutually agreed location. Interviews will be transcribed immediately. At the beginning of the interview I will share my research questions with subjects and will ask them to relate a career/life history narrative including their values and belief systems through childhood, pre-service teacher training, and throughout their teaching career. Interviews will be analyzed to determine questions for possible follow-up interviews. The case studies will also address participants' commitment to sustainable development inside and outside of the classroom as well as how they share their knowledge and experiences with students. Case studies will be thematically analyzed for similarities (resonance) and differences (discordance).

Research Instruments

See attached for interview protocol.

Study Subjects

I will use snowball sampling. Volunteers will be sourced via references from particpants, teachers, administrators, divisional science consultants, the Manitoba Eco-Network, and the Science Teachers Association of Manitoba. It is my goal to complete 15 case studies of high school science teachers. Should the desired number of participants prove to be too hard to reach, I will expand the criteria to include middle school science specialists as well. The sample group will be identified by the following criteria (a) holder of a valid Manitoba Teaching Certificate, (b) currently teaching or recently retired from an urban high school, (c) has taught science at the grade 10 though 12 levels, (d) has demonstrated a commitment to education for sustainable development through curriculum, student clubs or projects, or through lifestyle, (e) are willing to speak about their values and beliefs regarding education and sustainable development, (f) are able to spend between one to three hours being interviewed and engaging in follow-up member checks.

Informed Consent

Prior to finding potential participants, ethical approval from the Education Nursing Research Board at the University of Manitoba will be obtained. Consent will be obtained in writing (see attached). The nature of the study will be explained in these forms. All participants will be made aware that their participation is voluntary and that they may withdraw from the study at any time merely by informing the researcher they wish to withdraw.

Deception

There is no deception in this study.

Feedback/Debriefing

On the consent form, interviewees will be provided with the opportunity to request whether or not they would like a summary of the study once the research is completed. For those who wish, separate contact information will be logged, separating the contact information from the consent forms.

Risks and Benefits

There are no risks involved in this study. Direct benefits to the participants include the opportunity to receive feedback about the study results, including greater understanding of their experiences and values in comparison with their peers.

Anonymity and Confidentiality

At no point will any of the participants' names or any closely identifying information be included in any document generated from this study. All information received from the participants will be kept in an area to which only the researcher has access. For the interviews, participants will be given pseudonyms at the outset of the study. Identifying names, locations, and other identifying information will be excluded or masked with distracting information to protect informants. Identifying roles will be excluded to avoid specific identification. Consent forms will be stored in a separate place from data collected. All data will be kept in a locked area. The data will be confidentially destroyed after 7 years.

Compensation

No compensation to participants will be provided

Ethics Protocol Submission Form

Page 5

Review your submission according to this:

Checklist

Principal Researcher: _____Christopher Jacques_____

T	Item from the Ethics Protocol Submission Form
	All information requested on the first page completed in legible format (typed or printed).
	Signatures of the principal researcher (and faculty advisor, or course instructor if student research).
	Answers to all 13 questions on pages 2-3 of Ethics Protocol Submission form, INCLUDING ANY QUESTIONS FOR WHICH YOUR RESPONSE WAS "YES".
	Detailed information requested on page 4 of the Ethics Protocol Submission Form in the numbered order and with the headings indicated.
	Ethics Protocol Submission Form in quadruplicate (Original plus 3 copies).
	Research instruments: 4 copies of all instruments and other supplementary material to be given to subjects.
	Copy of this checklist.

NOTE: For ease of reviewing it would be much appreciated if you could number the pages of your submission (handwriting the numbers is quite acceptable).

Interview questions for first interviews

Follow-up questions will differ based on participant responses to the first interviews. The questions below may not be asked in exactly this way as each participant will not respond to the first question in the same way. Some participants in this kind of research like to have open, detailed questions to respond to; others like to have prompts given to them throughout, and this will be at my discretion.

1. Please tell me about your teaching career from your first job until now. *This question is intended to be very open and to allow the participant to talk about as much as he/she is comfortable.*
2. Can you describe what sustainable development or sustainable living means to you?
3. How do you demonstrate a commitment to sustainability?
    In your in-class teaching?
    In your outside of class contact with students?
    In your lifestyle?
4. Can you describe the values and beliefs given to you by your immediate or extended family throughout your youth?
5. Can you describe the values and beliefs you held during your time as a pre-service teacher?
6. Can you describe the values and beliefs you subscribe to today?
7. Can you identify any learning or life experiences you have had that led to a re-evaluation of your previously held values and beliefs?
8. What are the experiences that you have had that prompted your shift toward a more sustainable lifestyle that you share, or would like to share, with your students?
9. Are there any other thoughts you would like to share in regard to Education for Sustainable Development?

Free and Informed Consent Form (will be reproduced on letterhead)

Research Project Title: Values development in Education for Sustainable Development teachers.

Researcher(s): Christopher Jacques

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

This study is being conducted by a Masters student in the Faculty of Education at the University of Manitoba in Winnipeg, Canada, Christopher Jacques. The purpose of this project is to examine the role of values development and how to enhance or promote an individual's commitment to the environment, social justice, and how individual value and belief systems affect how these concepts are taught to children. Data will from this study will be used for thesis work.

Subjects have been chosen due to their position as a high school science teacher as well as having demonstrated a commitment to Education for Sustainable Development or a sustainable lifestyle inside or outside of the classroom.

You are asked to consent to participate in one to two interviews that should last no more than 90 minutes. The time and location of the interview will be determined by mutual convenience. The interview will be audio-recorded and transcribed verbatim and will explore the evolution of your values and belief systems from your youth to your current teaching role. I will ask you to reflect on how issues of sustainability, ecology, and/or social justice have impacted your role as teacher and/or global citizen. All transcribing will be done by the researcher. A copy of the interview transcript will be returned to you so you can check the accuracy of my representation of what you have said which should take approximately 2 more hours of your time. Audio files and all other data will then be destroyed (paper shredded and electronic files deleted) after a period of 7 years. Once all data is collected and analyzed, it will be submitted to the Faculty of Education as a Masters Thesis. It will be available online via the University of Manitoba library. There are no currently plans for any other form of dissemination at this time. That said, the information gathered may be used to produce work for academic journals or may be used as material for presentations. There are no risks involved in this study. Benefits include the opportunity to share your experiences as a sustainability educator, to receive feedback about the study's results, and a greater understanding about your teaching practices.

Please understand you are free to withdraw your consent and discontinue your participation in this study at any time without prejudice or consequence. Should you decide to withdraw; all data collected from you will be immediately destroyed. Please be assured that your confidentiality will be maintained at all times. At no time will your name or any closely identifying information be included in the documents generated from this study. You may choose a pseudonym. All interview information received from you will be stored digitally by pseudonym on a computer to which only the researcher has access. The informed consent sheet containing your name will not be kept with the interview data, and will be stored in a locked cabinet in the researcher's office in the Student Service Dept. at Grant Park High School where only he has access to it, avoiding the possibility of connecting your name to any information you have given. You have the opportunity to request a copy of the summary of the study's result.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to

withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

This research has been approved by the Education/Nursing Ethics Review Board. If you have any concerns or complaints about this project you may contact Chris Jacques at (xxx) xxx xxxx (ext. xxx) or at home (xxx) xxx xxxx, or by email at xxxxxxxxxxxx@gmail.com. You may also contact my thesis advisor, Dr. David Mandzuk at mandzukd@cc.umanitoba.ca or the Human Ethics Secretariat at 474-7122 or margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

If you are interested in participating in this study, please read the following statement and sign and date it. One copy is yours.

I _____ agree to participate in this study. I understand that participation is voluntary and that I may withdraw from the study at any time simply by telling the researcher. I have read and understood the above description of the study. I understand that my privacy will be safeguarded as explained above. I understand that if I have any questions or concerns, I may contact the researcher and/or the Human Ethics Secretariat Board at the numbers given above.

Participant's Signature _____ Date _____

Researcher and/or Delegate's Signature _____ Date _____

I would like to receive a summary report of the findings:

___ Yes ___ No

Please mail a summary report of the findings at:

_____

_____

_____

Appendix B

Ethics Approval

UNIVERSITY of MANITOBA | OFFICE OF RESEARCH SERVICES
Office of the Vice President (Research)

CTC Building
208 - 194 Dafoe Road
Winnipeg, MB R3T 2N2
Fax (204) 269-7173
www.umanitoba.ca/research

APPROVAL CERTIFICATE

May 10, 2010

TO: **Christopher Jacques** Advisor - D. Mandzuk
Principal Investigator

FROM: **Lorna Guse, Chair**
Education/Nursing Research Ethics Board (ENREB)

Re: **Protocol #E2010:029**
"Values Development in Education for Sustainable Development teachers"

Please be advised that your above-referenced protocol has received human ethics approval by the **Education/Nursing Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement. This approval is valid for one year only.

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- **if you have funds pending human ethics approval, the auditor requires that you submit a copy of this Approval Certificate to Eveline Saurette in the Office of Research Services, (e-mail eveline_saurette@umanitoba.ca, or fax 261-0325), Including the Sponsor name, before your account can be opened.**

- **if you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.**

The Research Ethics Board requests a final report for your study (available at: http://umanitoba.ca/research/ors/ethics/ors_ethics_human_REB_forms_guidelines.html) **in order to be in compliance with Tri-Council Guidelines.**

Bringing Research to Life

Appendix C

Timeline of United Nations and Related Documents

Year	Publication
1972	Recommendation 96
1975	The Belgrade Charter
1977	Tbilissi Declaration
1980	World Conservation Strategy
1987	Bruntland Report or Our Common Future
1987	Moscow Declaration
1992	Chapter 36 of Agenda 21 or Planetary Green Plan
1992	Environmental Education for Sustainable Societies and Global Responsibility
1996	Learning: The Treasure Within
1997	The Thessaloniki Declaration
1997	Educating for a Sustainable Future: A Transdisciplinary Vision for Concerted Action
2000	The Earth Charter
2000	Millennium Declaration
2002	Education for Sustainability: From Rio to Johannesburg: Lessons Learnt from a Decade of Commitment
2005	Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability
2005	United Nations Decade of Education for Sustainable Development (2005-2014)
2006	Framework for the UN DESD International Implementation Scheme
2009	Review of the Contexts and Structures for Education for Sustainable Development