

TEACHING FOR SUSTAINABLE DEVELOPMENT: TEACHERS'
PERCEPTIONS

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By: Jennifer Catherine Jaspar

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University of Saskatchewan
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ABSTRACT

The United Nations General Assembly declared the period from 2005 to 2014 as the United Nations Decade of Education for Sustainable Development. The reason for the decade is a growing concern for future generations and their ability to deal with the very real and adverse consequences of decades of environmentally ‘unconscious’ decisions made by their predecessors. When curricula are not focused on sustainable development, what role do teachers have in educating students to make ecologically sound decisions? This qualitative study was composed of a series of semi-structured interviews with four teacher participants at both middle school and high school who all strove to teach about sustainable development in their classrooms. Six themes were identified: motivations, teaching style, teachers’ perceptions of the impact on students’ learning, modeling, spirituality, and challenges to teaching about sustainable development. The teacher participants’ perceptions on empowerment, action projects, student response, and assessment are also discussed.

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Chapter One: Introduction

The biotic environment is a complex system that is in a constant quest for equilibrium among the myriad of living entities, especially with the impact of humans. Western thought based on rational will and the desire to understand individual components utilizing linear thinking continues to be ineffective in grasping the big picture or end results of actions and reactions. What is needed is a transformed way of thinking. School curriculum can play a role in this change from that of linear modalities to systems thinking. In order to achieve desired results of a sustainable future, students must not only learn to develop and implement environmentally-friendly initiatives but also understand the repercussions of said actions on the economy, society, and the environment. This involves inner transformations on the part of students where students come to recognize the need for change and develop a desire and the autonomy to create it.

Spending time outdoors, preferably in a locale surrounded with trees and a limited human population, is necessary to me for my peace of mind and in achieving spiritual balance in my life. I attribute both this spiritual need and my sense of stewardship to my upbringing. My family spent a great amount of time sowing, harvesting, and processing organic produce at our grandparents' farm and living on the water and shoreline during camping trips to the northern boreal forests in Saskatchewan. I find these environments to be uplifting and rejuvenating for my family and myself; therefore, I feel a strong sense of responsibility and desire to protect the Earth.

I am concerned about future generations and their ability to deal with the very real and adverse consequences of decades of environmentally 'unconscious' decisions made by their predecessors. Apathy, ambivalence, ignorance, and inaction manifested by an education of packaged programs, a focus on standardized testing, and centralized curriculum are not preparing the next generation to be critical decision makers in terms of stewardship of the Earth. The core realities that I see underlying sustainable development involve interdependence, empathy, equity, personal responsibility and social justice, yet

these are rarely addressed in our curricula crowded as they are with content. I see these realities as the key foundation upon which a feasible vision of a more sustainable world can be constructed.

I believe one of the main purposes of education is to create informed, socially conscious citizens who possess a sense of responsibility to the Earth and their fellow citizens. This sense of responsibility is not limited to a concern for the environment and responsible environmental decision-making, but also extends to issues of equity, citizenship, responsibility, social justice, and compassion. These ideals are part of the inherent nature of schools; they exist in most schools' mission statements and in classroom expectations. Yet as a researcher and a teacher, I wonder if and how these values are taught and learned.

I believe these core educational values to be the foundation for Education for Sustainable Development (ESD). There is a danger that Education for Sustainable Development could be stripped down to only encompassing the simple transmission of facts and knowledge from the teacher to the student about the current state of the Earth. This is an extremely limited undertaking. Values of ethical living, morality, and justice are inherent within the knowledgebase. Therefore, these values must be consciously explored and applied through critical thinking within the presentation and creation of new information. When one feels responsible, or feels a moral obligation for protecting the environment, he or she will think carefully about how his or her actions affect the environment.

Teaching about sustainable development is part of my identity as a teacher. I am proud to be called the 'tree hugger' by other staff members. I started talking about sustainable development to my students at the beginning of my career. Concern for the environment has impacted how I live my life and, therefore, how I teach the students entrusted in my care.

My grade seven students sensed my passion and conviction for raising environmental awareness from the first day of school when I spoke about not wasting paper. I asked them to write on both sides of a sheet of paper and never to submit anything with a cover page stapled to the front. At the beginning of the year there was either a round of flabbergasted giggles or chorus of groans as I reached into the garbage

can after lunch to pluck a misplaced juice box or a piece of paper to replace in our classroom recycle boxes. Now, when I lean over to rescue recyclable material from its misplaced grave, students are quick to wonder about and point out who could have made the recycling error. Several months into the year, my students are starting to take it upon themselves to implement school-wide initiatives. They ran a Garbage Free Lunch Week campaign, a Lights Out campaign, and they started a milk carton recycling program to run alongside our milk program at school. The next project they have expressed interest in is implementing a school compost. These initiatives have been developed and run by students. I have only facilitated and encouraged them in the process.

What other staff members thought of as a challenging, low-achieving group of students with a history of social, behavioural, and academic problems, has developed a sense of cohesion as a result of the sustainable development initiatives and projects they have implemented in their school. It continues to bring them together and raises environmental awareness in our school and community.

On occasion a student will question the impact one person can have on a global problem. Each time I respond with a story my father once told me:

One day a man was walking along the seashore. He noticed that many starfish had washed up on the beach. As he walked along he noticed a child in the distance scooping up starfish and throwing them into the ocean. The man walked toward her and asked, "Why are you throwing these starfish into the sea?"

"It's high tide," she replied, "If I leave them on the beach, they will die in the hot sun." The man looked up and down the long stretch of beach and said, "There must be thousands of starfish out here. You cannot possibly think you can make a difference to them all."

The young girl stopped. Her face darkened. "You're probably right," she said softly. Then she leaned over, carefully picked up another starfish, and threw it into the sea. She looked at the man and said, "But I sure made a difference for that one."

What started as a personal value has permeated my daily life at school and in the curricular and life lessons that my students are taught. Hart (2003) speaks of this as a blending together of process and passion. My teacher identity reflects what I value in what I teach.

Informed, intended action towards creating sustainable development for both current and future generations is needed to counter the adverse effects of globalization, urbanization, industrialization, and our excessive consumption of natural resources. Our planet is in a precarious position, economically, socially, and ecologically and as Suzuki and McConnel (1997) state: “We can only rediscover our human connections with the earth if we begin with our children’s education” (p. 23). I believe that action competence (Jensen & Schnack, 2006), inspiring students to take action based on their knowledge and beliefs about the environment, is a key foundation for accomplishing this goal.

In recent history, human involvement with the Earth has had a significant impact on the Earth’s resources in a manner that has impacted the sustainability of the planet (Palmer, 1998). “As the new century unfolds, human actions are affecting the environment in ways that are unprecedented, unsustainable, undesirable and unpredictable, a situation which presumably cannot be divorced from current practice in education” (Palmer, 1999, p. 379). Palmer has pinpointed education as the tool that can and should be used to combat and address the significant negative impact humans have had on the Earth.

As a response to this call and to the international attention sustainable development has been receiving in recent years, the United Nations General Assembly declared the period from 2005 to 2014 as the United Nations Decade of Education for Sustainable Development (UNDESd). United Nations Educational, Scientific and Cultural Organization (UNESCO) consider the governments of each nation as the main agencies for facilitating and integrating a curriculum of sustainable development into schools. Their intention is for the next generation to develop the skills, values, and knowledge required to create a sustainable future through empowerment of people of all ages in all countries.

The United Nations Decade of Education for Sustainable Development aims to promote education as a basis for a more sustainable human society and to integrate sustainable development into education systems at all levels. The Decade will also strengthen international cooperation towards the development and sharing of innovative education for sustainable development programmes, practices and policies. (UNESCO, 2003)

We are now four years into the decade specifically marked for focusing on the future. I ask: What progress has been made to this end in our provincial educational system and within individual schools? What are some teachers doing and has this declaration impacted their decisions? Has new programming for Education for Sustainable Development been incorporated into our provincial curricula? How are teachers able to integrate Education for Sustainable Development into existing curricula?

Summary of the Research Literature

Reading the literature on Education for Sustainable Development, certain trends were repeatedly manifested in the research. Much of the literature (i.e. Alsop, 2007; Ravindranath, 2007) was focused on teacher training. Other researchers investigated students' perspectives on learning about sustainable development (Lundegard & Wickman, 2007). Summers (2003) and Hart (2003) focus on the beliefs of teachers in teaching about sustainable development, an area of primary interest to me. The 'action competence' approach (Jensen & Schnack, 1997; Ballantyne et al., 1998; Rauch, 2002; and Barrett, 2006) was identified as a strategy that some researchers believe has the greatest impact on students' learning. As a result of my reading, I felt gaps existed in the literature in terms of the teacher's role as facilitating students' engagement in critical thinking through an action competence approach.

Research problem.

My forays into teaching about environmental issues and sustainable development led me to wonder what other teachers are doing in their classrooms in regard to these issues. Sustainable development is not part of our mandated curriculum in Saskatchewan, but it has been declared an educational initiative on an international scale (UNESCO, 2003). What are teachers' perceptions on educating for sustainable development?

Research questions.

The purpose of this study is to explore the practices and undertakings of selected Saskatchewan teachers as they teach about sustainable development in their classrooms and to examine teachers' perspectives on what some of their practices are that are having a positive impact on student learning. Saskatchewan Learning has not produced a

Sustainable Development Curriculum, so I wonder what, if anything, is being taught to students?

For Saskatchewan teachers teaching in the Greater Saskatoon Catholic School Division who have been identified as teaching about sustainable development:

1. In what ways do teachers integrate sustainable development into their teaching?
 - a) What concepts are they teaching their students about sustainable development?
 - b) Do the teachers teach within existing curricula or in extra-curricular activities?
2. In what ways do these teachers address sustainable development concepts?
3. In what ways do these teachers see these concepts impacting their students?
 - a) What are teachers doing that takes it beyond the delivery of information and uses sustainable development as a transformative tool?
4. Why are these teachers so committed to Education for Sustainable Development?
 - a) In what ways do these teachers incorporate sustainable development practices into their lives?
 - b) What motivates teachers to teach about sustainable development?

Definitions.

To better understand these questions some explanation of sustainable development seems necessary. Sustainable development has a variety of definitions in the literature. Rauch (2002) points to the original definition coming from a system of forest cultivation where the amount of trees being cut down never exceeded the growth rate of the trees in the area. The term sustainable development came into play in 1980 in the World Conservation Strategy (Rauch, 2002). According to *Agenda 21* (UNCED, 1992), sustainable development implies a use of resources that does not jeopardize the health of human or environment and does not jeopardize future generations' chances of satisfying their needs. What the definitions have in common is that sustainable development encompasses social, economic and environmental factors (Summers, 2003).

UNESCO's (2003) framework for implementing the Decade for Education for Sustainable Development outlined four thrusts in Education for Sustainable

Development. The first was the promotion and improvement of basic education that encourage individuals to lead sustainable lives. The second thrust is the reorientation of existing education programs which would include curriculum renewal to include a greater focus on sustainability. The third thrust was the development of public understanding and awareness of sustainability issues. This understanding is crucial for society to make progress towards more sustainable communities. The fourth and final thrust was concerned with public training in all sectors of the workforce. This training would ensure the workforce had the ability to perform their work in a sustainable manner.

Education for Sustainable Development is a term that has come to replace Environmental Education in the literature. Rauch (2002) viewed Environmental Education as the promotion of “environmentally sound behaviour by indoctrination” (p. 45). Education for Sustainable Development refers to “all aspects of public awareness, education and training provided to create or enhance an understanding of the linkages among the issues for sustainable development and to develop the knowledge, skills, perspectives and values that will empower people of all ages to assume responsibility for creating sustainable futures” (Ravindranath, 2007, pp. 191-192). I chose this definition as a starting point among the many slight variations in the literature because this definition emphasizes the values that underlie learning about sustainable development and promotes action. Environmental Education and Education for Sustainable Development will be used interchangeably depending on the study being referenced.

Because of the variability in how sustainability is conceived, the term ‘sustainable development’ also warrants discussion. Bonnett (1999) argued that the term ‘sustainability’ has a pivotal role in the discussion of environmental issues, but that the term is often used in such a way that makes the meaning seem evident and value neutral. Bonnett believed that the inevitable question became: What was it that should be sustained? This is a value-laden question; should it be economic growth, ecosystems, human needs, or culture that is sustained? Not everything can be sustained and as soon as one decides what is to be sustained, that person’s worldview and value system comes to the forefront. Once ‘development’ is attached to sustainability, connotations become apparent of the Western notions of development as economic growth and prosperity.

According to Bonnett (2006), assumptions are being made about the rights and obligation of humans to the natural world. The Western world may interpret language about sustainable development in the sole context of economic growth, giving little regard for a holistic, ecological perspective. As a result of how complex our natural and social systems are, Bonnett wonders how humans can judge actions and whether they will enable sustainable development. Bonnet questions who should be making these decisions and the value systems they are based on.

Potential contributions of the study.

Just as we learn a lot in life from others, teachers can learn a lot by observing and conversing with other teachers. Whether it is watching a gifted pianist play a complicated piece, a carpenter building a deck, or teachers speaking about what they do in their classrooms, there is much value in listening to the experiences of others. I believe there is a wealth of information and knowledge about Education for Sustainable Development that can be found within the schools right in my own community. I want to make this wealth of knowledge available to others so those who are interested in beginning to teach about sustainable development may be inspired by their colleagues' efforts. Information on how Education for Sustainable Development is implemented in schools, the impacts it can have on students, and recommendations for the implementation in other schools will be available as a result of my research study.

Chapter Two: Literature Review

Background

The latter half of the twentieth century saw an unprecedented human population explosion and with the immense impact of the technological boom, came the dawn of environmental education. According to Smyth (2005), the thrust for environmental education grew out of photographs of the Earth suspended in space since this was the first time some people were awakened to the finite resources available to humankind and realized the limits of their planet and its natural resources.

The first time the concept of sustainable development was put forward was in the World Conservation Strategy in 1980. Palmer (1999) summarized the definition of sustainable development used at this forum as “the present development of available resources without compromising the ability of future generations to meet their needs” (p. 60). The conclusion of the World Conservation Strategy was that conservation and development are intrinsically linked and, therefore, conservation principles should be integrated with all future plans for economic development. A criticism of the Strategy is that it took too simplistic an aim at the link between human development and conservation (Palmer). The focus on ecological sustainability did not investigate economic sustainability or sufficiently link these two aspects.

The World Commission on Environment and Development (WCED) was established in 1983. This commission did a vast amount of research over three years. Their final report, *The Brundtland Report* (1987), highlighted three critical components to sustainable development: environmental protection, economic growth, and social equity. A key finding was that by gradually adapting the way in which we develop and use new technologies, the environment can be conserved and our resources sustained (WCED, 1987). The Report gave specific recommendations for certain priority areas related to the reorganization of government and the creation of new organizations to initiate and facilitate change. A number of principles were articulated in this report:

respect for Earth and all life, protecting and restoring ecological integrity, eradicating poverty, and ensuring that economic activities at all levels promote equitable and sustainable human development (Grant & Littlejohn, 2004/2005). This report also highlighted the role that education plays in moving towards a sustainable future (WCED).

In 1992 many of the world's leaders met in Rio de Janeiro to sign *Agenda 21* at the Earth Summit. This international plan was a call to action to promote sustainable development at international, national, and local levels. It was a critical milestone in the history of sustainable development as it was the world's largest environmental gathering. Ten years later, in 2002, the World Summit for Sustainable Development in Johannesburg was held. Heads of government from all over the world reconvened to assess the progress made on sustainable development since the Earth Summit in 1992 (UNECD, 1992).

Another international conference was held in 2005 and as a response to the international attention Education for Sustainable Development was receiving, as mentioned earlier, the United Nations General Assembly declared the period from 2005 to 2014 as the United Nations Decade of Education for Sustainable Development.

Teachers in the Teaching of Sustainable Development

The United Nations Decade of Education for Sustainable Development challenges teachers to implement Sustainable Development practices and philosophies in their classrooms as well as calling for curricular renewal. As a result, in the last few years, there has been a surge of research related to Education for Sustainable Development. Hart (2003) states that teaching about sustainable development is to “blend passion with process” (p. x). I believe teachers generally do not accept new pedagogical frameworks not mandated by their school divisions, especially if they are not passionately committed to the new philosophy. I also believe that those who find ways and time to teach with a sustainable development framework do so because they find it to be personally valuable and meaningful.

Smyth (2005) questions those who are choosing not to teach about sustainable development suggesting that teachers should be able to answer questions about what they are doing to prepare students for their contribution to the eradication of various global

problems; such as, human population explosion, poverty, disease, civil disruption, unequal distribution of resources, treatment of people who resist measures taken to ensure sustainable living, and for the impact media has as the main source of environmental information. Smyth believes these are current issues that need to be tackled and debated in the educational system. There is a risk students may become overwhelmed with a feeling of hopelessness if teachers are not careful in their pedagogical decisions in how they present these problems to their class. Smyth does not take this into account in his argument. The size of these problems can be disconcerting for some teachers and some may retreat into more comfortable areas and activities. Nonetheless, I believe the sheer magnitude of these issues can be overcome if teachers can promote critical and creative thinking and investigate the values that underlie teaching and learning about sustainable development in striving to actively engage students in action competence.

From my review of the literature, I have identified three major themes in reference to sustainable development. These themes are: action competence, modeling sustainable practices, and the promotion of values in education.

Action competence.

A number of studies have described action competence as an effective method in teaching students about sustainable development (Jensen & Schnack, 1997; Barrett, 2006; Lundegard & Wickman, 2007). Action implies a set of intentional behaviours and competence implies being ready, willing, and able to inspire change (Jensen & Schnack, 1997). Rauch (2002) described action competence in the following way:

Action competence aims to promote pupils' readiness and abilities to concern themselves with environmental issues in a democratic manner, by developing their own criteria for decision-making and behaviour, and to prevent pupils from adopting patterns of thinking without reflection. (pp. 45)

Teacher's role in action competence is facilitating and encouraging students to develop the desire and skills to take positive action in promoting sustainable development.

Action competence goes beyond simply educating students to place their juice boxes in the correct container. That is an act with no opportunity for critical thinking on the students' part. For it to be deemed action competence students need to have the ability

to point out conflicts that underlie environmental problems before they can engage in critical action (Lundegard & Wickman, 2007). The crucial aspect of these actions is not only in the actions themselves but also in what students learn from participating in these actions and from deciding to take action in the first place. “Taking action is often not part of the schooling process” (Barrett, 2006, p. 503) but a necessary goal for Education for Sustainable Development.

Where Jensen and Schnack (1997) differ from other researchers is that they do not believe the answer to environmental problems lies within seeking quantitative changes, such as using less electricity. Qualitative changes must also come into play. This means that students must move beyond simply repeating actions that promote environmental consciousness and develop a more sophisticated framework of their thinking and acting. Therefore, the objective of environmental education “is to make students capable of envisioning alternative ways of development and to be able to participate in acting according to these objectives” (p. 472).

Action competence is directly linked to the empowerment of students (Jensen & Schnack, 1997). To effectively teach about sustainable development involves a sense of empowerment in students (Lundegard & Wickman, 2007). Students need to choose what elements of sustainability are important for their lives now and in the future. They need to take ownership of an action project and teachers need to support students in this endeavor.

Modeling sustainable practices.

Inconsistency between teaching and the practice or culture of schools confuses students (Higgs & McMillan, 2006). “Although advice is available to schools on incorporating sustainability into their curricula and on greening their facilities, there is limited concrete guidance on how to shape an entire school community that models sustainability through its systems and actions” (p. 40). This points to a significant gap in the literature begging the question how can teachers and schools be living models for sustainable development?

Some examples are provided from a qualitative study conducted by Higgs and McMillan (2006) on how teachers can model sustainable development: driving a hybrid, using other more energy efficient modes of transportation to and from work, eating

locally grown produce, decreasing consumerism, participating in community service projects, composting and recycling, reducing waste, conserving energy, fostering democratic classroom environments, using restorative conflict-resolution, and encouraging opinion sharing. According to Higgs and McMillan, when students observe their teachers engaging in such actions, students are more likely to adopt them. Through these actions teachers can work on making their school cultures supportive of sustainability regardless of what little influence they may have on the culture students are immersed in outside of school.

“If students learn through direct and continual observation that the people and institutions they respect engage in sustainable practices, rather than simply being told of their value, they may be more likely to adopt such behaviours” (Higgs & McMillan, 2006, p. 50). There needs to be consistency between what is suggested and what is enacted. A shortcoming of the article by Higgs and McMillan is that they do not extend this idea to the extent that other researchers do in that these activities are passive in nature.

Promoting values in education.

Some researchers have pointed to the connection between teaching about values and teaching about sustainable development. Stevenson (2007b) explains “contemporary environmental education...has the revolutionary purpose of transforming the values that underlie our decision making, from the present ones which aid and abet environmental (and human) degradation to those which support a sustainable planet in which all people live with human dignity” (p. 145). Smyth (2005) would agree with the hope that the emphasis on environmental awareness is left behind and values of responsibility, competence, and citizenship are discussed in terms of their ecological significance.

Hartsell (2006) defines a value as a “personal belief that an individual or society considers to be worthwhile” and a moral as “the particular code of conduct used to demonstrate that belief” (p. 266). The socialization process determines our value system.

The link between Education for Sustainable Development and values education has also been emphasized by UNESCO (2007):

ESD is 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. Education enables us to understand ourselves and others and our links with the wider natural and social environment, and this understanding serves as a durable basis for building respect. Along with a sense of justice, responsibility, exploration and dialogue, ESD aims to move us to adopting behaviours and practices which enable all to live a full life without being deprived of basics.

Motivations for Teaching About Sustainable Development.

Teaching and learning are both activities that are deeply rooted in personal values and beliefs (Hart, 2003). Teachers who are currently teaching about sustainable development do so for a number of reasons. In Hart's (2003) study he found the reasons include a love of nature and the outdoors, the influence of parents or teachers, concern for children entrusted in their care, teachers concerned for their own children, and some other personal values compel them to do so. "Environmental education rhetoric is becoming familiar to teachers and teacher educators only peripherally, and their own beliefs, motivation, and experience are what drives their practice. Perhaps environmental education exists as much of personal practical theory as anything else" (Hart, 2003, pp. 25-26).

Teachers often have their own theories about education, including environmental education. Teachers act as both subjects and agents of change as they make decisions that reflect their understanding of the practical and conceptual implications of their practice (Stevenson, 2007a). Teachers' practices draw from their beliefs, assumptions, and values in the world around them. Teachers create their own meaning of each new reform and each new theory that comes to the forefront in educational research.

Education as a Transformative Tool

Palmer and Birch (2003) explain that Education for Sustainable Development is fundamentally about encouraging individuals to change their behaviours, attitudes, and beliefs. Hart (2003) would agree, suggesting that what is needed is a critical pedagogy of the environment, to raise awareness, and bring about personal and social transformation. Hart sees this as the ultimate aim of Environmental Education.

Overcoming Obstacles

Although sustainability as an educational issue has become increasingly moved to the forefront in the international media, the cause of meetings, committees, and national addresses, it is largely absent from school curricula (Hart, 2003; Alsop et al., 2007). A trend exists in school divisions toward regulating, controlling, and standardizing the processes of teaching and learning. The curriculum, assessment, teaching pedagogy, teacher certification, and the training of teachers have all become increasingly standardized (Alsop et al.) instead of adapting our teaching and teacher training to meet the needs of a changing society and world.

A main obstacle for implementing Education for Sustainable Development is not in finding relevant materials, according to Hart (2003); rather it is in the planning, starting, and facilitating of unstructured projects in the classroom. This approach necessitates a certain relinquishing of control; something that some teachers may find challenging. Teachers may find this challenging because schooling is a very highly structured process, there are high demands for standardization and particular assessment strategies, and traditional views of teaching and learning are still well established. As an example of a way teachers would relinquish control would be when students are given an increased amount of responsibility and autonomy in action projects that the teacher must construct to relate to curricula.

Since Education for Sustainable Development is not an obvious part of any of our curricula, some teachers have difficulty fitting it in amongst the other demands on their time. Hart (2003) states it is difficult to “assign priority to environmental education among the cacophony of competing demands that characterizes the world of schooling today” (p. ix). According to Stevenson (2007a), most governments have focused on creating conditions in schools for students to be prepared to enter a global knowledge-based society as workers. There is an increased emphasis on accountability, standardized testing, and centrally defined curriculum which allows for increased standardization. Math, science, and literacy have taken centre stage, sidelining the arts and citizenship (Stevenson) which are not seen as warranting the same type of attention in today’s economic climate. The consequences are that the purposes of learning have been narrowed to allow only room for the processes and assessments which will seemingly

determine students' life chances at economic success rather than inspiring students to become responsible, compassionate stewards of the Earth.

According to Hartsell (2006), a typical curricular focus on sustainable development consists of concepts repeated at the most fundamental, elementary level. Also because of time constraints in the curriculum delivery, what transpires is a hurried presentation without opportunity for students to take ownership of a project and to take action.

Summers (2003) wonders if teachers have the time within the school year and with their work load to take on and enjoy new ideas. In this era of accountability, teachers' work has intensified (Alsop et al., 2007). I feel that Summers and Alsop et al. have a pessimistic view that time constraints and teacher workload could hinder teacher involvement in Education for Sustainable Development. For this study I was able to identify four teachers for whom Education for Sustainable Development is their focus. This raises the questions: What concepts are they teaching their students about sustainable development? Do the teachers teach within existing curricula or in extra-curricular activities? In what ways do these teachers address sustainable development concepts?

Summary

The volume of literature is increasing with respect to Education for Sustainable Development as national and international attention is increasingly placed on the topic. Humankind faces social justice issues that affect all nations: issues of global poverty, disease, and ecological decline (Alsop et al., 2007). Since humans share their environment with one another, they have a responsibility and obligation to take care of the environment for this generation and all future generations (Smyth, 2005). It is this intergenerational responsibility that brings to the forefront the educational system in teaching about sustainable development (Ballantyne et al., 1998). If our environment is an extension of ourselves, its health requires the same sort of care and attention that we would give our own. This obligation is to be shared and passed to the next generation through education.

There have been a variety of studies conducted and papers written on the various aspects to Education for Sustainable Development. I believe there to be a lack of literature in the area of teachers' perspectives on teaching about sustainable development. Therefore, my intention is to specifically determine what teachers are doing to integrate sustainable development into their classrooms and to explore what their motivations are and how these motivations impact their pedagogical decisions. Further, I will also explore what teachers' perceptions are on how engaging with sustainable development impacts student learning. I will also discover what the teacher participants perceive the impact is on their students.

Chapter Three: Methodology

Research Design

The purpose of this study was to explore the practice of selected Saskatchewan teachers who demonstrate efforts to teach about sustainable development in their classrooms. I determined practices that seemed to have a positive impact on student learning based on the teachers' perceptions. Saskatchewan Learning has not produced a Sustainable Development Curriculum, so I wondered what, if anything, was being taught to students? For those who have been identified as teaching about sustainable development:

1. In what ways do teachers integrate sustainable development into their teaching?
 - a) What concepts are they teaching their students about sustainable development?
 - b) Do the teachers teach within existing curricula or in extra-curricular activities?
2. In what ways do these teachers address sustainable development concepts?
3. In what ways do these teachers see these concepts impacting their students?
 - a) What are teachers doing that takes it beyond the delivery of information and uses sustainable development as a transformative tool?
4. Why are these teachers so committed to Education for Sustainable Development?
 - a) In what ways do these teachers incorporate sustainable development practices into their lives?
 - b) What motivates teachers to teach about sustainable development?

Gall et al. (2007) define qualitative research as investigating “complex social phenomena as they occur in a real-life context” (p. 118). Denzin and Lincoln (1994) suggest qualitative research involves an interdisciplinary approach that is multi-method in

its focus. Qualitative research enables investigation to enter into the human perspective. It gives access to a social reality that is continuously constructed by the participants in it. Qualitative research lends itself to gaining a more holistic perspective on humans' perceptions, beliefs, and ideals within the social context that they inhabit.

I chose interviews as the method for developing a perspective on the teachers' perceptions. Four teachers were chosen so that I could have in-depth conversations with them to gain a thorough understanding of their practices. Two of the teachers were high school teachers and two taught middle years students.

Sample Selection

Gall et al. (2007) suggested there should be a purposeful sampling for qualitative research. In purposeful sampling, participants are selected based on their specific qualities which make them an appropriate choice for the study. I interviewed four teachers, to gain four perspectives. Since sustainable development is not explicitly part of Saskatchewan curricula, each of these teachers had made personal choices to teach about sustainable development to their students without an external motivation.

It was not a simple process to find participants. Initially, I emailed contacts in three towns in Saskatchewan to try to uncover names of teachers who were teaching about sustainable development. This process did not yield any results. I then emailed one of the superintendents of my school division with the hope that members of the board office would know who was teaching about sustainable development in our division. I was emailed back a list of three names. I contacted these teachers but was none were interested in participating. After exhausting this avenue, I relied on the recommendations of other teachers. I sought out teachers who were actively teaching about sustainable development to their students and who felt they had a passion for educating about sustainable development.

The teacher participants were chosen based on whether they fit the criteria for my study. I found middle years and high school teachers who showed passion and conviction for sustainable development issues and were actively seeking out opportunities to teach and model these in their classrooms and schools. I sought out a mix of male and female teachers with a variety of teaching experiences. Four teacher participants were chosen to

provide diversity in data as to what teachers were doing in their classrooms in regards to teaching and modeling sustainable development. The four teachers were chosen because they were eager to participate in the study and they provided this study with diversity in terms of gender, years of experience, and grade levels. Choosing four teacher participants enabled me to gain a broader perspective on what is being taught and what impact the teaching is having on student learning.

Data Collection

Invitation to participate.

The primary sources of data for this study were a series of semi-structured interviews with the four teacher participants. After locating the names of teachers who were teaching about sustainable development, a request was made to them, through contact by email, inviting them to take part in this study (Appendix A). The four teachers who consented were informed in writing of the purposes of the study and gave their informed and written consent before the study began. Teachers were invited to use pseudonyms, but, in the end, only one teacher chose to use one. The other three teachers chose to have their real names used in the thesis. Consequently, greater care had to be taken to protect the identity of third parties. The positive aspect is that the schools and the school contexts could be described more fully.

Interviews.

Gall et al. (2007) describe semi-structured interviews as asking a number of structured questions and then probing with open-ended questions to obtain additional information. Semi-structured interviews allowed for more conversation. I designed a set of key questions (Appendix B) but allowed for a considerable amount of flexibility about how and when these issues were raised during the course of the interview. This allowed me to respond to the dynamics of individual conversations with participants. Semi-structured interviews were used so that respondents could express their views on sustainable development in their own terms. Interviews were audio-recorded. This practice ensured that everything said could be analyzed at a later time (Merriam, 1988).

These teacher participants were first sent a preliminary set of questions via email (Appendix C) and participants responded in a like manner. From these first responses I

tailored the interview questions to each participant. Participants were interviewed and audio taped on an individual basis at a location convenient to them. Two were conducted at the researcher's own school, one was at the participant's school, and one was at the participant's home. After these initial taped interviews, I transcribed the conversations, then looked for themes by analyzing what the four teacher participants said, using my research questions as a guide. Three of the teachers also granted me access to their classroom blogs, these were available just to their students, but provided another avenue to explore the teacher participants' teaching. After examining the transcripts, I identified further areas to discuss and explore with the participants. I also identified connections and themes between the conversations. Teacher participants were contacted subsequent times by email, phone, or in-person to expand or clarify what they said.

Field notes.

I also made post-interview notes in a field journal once each interview was complete. Merriam (1988) explains that this enables the researcher to "monitor the process of data collection as well as begin to analyze the information itself" (p. 82). Early data collection and analysis allowed me to direct data collection in the most productive manner. I looked for themes and patterns that emerged from the interviews. Mabry (2007) refers to emergent design as a necessity in case study research. The questions were adapted and improved upon as new insights and information were added throughout the process. This meant, if one of the teacher participants discussed something that seemed significant, I asked the other teacher participants their views about that topic. For example, in my first interview, Rod described the partnerships he acquired in the community which he had made use of throughout the many action projects his students undertook. This compelled me to ask the other three participants if they found community partnerships useful or necessary in gaining resources for their students' action projects. This was an example of emergent design.

Data Analysis and Interpretation

The process of data analysis enabled me to make sense of the data that were collected. Hatch (2002) discussed: "Analyzing means organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships,

develop explanations, make interpretations, mount critiques, or generate theories” (p. 148).

I analyzed the data as each interview was completed and transcribed. The analysis and interpretation of data required member checking to further ensure trustworthiness. Member checking involved participants reviewing the transcripts of their interviews to ensure their thoughts and feelings were accurately represented. Teachers were given this opportunity after each interview was transcribed.

During the interviews I made notes about topics or overarching ideas that seemed important for the participant or ones that I had not thought of prior to the interview. At each subsequent interview, I would then ask participants about those topics. After all initial interviews took place, I identified areas of commonality and explored those further with each participant. Once all interviews were completed, I examined those overarching ideas and compared them to my original research questions. I also used constant comparison analysis to analyze the conversations as I transcribed them to see what themes needed further exploration. This strategy involved taking the statements from the interviews, classifying them, and comparing them with the other interviews I conducted. I was then able to determine whether the individual interviews were similar or different in order to develop themes of the possible relationships among the data collected. An example of when constant comparison analysis was used was when asked about their motivations for teaching about sustainable development, two of the teacher participants mentioned that they were motivated by their sense of spirituality or relationship to God.

Given the body of literature reviewed, there were a few themes that I anticipated would come to light from the interviews. Themes are defined as “salient, characteristic features of a case” (Gall et al., 2007, p. 452). I suspected teachers would pinpoint an interest in teaching about values as a reason for why they began to teach about sustainable development. Both Hartsell (2006) and Stevenson (2007b) discussed the relationship between teaching values and environmental education. I also suspected teachers would be using an ‘action competence’ approach, even if they were not identifying it as such (Jensen & Schnack, 1997; Lundegard & Wickman, 2007; and Barrett, 2007). Further, I suspected that teachers would be modeling sustainable

development practices for their students through their actions within and outside the school (Higgs & McMillan, 2006).

Ethical Considerations

The risks to participants in this study were minimal and were further minimized by using procedures consistent with sound research methods. Permission was granted from the participating school boards. The University of Saskatchewan Behavioural Research Ethic Board approved the study in February 2008. Participants were informed in writing of the purposes of the study and gave their informed and written consent before the study began. Participants were informed and reminded that they could withdraw from the study at any time without penalty.

Participants were asked if they would like their real names used or if they would like a pseudonym used. After reading their transcripts and the final thesis document, three participants asked for their real names and schools to be used and one chose to use a pseudonym.

Participants viewed the transcripts of their interviews after each took place and had the opportunity to withdraw or change anything that was recorded without penalty or coercion of any kind. In other words, “participants have a stake in the accuracy of how they are presented and in whether case accounts are flattering or damning” (Mabry, 2007, p. 9). Participants were asked to sign a letter releasing the transcripts after they reviewed them. If any participants had withdrawn from the study, their transcripts and tape recordings would have been destroyed.

All data gathered during the course of the interviews will be held in a locked office in the College of Education at the University of Saskatchewan, for a period of five years after the completion of the study as mandated by University of Saskatchewan guidelines.

Timeline

Ethics approval was granted from the University of Saskatchewan in February 2008. Approval was granted from individual school boards in April 2008. The first interviews of teacher participants were conducted in June and July. In August and September, further data were collected from participants and transcripts were sent to

teacher participants for review and release. Once all interviews were completed and transcribed, further analysis took another four weeks. During that time, I was in contact with all four teacher participants when it was necessary to gain further information.

Summary

In summary, action was taken to protect the teacher participants and to comply with the University of Saskatchewan's ethical guidelines for research. Data were collected through a series of semi-structured interviews with four teacher participants. These teachers were selected based on whether they fit the criteria of actively teaching and modeling sustainable development practices in their classrooms and schools. Constant comparison analysis was used to analyze the taped semi-structured interviews with teachers. There is something to be gained by investigating others' moments of inspiration and success in teaching about sustainable development; those who are considering foraying into Education for Sustainable Development can recognize aspects of their own situations in the cases presented.

As a result of the conversations with teacher participants I hope to answer the following questions:

1. In what ways do teachers integrate sustainable development into their teaching?
 - a) What concepts are they teaching their students about sustainable development?
 - b) Do the teachers teach within existing curricula or in extra-curricular activities?
2. In what ways do these teachers address sustainable development concepts?
3. In what ways do these teachers see these concepts impacting their students?
 - a) What are teachers doing that takes it beyond the delivery of information and uses sustainable development as a transformative tool?
4. Why are these teachers so committed to Education for Sustainable Development?
 - a) In what ways do these teachers incorporate sustainable development practices into their lives?
 - b) What motivates teachers to teach about sustainable development?

Chapter Four: The Participants' Experiences in the Sustainable Development Classroom

This chapter describes the experience of each teacher as they taught about sustainable development. Each teacher's school is briefly described as well as my first impressions of meeting the teachers. The projects their students completed are outlined and the topics they covered in class are specified. Resources useful to the teachers are also identified.

Rod

Rod taught at St. Michael's Elementary School in Saskatoon. St. Michael's was a community school located in the inner city. This school had a very transient population of students as evidenced by the fact that Rod began his year with twenty-five grade six students and by June was down to thirteen. St. Michael's had a population of approximately two hundred students and twenty staff members.

Rod had worked in a sheet metal factory before deciding to return to university in his thirties. He majored in Social Studies and History in university but, as a teacher, took a keen interest in science. At the time of the interview he had taught for four years.

My first impression of Rod was that he possessed incredible enthusiasm for teaching, learning, life, and anything garden related. When he spoke, this was apparent in his tone of voice, body language, and other mannerisms. He leaned forward when he spoke and as he described his students and their classroom activities, his pace quickened and he began to use sweeping hand gestures. He spoke of his students with a fondness and respect that demonstrated his passion for both students and teaching. When asked how he kept up his level of enthusiasm and the long hours he continuously put in at school, especially with two children at home, he stated: "*I know what hard work is. This [teaching] is not hard work. This is not labour intensive. This is awesome.*" His attitude was infectious. As a result of our conversation I was inspired and rejuvenated to take my own forays into teaching about sustainable development further.

Rod began incorporating sustainable development topics at the beginning of the year.

We started the year with cleaning up our community. I took the students to the Mendel Art Gallery and picked up garbage that people had littered. We picked up almost ten kilograms of garbage in just a couple of hours. My students were shocked that there was so much garbage lying around the park.

This was his students' introduction to what was in store for them throughout the year. The grade six students became aware of the simple issue of the abundance of litter on the ground. Awareness was the first step in encouraging Rod's students to become agents of change in their community.

The physical arrangement of Rod's classroom did not appear as a typical grade six classroom. It could best be described as a giant horticulture experiment. Upon entering the room I first noticed two tables filled with green, leafy vegetation that reached the ceiling. A large, bright light shone on the plants below. Along the side counter were assorted potted plants of a variety of sizes and types. Another side table held large heads of lettuce growing underneath another hanging lamp. Three aquariums lined the side of the room, holding a Long Tail Grass Lizard, garter snake, and a salamander. He explained that the class goldfish had died recently. Along the back of the room there were also large plastic containers which held vermi-composts. The room smelled like a mixture of potting soil and live vegetation, not the usual aroma of a middle years classroom. What I also noticed was that there were only thirteen desks. He had started out with twenty-five students but due to the transient population at his school finished the year with only thirteen students. His small class size allowed room for his indoor garden.

The large table filled with plants was the first thing I asked about. I was surprised to see simply a large fluorescent light hung over the table holding the plants. Rod explained that vegetables do not require much heat but that they simply need a little light. The organization that assisted Rod in setting up his indoor vegetable garden was Little Green Thumbs. This organization provided him with the lights and materials necessary to start his garden. The strong lights were on a timer so that they would remain on from 6:00 AM to 6:00 PM each day. At the time of my visit, his students were attempting to grow

tomatoes, cucumbers, Red Scarlet beans, chili peppers, broccoli, and red peppers with varying results. Rod walked me around his indoor garden and explained how each plant grew. The tomatoes grew nicely. The Red Scarlet beans did not grow because there were no bugs to pollinate them. The light was too strong for the cucumbers so the majority of them shriveled up. The chili peppers, broccoli, and red peppers were doing nicely. Even the plants without any fruits or vegetables hanging from their branches were dark green and very leafy. Rod explained that the plants were growing very quickly and that they were planning on transplanting everything to the greenhouse in the fall. Two harvests of lettuce were grown in the classroom during spring. It took six weeks for each huge head to grow fully. Rod brought in some tomatoes from home with which his students made and ate a salad together. He referred to this sharing of their harvest as a celebration.

A second initiative in Rod's classroom was to begin a school compost. His school was considered a community school and therefore a food program was established to provide students with breakfast and lunch. Rod noticed that a lot of food was being thrown away. He came up with the idea that the food scraps should be utilized instead of wasted. Rod and his students constructed a wooded compost bin that was housed outside, along the side of the school. Each classroom was given a small pail that served as the collection area for food scraps and other compostable materials. Two of Rod's students went around near the end of each day to collect the compost from each classroom. These students would dump, scrape, and wash each compost pail before returning it to its original location. After each collection, the compost was either placed in vermi-compost bins in the classroom or in the larger compost bin behind the school. After the scraps were thrown into the outdoor bin, they would cover it with soil, leaves, or shredded paper so that the bin would not begin to smell. Rod saved the leaves from his own yard at home in the fall for this purpose.

The compost was used on the outdoor gardens that Rod and his students also built and cared for, a third major initiative. With Rod's assistance, his students built four raised beds in the schoolyard. They planted an assortment of vegetables: carrots, green peppers, chili peppers, tomatoes, and raspberries. His students cared for the garden during class time. Rod told his students that he would be at the garden every Wednesday between certain hours throughout the summer to weed and water the garden and invited them to

meet him there to help with weeding and watering. At the start of June he had six or seven students who expressed interest in assisting with the upkeep of the garden over the summer. Rod mentioned that the majority of his students do not have the luxury of going to the lake or on holidays with their families. This project provided them with the opportunity to stay in contact with their teacher and maintain the garden they had worked so hard to build during the year.

As a fourth major initiative, Rod built a school greenhouse with his students. He received a grant from Sask Energy which allowed him to buy the supplies. It was constructed of wood and heavy plastic. In the end, the greenhouse measured eight by ten feet. It was held together by nails and brackets and the students painted it white to match the raised beds. He also purchased hammers and a saw with the grant money. Many materials were donated from local businesses. Their greenhouse is not heated but he hoped that someone would donate the money or supplies in order to make the greenhouse an all-year educational tool. The greenhouse was not yet being fully utilized when I visited Rod's school but he had big plans for it the following year.

The next project on Rod's list was to acquire rain barrels so they could use the collected water for their greenhouse and gardens. He managed to discover where he could get some large barrels for free instead of paying the steep price of purchasing them commercially. He mentioned a number of times how teachers need to be resourceful since there is little leftover money in school budgets for new ventures.

When faced with the need to raise funds for an out-of-town school trip, Rod decided to take his passion and turn it into profit by manufacturing composts for other people. The vermi-composts, which were originally started through the Little Green Thumbs program, turned into a fundraiser for Rod's classroom's environmental efforts. His students put the composts together and attained over thirty dollars profit on each one. This helped defray the cost of the bus for their trip to the Saskatchewan Science Centre in Regina, Saskatchewan.

In terms of teaching about sustainable development, Rod focused on food production most often. A local organization called Little Green Thumbs visited his class to do a presentation on composts, where food comes from, and the transportation costs associated with food. By the end of the year, many of his students were talking about the

100 Mile Diet. The 100 mile diet is a concept encouraging people to attempt to eat food produced locally.

Rod's classroom activities also focus on the social justice aspect of sustainable development. He stumbled upon a website which was sponsored by the United Nations which allowed students to earn grains of rice which would then be donated to children in developing nations. Students would earn grains of rice by successfully answering groups of questions. His students became very excited about the prospect that they could assist other children their age.

Outside of food production and composting, Rod has also explored some other issues with his class. At the start of the year he took his students to the grounds around the Mendel Art Gallery and in a few hours they had picked up over ten kilograms of garbage. His classroom planted tulips in front of the school and his students were amazed at the beautiful flowers that were produced from the bulbs buried in the ground. They also started a letter writing campaign to Saskatoon's mayor urging the discontinuation of plastic bags in the city. Rod also hoped to curtail the use of disposable coffee cups by staff members. There was a popular coffee shop in close proximity to his school and he was shocked to see how many cups were being discarded on a daily basis. To illustrate how many disposable cups the staff was using, Rod and his students collected the staff's cups for two weeks and then built a full sized Christmas tree and entered it into the Western Development's Festival of Trees. They turned a pile of trash into a work of art.

For Rod, teaching about sustainable development occurs inside the bounds of his classroom and the curriculum. Students spend quite a lot of time building and planting. *"They are still learning but not in the traditional sense. I still follow the curriculum, believe it or not, I still do!"*

He has future plans to initiate an environmental club so that the whole school can become more involved in environmental efforts. An expansion of the courtyard where the greenhouse is located is also planned. His students will make more raised beds for flowers as well as vegetables. Rod plans to apply for another grant to build 'bleachers' type seating so teachers can take students out there for educational purposes. He was also planning on applying for an art grant to make a mural in the courtyard.

Rod used whatever resources he could find. Whenever he was in need of supplies or materials he would hunt them down or find a generous donor who believed in the projects Rod was initiating. For example, The Great Canadian Shoreline Cleanup provided the garbage bags for his students to use when they cleaned up the park around the Mendel Art Gallery. Saskatoon Health Region provided a two hundred dollar grant to build the hydroponics in the classroom. Little Green Thumbs, a program which was designed to bridge the disconnect between food students eat and the environment and to engage students in the natural world, provided Rod with six hundred dollars of equipment. This equipment allowed him and his students to grow vegetables in an indoor garden. A one thousand dollar grant provided the opportunity to purchase supplies for the construction of the greenhouse. Habitat for Humanity and a neighbourhood hardware store also donated supplies to aid in the greenhouse's construction.

The Internet provided valuable sources of information when Rod was confronted with a project, like building a greenhouse, he had never embarked on before. "*Google is my friend,*" he stated. In fact, that was how he came across the plans to build a greenhouse. He had never built anything before but the plans indicated that it was basically building a box and he figured that he and his students could handle such a simple shape.

Rod created a blog to connect with his students outside of class time. He posted numerous pictures of his students' involvement in building the greenhouse and outdoor gardens. Some of these pictures showed his grade six students with hammers, screwdrivers, and other tools, all working on the various building projects. The blog was mainly a picture gallery of the environmental initiatives in which his class was involved.

In summary, Rod took extraordinary efforts to actively engage his middle years students in sustainable development projects. While his focus was mainly on food production, supply, and distribution he also brought in additional environmental and social justice topics. Rod's passion and enthusiasm for students and the environment led him to the innovation evident in his classroom activities: indoor gardens, animals, school compost, outdoor gardens, greenhouse, rain barrels, and vermi-composts.

Kevin

Kevin taught high school chemistry and physics at Bishop James Mahoney High School in Saskatoon. Bishop James Mahoney High School was located in the north end of the city and had a stable population of students. The school was located in a middle class neighbourhood. At the time of the interview, there were approximately seven hundred students enrolled in the school with approximately eighty-five staff members.

Kevin, like Rod, had become a teacher after an earlier career; in Kevin's case, he had been systems analyst at a satellite company. His move into teaching was sparked by wanting to make a larger impact on the world around him; teaching was the natural choice. At the time of our initial interview, he had been teaching for two years. His subject specialties were chemistry and physics.

My first impression of Kevin was that he was passionate about including sustainable development topics into each of his classes. He provided students with the opportunity to take on a sustainability related action project at the school for credit in his class. The assignment was to include some type of project or action his students would take on that would contribute to a more sustainable lifestyle. The defining characteristic of these action projects was that they were student-led.

The way that I run the projects is that the students do all the leg work. I don't talk to the principal. They do all the planning. I ask them who they will need to talk to and what they will say. They figure out where to go and off they go. If there is money involved in the project, they have to work that out.

This type of student engagement was indicative of Kevin's teaching style. Students were given a lot of choice so they could choose a project meaningful to them. Kevin's role was that of a facilitator and guide. He insisted on checkpoints throughout the term to ensure progress was continually made. In his physics and chemistry classes the sustainability action projects had to relate to the subject matter of the class in some way.

One of the action projects his students undertook was the creation of a Sustainability Club, with Kevin being the staff leader. A Social Justice Club had already been established at the school and many of the same students were involved in both clubs; however, the students were adamant that the two clubs be kept separate. The

Sustainability Club consisted of mostly grade eleven and twelve students who would meet to discuss and plan sustainability initiatives. The first project the Sustainability Club took on was to find an alternative to the disposable slurpee cups used at the convenience stores across the street from the school. Their plan was to acquire some type of reusable slurpee cup that was branded with the name of the high school and would procure a discounted slurpee price at the local convenience store. Due to an ever-changing management team at the store, the students were dismissed repeatedly. It took months before they were able to meet with a manager and create the system of using reusable cups. Students applied for a grant from Sask Energy to defray the initial cost of the cups. They sold about half of the two hundred cups originally purchased and the money was used to pay for plastics and paper recycling for the year, which was the club's second project.

The second project the Sustainability Club undertook was to encourage plastic recycling at the school. The only plastic recycling program was of refundable beverage containers, which was conducted by the Student Representative Government. Kevin's students checked with other high schools and found that they were also limited in their recycling programs. Kevin believed that teaching students to be good citizens is something that is not emphasized in high schools. *"It goes along with my philosophy that we just give up with the whole citizenship education when we get to the bigger high schools. We drop all those things and we just learn/teach our subject areas"*. In order to overcome the shortage of recycling options the students enlisted the services of Saskatoon Curbside Recycling. Through this program the school was provided with a large plastic recycling bin for items such as yogurt containers, plastic bags, and other recyclable plastics.

The Sustainability Club's third project was to plant live vegetation in the school in the upper commons area overlooking the cafeteria. Once the parent council heard about the plan, they suggested using plastic plants but after speaking to the students, they offered to donate money to plant live plants. Some of the plants were planted from seed and some were transplanted from other plants. The results of this were very positive. Kevin and his students received many compliments about how the plants add to the décor

of the commons area. He had a select group of students who really enjoyed watering and caring for the plants during the school year. Kevin watered the plants over the summer.

Five members of the Sustainability Club were involved in the annual Environthon hosted by the Saskatchewan River Basin. Five binders were delivered to the school in topics such as soil, wildlife, and water. The binders consisted of a huge amount of information the students were responsible to learn. The students went to Cypress Hills for a field test of their knowledge and were led through a variety of exercises and activities in the bush. The group of students were then presented with an environmental situation and given three hours to prepare a presentation regarding the problem and proposed solutions. This year, Kevin's school won. The students progressed to the next level of competition that was held in Arizona in July. They placed seventeenth out of fifty-four teams in Arizona. Kevin had a great time and the students said it was a very good experience.

The Sustainability Club was an excellent initiative led by a group of committed students, yet it was only one of the examples of student-led action projects undertaken by Kevin's students. Another example of a student-led action project was the suggestion to introduce gym strip made from environmentally friendly materials and produced using socially just practices. Each year a large number of gym clothes bearing the school's name and logo were purchased. Choosing environmentally friendly cotton would have a large ecological impact in the first year alone. The students who initiated this project made a proposal to the head of the physical education department and were asked to conduct some tests on the bamboo shirts and then report their findings. These tests involved examining how the shirts would hold up to repeated washing and use. The results of the tests were encouraging and the results went to the head of the department for consideration of the purchase of bamboo shirts for the mandatory gym strip.

Another good example of a sustainability action project was a student conducted an educational campaign at the school regarding energy conservation. She convinced a hardware store to donate fifty energy efficient light bulbs and raffled off a large environmental package.

The sustainability projects did not always work out as desired by Kevin. Some students chose to do a superficial job on the project and, as with any class, there were

students who completed the very minimum amount of work possible. The superficial nature of some of the projects became problematic. He shared:

I had a student who said that they replaced their furnace and their windows as their project. They had pictures of the new furnace...the first time through I didn't require milestone assignments. Now they have to show they are making progress each month. There's more evidence now. Students would say things like that they took bottles in to get recycled and then bought plants. There is no way for me to verify that. It's just goofy. It's pointless.

Kevin did not feel that these superficial projects were acceptable because the student did not actually undertake any type of affirmative action. The institution of milestone assignments ensured that there was sufficient evidence of the work students completed as the term progressed.

Kevin found that the best action projects were conducted when a sustainability project was mandatory for his courses. Initially, these action projects were worth ten per cent of students' final grade. However, even with this weighting of marks, he was still receiving many projects which lacked planning and effort. These projects were monopolizing his time when he would rather be supporting those students who were committed to their sustainability project. After the first semester he added a number of other project options. They had the choice to read a non-fiction science book, review some articles, take a personal field trip, or complete the sustainability action project. He decided to give them other options that would focus on scientific literacy.

Kevin approached the administrators of his school with a proposal to begin a new course, Physemistry. This would involve a two-hour block of time in the afternoon and students would get credit for both grade eleven chemistry and grade eleven physics. This course will allow Kevin to introduce sustainability as a theme instead of as an isolated topic. The class would allow for the integration and merging of concepts, less overlap between the classes, and larger time blocks for lab activities. The theme of the combined class would be alternative fuel and energy technologies.

In addition to the sustainability projects and the development of the new course, Kevin ensured that his courses included a lot of discussion on sustainability throughout

each term. Before he ever introduced his students to the sustainability action project he spent several classes on an introduction to sustainable development which may or may not have related directly to chemistry or physics. In this section of his courses, his class would discuss such topics as the energy crisis, global warming, and other environmental concerns.

For Kevin, teaching about sustainable development occurs both as a curricular and extra-curricular activity. Although Kevin indicated that the grade ten science curriculum was the most obvious fit for a sustainable development unit, Kevin passionately felt that sustainability should be integrated into all core science classes so that all students are exposed to it, not simply those who indicated an interest in the subject.

While I did not visit Kevin in his classroom he described his classroom set up the following way:

I have tables in rows some days and in groups/pods some days. I also tend to make use of the commons area for labs as well as other out of classroom experiences ... Labs can be done right on the tables. It triples my lab space. I wouldn't give that up. In fact I had the opportunity to move into a class with more windows and I chose not to as I would have had to use desks due to the physical arrangement and the requirement of having to house 35 students and I said no.

Kevin had his students engaged in labs and other hands-on activities on a regular basis and thus the use of desks in rows did not typically suit his teaching style.

Like Rod, Kevin searched for the resources he would incorporate into his classroom activities. He located a variety of films on such topics as energy, sustainability, and global warming. Kevin also mentioned many resources he located on the Internet that he could utilize in his classroom. His class attended the Jane Goodall Roots and Shoots Workshop in Saskatoon. This program was about encouraging youth to make positive changes in their communities and in the world. There was also a strong environmental focus to this program, especially concerning animals and the protection of animal habitats. Kevin also applied for a Sask Energy grant that was used for his students' environmental initiatives.

Kevin also created a blog that he uses to connect with his students outside of class time. This blog contains course outlines, reading lists, due dates, and assignment guidelines for his chemistry and physics students. He provided numerous links for students who were interested in learning more about the effects of fast food and factory farming, urban sprawl, travel and transportation, sustainable living, and climate change. There were also many links to newspaper, magazine, and journal articles about a wide variety of sustainable development topics. The amount of information on Kevin's blog was overwhelming. It provided students with access to a solid background on sustainability and many excellent ideas for their action projects.

In summary, Kevin undertook extraordinary efforts to actively engage his high school chemistry and physics students in sustainable development action projects. In Kevin's opinion, the projects had a positive impact on his students' attitudes and behaviours and on the school community. Kevin's passion and enthusiasm for his students and for teaching about sustainability led him to the innovation evident in his classroom projects.

Curtis

Curtis taught grade seven at St. Angela Elementary School which was located near Kevin's school, Bishop Mahoney High School, in the north end of Saskatoon. St. Angela had approximately two hundred ten students and twenty staff members. This school was faced with a decreasing student population each year, as it was located in an aging area of the city. However, the clientele was still middle class, similar to that of the neighbouring high school.

At the time of the study, Curtis had taught for five years, all at the middle years level. His passion and commitment to his students was evident from the moment he started talking about his students. As we began the interview, he asked if he could first quickly show me something. He connected his laptop to YouTube and we watched a video his students had made about racism. This video began as a class assignment but then was entered into a national contest. It was clear that Curtis was proud of his students' accomplishments.

Curtis mentioned that he taught in the Catholic school system and thus he based his program and environmental initiatives on Gospel values. *“We talk a lot about how we can glorify and worship God by protecting the Earth.”* Curtis’ faith precipitated the introduction of sustainable development topics into his classroom. He felt a strong desire to protect the natural environment around him and wanted to instill that desire in his students.

While Curtis forayed into teaching about the environment from his first year teaching, he became more committed to the cause through his school’s involvement in a program called Destination Conservation Saskatchewan. This was an environmental education program designed to reduce the amount of energy, water, and waste in the school. Curtis used his involvement to begin a Destination Conservation Club right in his own classroom. At the start of the program the students evaluated the amount of waste generated and the amounts of water and energy used. The students then went ahead and planned a number of campaigns to help make their school more environmentally friendly.

The first step in creating a more environmentally friendly school was in reducing the amount of waste they produced. They purchased recycle bins for each classroom to hold seven types of recyclables. The first bin was for paper; this also included construction paper, newspaper, and boxboard. The second bin was for glass, metal, plastic, plastic wrap, and milk cartons. The third bin was for refundable beverage containers. The fourth bin was for cardboard. The fifth was for recyclable electronics such as computer parts. The sixth for ink cartridges. The last bin was for compost, which was a future goal for the school. The students hoped to reduce the waste generated at school by 70%. A key role in this was enlisting the services of Saskatoon Curbside Recycling, the same service utilized by Kevin’s school.

As a result of the Destination Conservation Club’s efforts, Curtis’ school won a provincial waste minimization award. The following was part of their application for the award:

Students evaluated the school’s waste production then began implementing programs and campaigns to decrease the rate at which the school used resources. The students completed a number of audits throughout the school monitoring the waste production. The results were

shocking and disturbing to say the least. They failed almost every test, illustrating that St. Angela School was not very environmentally friendly. They completed garbage audits by collecting garbage from classes, dumped it out in the classroom, and inspected it. A great deal of recyclables was being thrown out. They also did a garbage dumpster audit by calculating how much waste was picked up each week and how much was produced each year. It turned out that 174 cubic metres of waste were produced per year. They calculated that since the school opened in 1987 they have produced enough garbage to fill up probably every square metre of the entire school.

This award ignited his students' interest in becoming even more involved in the Destination Conservation Club and in creating a more environmentally friendly school.

The students in Curtis' class created a hallway dedicated to conservation so the student body, as well as the community, could see the initiatives Curtis' class were undertaking. This hallway was where all recycling programs and conservation displays were set up. When I visited the school, I saw posters, notices, and information regarding what items could be recycled at the school. Examples of boxboard, plastic packaging, and other recyclable materials were stapled to the bulletin boards. The displays in this hallway provided information and notices about the projects the Destination Conservation Club undertook.

As part of the Destination Conservation Saskatchewan program, Curtis was supported in several environmental campaigns. One of these was a school wide campaign where students and staff were encouraged to turn the lights out when they left a room. Curtis' students tracked how many classes remembered to turn the lights out in empty rooms and provided prizes for classes who were making an effort.

The Destination Conservation Club also encouraged students to bring lunches that did not have items that ended up in the landfill. Reusable plastic containers and recyclable containers were shown to students in all classes as an alternative to excess packaging and disposable containers. Through out the year students were reminded and encouraged to bring lunches to school that produced less waste.

The students at Curtis' school were not the only members of the school community who were encouraged to produce less waste. Teachers in upper grades were encouraged to utilize classroom blogs to decrease the number of newsletters sent home to parents each month. Smartboard technology was introduced into the school to decrease the amount of photocopying teachers would need to do. This technology also allowed teachers to use a variety of Internet resources and videos right in their classrooms. Staff members also reuse envelopes, bags, file folders, and many other items. Curtis felt that environmentally friendly actions needed to be consistently modeled so that students would come to see those actions as the way things were routinely done.

Curtis also began a Curbside Recycling fundraiser at his school. Curbside was an independent organization providing Saskatoon with an effective recycling program. Curbside reinvests a portion of any profits into the community. For every family that signed up for Saskatoon Curbside Recycling Curtis' school received a ten dollar donation that was put toward the school community's recycling efforts.

The Destination Conservation Program was not the only initiative Curtis began at his school. Recently he had started to emphasize the social justice side of Education for Sustainable Development. The production of the video on racism was one example of this emphasis. *"Sustainability is really a social justice issue. HIV/AIDS, poverty, illiteracy, infanticide, environmental sustainability, it's definitely tied together"*. The national video-making contest his students entered is an example of one of the ways he incorporated a social justice issue, racism, with this classroom activities.

Curtis involved his students in outdoor educational pursuits as much as possible. Field trips to nearby natural centres, as well as activities such as cross-country skiing were regularly part of his class' schedule. He has applied for and received several grants for outdoor educational pursuits for his classroom. Curtis viewed these pursuits as instrumental in creating a respect for the environment through enjoyment of that environment.

For Curtis, teaching about the environment is both a curricular and extra-curricular activity. Many of the Destination Conservation projects were occurring with the students in his class during class time. He also established a Destination Club so that

environmental initiatives could involve the whole school community in a more meaningful way.

Curtis' main resource was Destination Conservation Saskatchewan, an environmental education program designed to decrease energy use, water consumption, and waste production in schools. The Saskatchewan Environmental Society along with Sask Energy, and Sask Power sponsored this program. Curtis also received grants from Saskatchewan Outdoor Environmental Education Association. He was provided with resources from the University of Saskatchewan centre for Continuing and Distance Education. Curtis' class visited the Ed and May Scissions Centre and Blackstrap Environmental Centre. Conservation areas such as the ones at Beaver Creek and Cranberry Flats were also sites for class field trips.

Like Rod and Kevin, Curtis also maintained a class blog that mainly provided parents with information on homework, due dates, class trips, and other announcements. On his blog there was a link to information regarding the work his students had completed as part of the Destination Conservation program. There was also a list of reasons why those in their school community should recycle. Much of the information on Curtis' blog related back to God and humanity's responsibility to care for the Earth.

In summary, Curtis' passion and excitement for teaching about sustainable development was immediately apparent at the time of our interview. He guided his students through projects that would build confidence and awareness for sustainability issues while capturing their interest in the medium and in the message.

Sharon

Sharon, who chose to use a pseudonym, worked at a large high school in Saskatoon. At the time of the interview her school had over one thousand students and over one hundred staff and support staff.

I met with Sharon at her home which was located outside of the city. It was instantly obvious that being outside, being in nature, was where Sharon felt most at home. Her property felt like a retreat from busy city life. The view from her deck was of trees, shrubs, and flowers; another dwelling was not in sight. Sharon exuded a tangible

feeling of tranquility and calm. She spoke softly but with conviction as she told me about her classes and her perspective on teaching about sustainable development.

At the time of our interview Sharon had been working in an educational setting for over fifteen years. Sharon was passionate about teaching peace and justice to her high school students. Peace and justice became the basis for much of the grade eleven Christian Ethics course at her school. Recently, she created a course for grade eleven students on social justice. Sharon preferred the term peace and justice and thus that was the language she used during our conversations.

Sharon realized that, in order for it to be truly meaningful, the learning centre would need to be within the larger community outside of the school. That required a larger block of time than the one-hour periods in high school. She began to search for a way to integrate the Grade 11 Christian Ethics course, which would be the social justice course, with another subject area that would provide a meaningful integration. She found that subject area in the social science. The reason for double crediting the course was that experiential learning was paramount in the learning. *Students engaged in learning need to be engaged with their heart as well as their head. This means I had to get them out of the classroom.*

One experience her students had was through a partnership with an inner city elementary school. Her students formed relationships with the grade three and four students at the school. The purpose of the relationship was to be of some assistance in the young students' literacy skills, but of course the real meaning of the relationship lay in the relationship itself.

Other experiences and field trips could be categorized in two ways. Some were linked to social justice agencies at work in the city and others involved environmental awareness and appreciation. As an example of the first type, the students visited Egadz (a community based organization that attempts to provide a safe haven for street kids and help them with self-esteem and work skills), the Sexual Assault center, and the Correctional Centre. The second type of excursion was to outdoor locations at retreat centres and a visit to the Friendly Forest, in the boreal forest, north of Prince Albert.

The year that Sharon took the students into the Friendly Forest and Christopher Lake was a highlight experience for them all. Sharon knew a retired Biology teacher and

this man took her students into the forest in small groups and to teach them about the wonders of the Boreal forest. This man was very knowledgeable about Boreal botany and wildlife since he had spent most of his life living near the Boreal forest. He also incorporated First Nations perspectives into what he taught about and the students participated in a smudge ceremony. A second resource person on this outing was an artist who was deeply committed to the connection between art and nature. Sharon desired to increase students' aesthetic awareness of the environment.

When Sharon involved her students in the community and introduced them to community resource people, much of the class time was spent in their classroom. Similarly to Kevin, the set up of her classroom was structured to facilitate discussion and further experiential learning. An area at the back of the room held a circle of couches and chairs, along with a prayer table. The front area of the classroom housed a projector, screen and desks that, she was careful to point out, were not in rows. Students would move back and forth between "the circle" and desks throughout the class. When they entered into a discussion they would gather in "the circle" and when they were writing in the journals or exploring a concept they would be in the desks. Both she and Kevin designed the set up of their classrooms to suit their teaching styles.

Power and how power works, at both individual and societal levels, was a recurring discussion point for many topics. As an example, in a discussion on how an addiction develops, naturally a discussion of power and powerlessness and empowerment needs to occur. These ideas were linked to addictions and the obstacles an addicted person must overcome to conquer their addictions. Sharon also brought in the story of Exodus:

I have to start with something they can identify with. I want to discuss the power and powerlessness of addictions. I also want to discuss how empowerment works, for coming out of an addiction. How will I do that? So I had to come up with a bridge... what can they identify with? For example, I ask them to write in their journal, as I lead them through a few questions. I want them to think about a time when they were trapped. How do I get them to think about that? I ask: What does it mean to exit? Then I would ask: Why did you have to exit something? What would have

happened if you stayed? What were you feeling? For many of them it was at a party and they knew they had to get out because something would happen if they stayed. So then they are there; they understand that. That's like the feeling of an addict; like the feeling of the oppressed. They know they are in something that is bigger than them, and they need to escape, but getting out is going to be really tough. Then we go right back to scripture and explain that this is what happened during the Exodus and we look at that whole concept. The whole course is set up like that. It's a mingling between psychology and ethics but really it's asking what it means to be human in relationship with God. Both scripture and psychology have a lot to offer together.

This idea of being trapped and having to exit was then related to the struggle of an addict overcoming the withdrawal and going through the recovery period of their disease. It was an interesting blend of the psychology, social justice, and Christian Ethics.

Power and powerlessness were also related more specifically to social justice issues with discussions surrounding First Nations people being oppressed by the colonizers. Sharon described the social justice component as asking the question: what's the right thing for humankind? Students in the class examine how oppression and addiction merge and how power and empowerment relate to an understanding of human psychology.

The course was designed to have a high degree of ongoing assessment, but not in the way of tests and quizzes. It was more "*assessment through engagement*". Students in the social justice course took one test at the beginning of the term. The course started with a social science unit that underlay the rest of the course. Many of the rest of the marks allocated were for engagement, journaling, and a critical thinking portfolio assignment. As well there were smaller critical analysis pieces throughout many of the concept areas. The portfolio assignment included elements from the seven themes of Catholic social justice teaching. Students examined each theme and related them to what they learned during the course. The portfolio assignment was to select twenty-one articles from various current resources, (three for each theme) and to do a critical analysis of each article, demonstrating their understanding of these themes present in the world.

Sharon had always been interested in peace and justice and sustainable development and it was a natural extension for her to bring those interests into her classroom. Sharon had also been involved with Development and Peace, a Catholic organization aimed at promoting international peace and justice.

In summary, Sharon emphasized that the course she developed focused on students experiencing and engaging with social justice which includes environmental issues in a meaningful way. This necessitated taking students out of the classroom and into the community and beyond in the hope of broadening their perspectives and increasing their sense of responsibility in the world.

Chapter Five: Discussion and Analysis of Themes

This chapter presents the interpretation of the conversations that resulted after all interviews with the teacher participants were completed. The creation of the themes came about in three stages. First, as I conducted the semi-structured interviews, I made notes of concepts that seemed important to each participant's experience in teaching about sustainable development. Second, after all interviews were completed and transcribed, I coded each statement, according to what I discovered to be reoccurring concepts. Third, in further interviews, I asked follow-up questions to uncover additional data from each participant relating to the themes and to confirm previous understandings.

Once all interviews were completed and transcribed, the original research questions were reorganized to relate to four themes that arose from the conversations. Two additional themes emerged which were not related to any of the original research question. These themes related to teachers' spirituality and with overcoming obstacles in teaching about sustainable development.

The following illustrates how the research questions were reorganized to correspond with the themes:

I. Theme One: Motivations

Why are these teachers so committed to Education for Sustainable Development?

What motivates teachers to teach about sustainable development?

II. Theme Two: Teaching Style

In what ways do these teachers address sustainable development concepts?

What concepts are they teaching their students about sustainable development?

III. Theme Three: Impact on Student Learning

In what ways do these teachers see these concepts impacting their students?

What are teachers doing that takes it beyond the delivery of information and uses sustainable development as a transformative tool?

IV. Theme Four: Modeling

In what ways do these teachers incorporate sustainable development practices into their lives?

V. Theme Five: Spirituality and Values

VI. Theme Six: Overcoming Obstacles and Finding Acceptance

Each theme will be examined in terms of the conversations with teacher participants and in relation to the literature.

I. Theme One: Motivations

Teacher identity and family background.

All four participants mentioned their upbringing or current family life as a reason for their interest in teaching about sustainable development.

Rod spoke of growing up in Chile and the impact his father's fight against social injustices in their community had on him. His father was a political activist who advocated exposing the inequalities of the poor in their country. His father taught him about the difference between needs and wants and the importance of helping all those in need. Rod felt that his family was fortunate to be able to leave Chile and start a new life in Saskatchewan. This move involved a shift as Rod's family adjusted to living in a very different society than they knew in Chile. They found their new surroundings to be remarkably different and entrenched in consumerism. The dichotomy of living in Chile, exposed to extreme poverty and political unrest and then moving to Saskatchewan helped form Rod's interest and passion for sustainable development as he was aware of the inequalities in society.

Kevin mentioned that having his own children instigated his interest in teaching about sustainable development. His hope for his offspring's future was that there would be natural environments left in the world for them to enjoy. He attributed the many outdoor activities his family embarked on, especially camping, as further fueling his interest in sustainability. Kevin always loved being outdoors. He valued those experiences as a child and therefore hoped to recreate those experiences with his own family.

Curtis' family built a cabin on an isolated northern Saskatchewan island when he was in elementary school. His father was first a biologist, then a teacher, and he taught

his three sons about the wildlife and vegetation in the area surrounding their cabin. Curtis' family prioritized spending time outdoors and learning about nature and the environment. As a result of the location of their summertime retreat, Curtis' family spent a considerable amount of time hunting, fishing, hiking, and camping. As a child Curtis was also involved with Scouts Canada, an organization with the aim of fostering individuals who would create positive change in the world.

Sharon was also motivated to teach about sustainable development due to her upbringing and the influence of her family. She grew up on a farm and attributed this to her development of a deep connection and love for the Earth. She also attributed her upbringing in a rural area to an awareness and appreciation of the changes in the land and in the season; as well as the humility that accompanied those changes. Sharon grew up in a large, close-knit family with a strong faith. Their faith rooted them in values such as respecting themselves, others, and the Earth. These values helped form one of her most fundamental beliefs about education, which she also attributed to her upbringing, that it should come from direct experience with the world.

Other motivations.

Besides growing up in families with a strong sense of connection and commitment to the Earth, the participants had other motivations for teaching about sustainable development.

Rod had a passion for science and sustainability and he felt this passion fit well with the middle years curriculum. It was a natural extension to incorporate sustainable development into his teaching. Rod's interest in sustainability was such a fundamental part of his identity, it left him feeling compelled to incorporate it into his pedagogical decisions. Rod's passion was evident throughout our conversations and he continually related what he was teaching to his own interest in sustainable development. When he started teaching he found: *"Everything that I am passionate about fits right into the curriculum. Things like resources, the difference between needs and wants, and the environment, all fit into sustainable development."* He was further motivated by his students' response to his passion. Many of his students were faced with challenges and hardships in their lives and this inspired Rod to persist as he witnessed his students seeing

themselves as agents of positive change making contributions to the school and to the community.

Kevin shared Rod's passion for sustainability and his interest in sustainability, like Rod, also sparked a career change. He wished for a career that would allow him to have a significant impact on encouraging sustainable lifestyles in others. He was also motivated by a keen interest in both science and in sustainability. As he recounted:

It is THE scientific question of the time and I would argue that it is THE question of our time – it influences all our other problems. I like science and want it to be taught with a purpose. Students want to be interested in scientific issues that are relevant. This is the most relevant issue to them. They are passionate about it and are desperately seeking out information and solution to the problems of climate change. Merging the purpose of science to their most current concern is my goal.

Kevin believed that sustainable development concepts should not be introduced as isolated curricular units; rather he was adamant that it should infiltrate all areas of the curricula. This view motivated him to make sustainable development the foundation of each class he taught.

Another motivation for teaching about sustainable development was cited by Curtis. He was motivated by his faith and to the spiritual connection he felt with the Earth.

About 6 years ago I came to the following realization: Over the past century the world in which we live has drastically changed. As a result of this transformation, we as human beings have lost contact with our natural world. Modern technology and urban living have destroyed our range of somatic perception. We have misplaced our roots and our past, and replaced it with modern conveniences and a clouded understanding of what it means to live on this planet. Through not living with a thought to sustainability we have basically trashed our world. Over the past few years I have been on a journey to rediscover this sense of awareness that has been lost. I have discovered the human interdependency and a connectedness to the environment that is needed to be a fully functional

holistic human being. I have realized the sacredness of creation and how essential my relationship with this planet is. Spending time in the outdoors and living [an environmentally] sustainable [lifestyle] helps me to regain balance, enrich my life, and refresh my mind.

Curtis' relationship with God motivated him to teach about the environment. In his own life, Curtis made lifestyle choices that showed his respect for the Earth out of respect for the Creator.

Like Curtis, Sharon's motivation was tied to her own spirituality. Sharon attributed her greatest motivation to her belief about humanity's relationship with God, with the Earth, and with one another.

What motivates me is my deepest belief about what it means to be human. It's a spiritual thing. I don't think I could ever teach social justice, although I admire those who do, outside of my own deepest faith because it is so tied in to what I believe about who we are in relation to God.

For Sharon, all education was about relationships. Relationships between people, content, the Earth, and God. She attributed her own interest in sustainable development to her belief that humans were created to be in these relationships. *"In our very nature, we are relational with God and with the Earth and with one another. That's what matters in education and in life. Education should be teaching about what matters in life."* To teach about sustainable development was to teach about respecting those relationships. This became the focus of her teaching and really became part of her life philosophy as well.

Discussion of theme one.

All four teacher participants indicated the influence of their upbringing and families as instigating their interest in sustainable development. For each participant, part of this motivation was a love of the outdoors and a close tie to the Earth. Hart (2003) found similar motivations in the teachers in his study. His participants' motivations were found to be a love of nature and the outdoors, the influence of parents or other family members, and deeply held personal values. The conversations with the four teachers confirmed Hart's findings as many of these reasons were manifested in the teacher participants' responses. Rod, Curtis, and Sharon specifically mentioned their family of origin as providing the foundation for a love of nature and the outdoors. All teacher

participants mentioned that spending time outdoors was something that they valued throughout their lives. Curtis and Sharon spoke about family time spent at their families' cabin and farm, respectively. These two locales are very different from one another but both instilled a love of nature. For Curtis, this love was of isolated forest and clear northern lakes. For Sharon, this love was of open spaces and sparse populations.

Rod and Kevin shared a similar motivation for teaching about sustainable development in their classrooms. Both teachers possessed a passion for sustainability that greatly impacted their life choices. Similarly, Curtis and Sharon also shared a motivation for teaching about sustainable development. For them, their motivation was tied to their spirituality.

Stevenson (2007a) wrote of the connection between what teachers value and what they teach. Hart (2003) agreed that teachers' motivations and beliefs enlivened their practice. This was evident in Rod and Kevin's motivations. Both these teachers were deeply committed to sustainable development; so much so that they each moved into teaching later in life in order to promote sustainability to students. Similarly, Curtis and Sharon were motivated by their deep commitment and understanding of their relationships with God. For both pairs of teachers their personally held beliefs influenced the message in their teaching. The idea of spirituality as a motivation was not a part of my original research questions or literature review. This will be explored further in theme five.

With urban centers growing rapidly and the depopulation of rural areas in Saskatchewan, I wonder if young people today are exposed to natural environments with the regularity of previous generations. I view exposure and involvement in natural settings as a precursor for wanting to preserve the Earth. How could someone feel a desire to preserve something when they never had the opportunity to experience its beauty? This question in itself could be the basis for another study. If our students are not exposed to natural environments, could they have an authentic interest in sustainability?

II. Theme Two: Teaching Style

Philosophy on teaching and student engagement.

In addition to teaching about sustainable development, all four teacher participants were passionate teachers who cared deeply about teaching, their students, and the environment. These teachers were reflective practitioners as they reflected on their practice and adapted their methods to meet the needs and interest of students. They all believed that how students engaged in the learning was paramount in the impact on students' lives.

A good example of this view on student engagement was seen in Rod's approach in making the work as engaging as possible.

I try and make it as fun as possible. Because the projects are hands-on they [the students] are eager to participate. However, there are times when students need a little nudge and I just tell them that this project is part of their mark and that it could be worse, they could write notes instead.

Rod supported a hands-on philosophy in all subject areas. He wanted his students to experience ideas and activities that they would otherwise not have, while learning what was required in the provincial curriculum. Rod's approach to teaching was with the hope of creating positive memories. He explained that the activities students remembered were the ones that were out of the ordinary. For example, building the greenhouse, while learning how to use a hammer and a screwdriver, were memories that he hoped his students would have for the rest of their lives.

Kevin was convinced that the work had to be meaningful to students for them to be fully engaged in the learning. He found that when students chose their own projects, they were encouraged to take on larger initiatives than if their teacher had simply assigned each student a topic. Students chose projects that had meaning in their own lives. An example of this was the student who noticed his gym clothes were made up of a cotton blend when they could have been made from a more environmentally friendly fabric: bamboo cotton. He identified a more sustainable choice for the school, felt it was important to him, so he took action.

Curtis' philosophy on teaching was similar to Kevin's in that he felt that projects and assignments needed to be meaningful to his students. He wanted to encourage them to see the importance their efforts had right in their school. Curtis encouraged them to be involved in the decision-making process through their involvement in environmental projects at school where such involvement led to many of their recycling campaigns. It was the students' initiatives that led many of their recycling campaigns.

Like Rod, Sharon believed strongly that learning is grounded in experience and she attempted to bring her students into the experiential realm as much as possible during her classes. This was achieved through many out-of-school excursions. Other than making learning as experiential as possible Sharon also believed that teachers needed to "get to the heart of a kid" in order to inspire students to want to make changes in their lifestyles. This was at the center of her beliefs on student engagement. In order to reach many high school students, Sharon felt that teachers must expose students to extraordinary experiences. This was similar to Rod's approach to teaching in that both of these teachers wanted to create memories for their students of them making positive contributions to their school and to their community.

Pillars of sustainable development.

The three pillars of sustainable development are: environment, social justice, and economics. Each teacher participant focused on those pillars to varying extents.

Sharon focused on social justice in her classroom, especially how it related to human relationships and Christianity. Social justice became such a major focus that she was asked to create a class solely on that topic. In the social justice course, environmental issues, such as global warming, were also included but to a lesser extent. Sharon pointed out that two challenges facing the world needed to be examined:

One of them is the crisis surrounding food. And that goes along with how we teach about our treatment of the Earth. I'm talking about agriculture, pesticides, watersheds, and climate change. The other thing, the most important thing, is simply protecting the Earth. It's not an option any more whether we do or do not protect what is left. Yet, it seems like we aren't doing much in terms of teaching the next generation where their responsibility lies on this matter.

Sharon believed that these were two important concepts that needed to be

introduced and explored with students.

Whereas Sharon seemed to teach mainly about social justice, Kevin focused almost solely on environmental concerns. He wished to raise awareness among his students that they had the ability to create positive change in their community. The topics broached in Kevin's class were focused mostly on alternative energy sources but there was also a great amount of discussion on living sustainable lifestyles. As mentioned earlier, he was the teacher leader of the Sustainability Club. Interestingly, there was a Social Justice Club already established at his high school when one of his students initiated the Sustainability Club. Many of the students were members of both clubs. When asked why the two clubs did not merge, Kevin replied that the students were adamant about keeping the clubs separate. Kevin explained that the difference between the two clubs was that the Sustainability Club was about taking action to protect the environment while the Social Justice Club was about taking action to protect people. Kevin wondered if his students were making the connections between the two pillars of environment and social justice. He also wondered if they could not see the connection with the third pillar of the interdependence of the economy, society, and the environment as it related to projects both clubs initiated.

Curtis seemed to bridge the two areas in his classroom. His students were involved in many initiatives in their own school and community to raise environmental awareness. He integrated the environmental units he taught with units on power and change in his social studies course. Also, Curtis focused on these topics from a Christian perspective. In addition, Curtis also brought social justice topics in through the discussion of illiteracy, racism, and poverty. "*Sustainability is really a social justice issue,*" he explained. He strove to make the relationships between the environment and social justice apparent for his students.

Rod also seemed to bridge the two areas with his focus on food production, supply, and distribution. He also led discussions on consumerism with his students.

We live in a society that tells us to buy, buy, buy without any thought to the consequences it may bring. I have many students who always talk about buying the latest video game or having the latest cell phone but their parents cannot even afford to buy them lunch. The pressure to have the

latest gadgets is incredible. I do not talk about politics in class but I do talk about having common sense and using that common sense when it comes to the things around them. Now that I have also incorporated First Nations content into my lessons it has become even easier to teach about sustainable development. One of the primary beliefs is that one only takes what is needed without harming or exploiting others or the Earth.

The umbrella term ‘sustainable development’ included many topics. Teacher participants used the topics they were most familiar with and most passionate about in their class discussions and activities. When the teacher possessed enthusiasm for a particular subject, students noticed, and would become more involved with the subject matter.

Extraordinary efforts.

The four teacher participants all demonstrated great passion as they undertook extraordinary efforts to teach about sustainable development concepts. Since sustainable development did not appear in the provincial curriculum and was not mandated by their school division, these teachers took it upon themselves to incorporate sustainable development into their classes. They wanted to inspire students to want to make positive contributions to their schools and communities out of their own belief that it was important. Another common trait was that all teachers were reflective practitioners in that they adjusted their teaching to meet the needs of their students.

Rod’s efforts were a good example of a teacher going beyond what was expected to engage students in the learning. He initiated projects unlike any others that occurred in his school division. Enabling his grade six students to construct a greenhouse and grow vegetables engaged them far beyond the walls of the classroom and beyond the pages of a textbook. His class projects did more than simply be the medium for learning; they became both the medium and the message. Rod’s students began to understand that they were capable of great acts and of creating real change. His projects were not superficial, but rather they meaningfully engaged students in the learning. The responsibility they took for their projects and the pride they felt in their work was a testament to Rod’s great ability to provide meaningful learning opportunities for students.

The sustainability projects that Kevin had at first made mandatory, and later made optional, were a movement toward incorporating environmental awareness into the high schools.

In the elementary schools, it's just all over the place. But it goes along with my philosophy that we just give up on the whole citizenship education when we get to the larger high schools. We drop all these things and we just teach our subject areas.

Kevin felt that teaching students to be productive, responsible citizens was something that was not taught beyond elementary school. This was what distinguished Kevin from other teachers. He felt passionately about sustainable development and therefore incorporated this into teaching. He also implemented the Sustainability Club, despite receiving no credit for it as an extra-curricular duty. This further demonstrated his commitment to his students and to encourage building environmental awareness in schools.

Curtis also took extraordinary measures to teach his students about sustainable development. By involving his whole school in the initiatives and campaigns, he took his involvement with Destination Conservation Saskatchewan far beyond the other schools involved with the program. He created multimedia presentations that highlighted ways to live a more sustainable life and used a mixture of video, dance, and music to put forth his message. The creation of these presentations was no small undertaking and captured the interest and attention of students, reflecting his strong commitment.

For Sharon, her extraordinary efforts lay in her commitment to social justice and in the consistency in which she maintained interest in it over the years. This was typified by her organization of a trip for a group of students to South America, to experience what life was like in a developing nation. It was a profound experience and a life-altering trip for the students and teachers involved.

All of the teacher participants spend extra time at their schools and with their students. Rod, for example, said, *"I'm at school every Saturday and Sunday. I'm here and I love it! Just ask my wife, I spend way too much time here."* During my conversation with Curtis the alarm on his watch went off. He explained that it went off each day at 5:30 to remind him that he needed to start packing up his bags to go home. Apparently he

would lose track of time after school and this was a way for his wife to ensure he would get home at a reasonable time. Kevin mentioned that he would be online at a certain time each night so his students could email or instant message him if they had any questions about one of the readings or an assignment. All of these extra efforts allowed students to have greater access to their teachers and showed the commitment each of these teachers had to their students. These teachers were selected on the basis that that they were most likely making extraordinary efforts in their classrooms. They were recommended because they were doing interesting and important things in the area of Education for Sustainable Development and the research confirms this choice.

Student assessment.

All four of the teacher participants spoke about allocating marks for projects or assignments as a motivational tool in their classes. However, there was a split in how marks were perceived between the high school and elementary teachers in my study.

Rod and Curtis both taught in elementary schools. For those students who needed some additional encouragement to pick up a hammer or weed a garden; Rod would gently remind them that their participation in all the projects were part of their mark. He utilized an interdisciplinary approach; thereby, trying to integrate as many subjects as possible into each project. The projects completed by Curtis' students were completed outside curricular areas. Curtis' students were less influenced by marks since many of their projects were implemented simply to help their school community become more environmentally friendly instead of built into a particular subject. The projects were not part of any one particular subject area but as a class initiative instituted for the betterment of the school.

Kevin and Sharon, who both taught high school, found that students were highly motivated by grades. This was not surprising as students' marks factored into scholarships and acceptance into post-secondary school. Both of these teacher participants assigned a major assignment connected to sustainability. Kevin's students conducted an action project that would effect change in their school or community. Sharon's students had to create a portfolio of information and reflection on various sustainable development topics. Both of these teachers factored those assignments as part of the final grade in their courses. Providing feedback on students' projects was also

mentioned by both teachers as effective motivators for student achievement. When students were aware of the progress they made and had some teacher input on that progress, students were better equipped to complete projects of better quality. Kevin included milestone assignments to help track student progress. Students were rewarded with marks for making progress on their project. Sharon specifically pointed out that she would not have used marks if it were not a requirement for her school division.

Sharon believed that students' imaginations have been suppressed by the school system. Students do not generally get the option of investigating topics of interest to them. If a topic was not in the curriculum, it was not examined. Sharon also believed that there was an underlying sense that students had to learn content in order to pass a test at the end of the unit or the end of the term. This notion created the connection that the learning was taking place for the sole purpose of advancement. If tests were taken out of the picture in this model, what would be the motivation to learn anything? Sharon said that she always started her classes with asking students what they were curious about and what they wanted to know. While she did find that marks motivated her students she wished to move to a system where no grades would be given. She favoured a system of formative assessment where student work was talked about and commented on throughout the process instead of solely at the end of an assignment.

Discussion of theme two.

The teaching style of the four teacher participants was discussed in relation to four areas: their philosophy on teaching and student engagement, pillars of sustainable development, extraordinary efforts, and student assessment. Teaching about sustainable development was a part of what all teacher participants believed to be an important part of the educational process.

Smyth (2005) suggested that teachers prepare students to contribute towards the eradication of social and environmental problems. He proposed that issues such as the unequal distribution of resources, global warming, poverty, and disease, should be debated within the educational system. O'Sullivan (1999) agrees that teachers hold a responsibility for teaching students about their role in the world:

As educators, we have responsibilities for forging a broad educational belief system that involves the cultivation of awe and wonder of the earth,

assisting students in their process of meaning making, creation of metaphors and worldviews that nourish our capacity to live with and in the world, development of attitudes that allow us to act on wrongs we see in the world, and the ability to act responsibly on issues of justice and equity, and the celebration of diversity. (p.23)

To varying degrees each of the teachers discussed incorporating the pillars of environment, social justice, and economics into their classroom. Sharon focused mainly on social justice and to a much lesser extent, the environment. Kevin focused mainly on the environment and very little on social justice. Rod and Curtis were somewhere in the middle. The third pillar of sustainable development, economic development, was discussed to a much lesser extent in all teacher participants' classrooms simply because they were less familiar with the concept.

Each teacher in some way addressed sustainable development in both local and global contexts. The dissonance between children's perceptions of local actions and global problems has been examined by Bonnet and Williams (1998). Students rated local social and environmental problems as less serious than distant global problems. The connections between local action and global effects did not appear to be realized for students. Bonnet and Williams argued that this results in a type of powerlessness on the part of the student that in turn can result in a lessened interest in environmental issues. While their study focused solely on elementary school, I believe the same disconnect could be true for high school students. Sharon took care to expose her high school students to both local and global problems through numerous field trips to local agencies who work for justice in local communities; in addition, global issues were also explored.

Harris (1998) found that effective teaching was linked to teachers reflecting on their practice, the use of enquiry in their classrooms, and continuous professional development and growth. Harris reviewed the literature on teacher effectiveness and organized the findings into three perspectives. The first was related to teaching skills and in relation to student achievement. The second perspective was on distinct teaching approaches in teachers' pedagogical decision-making. The third perspective was that of artistry or the creative side of teaching. The third perspective was the one that I found related the most to the teacher participants in this study. This perspective relates to the

creative and personal nature of teaching. The relationship with students and the importance of reflective practice were at the foundation of this theme. All four teacher participants reflected on their practice and attempted to build good relationships with their students. The extraordinary efforts that Rod, Kevin, Curtis, and Sharon have made in raising awareness of issues and by incorporating teaching about sustainable, provide examples of how sustainable development topics could be raised in schools. All four are effective teachers in part due to the extraordinary efforts made in their classrooms.

Student assessment was the last sub-area discussed in relation to teaching style. All four teacher participants, especially the high school teachers, mentioned that grades could be used as a motivating tool for students as they completed action projects. According to Kohn (1994), grades do not serve this purpose. Sharon mentioned that she would rather never give a grade on a student's assignment. She would agree with Kohn (1999) that grades served little purpose in terms of motivation and achievement of students. Kohn offered many reasons why teachers should move to a system of assessment that does not involve a letter or number grade, including the idea that grades distort the curriculum by isolating it into many separate facts instead of students coming to realize the interconnection between ideas. Sharon claimed to use a very interdisciplinary approach to her teaching and this seemed substantiated by the nature of her social justice course; a combination of the grade eleven Christian ethics and psychology courses. Kohn suggested teacher assessment through comments or, better yet, interviews with individual students. Sharon said that if it were not mandated by her school she would never assign a number grade to any assignment. She strongly believed in the benefit of formative assessment.

Both Kevin and Sharon discussed the use of feedback on major assignments as a motivator for students as an effective assessment practice. Wormeli (2006) suggests increasing the amount of formative assessment in middle years and high school classrooms, instead of spending a lot of energy creating summative assessments. Summative assessments are post-learning experiences. "Real learning of both the topic and personal responsibility comes from specific, timely, and frequent feedback to students during the learning, not after the learning" (Wormeli, p. 24).

III. Theme Three: Impact on Student Learning

Empowerment.

As the teacher participants reflected on their practice, they all spoke about what they felt was the impact on students' lives. As our conversations progressed, empowerment became a key idea in that the teachers claimed to guide, empower, and enable students to take on action projects related to sustainable development. All four teacher participants indicated that students taking ownership of sustainable development projects were critical in students' learning experiences. All of the participants described their role as guiding and empowering students to take on projects that were meaningful in their own lives.

Perhaps the best example of this was found in the language Rod used when discussing his class' projects. While explaining the compost bin his students constructed, he stated, *"It's about empowerment. I didn't do anything. All I did was cut the materials. They nailed it. They hammered it. They did everything. It was their project; not mine."* Rod further explained that he would constantly remind his students that they were the ones who were making the difference and that they were the ones who were making positive contributions to their school community. He wanted them to know that they were responsible for doing their best and without their participation their goals would never have been achieved. This kind of encouragement was successful in fostering a sense of responsibility and convincing students that they had the ability to take on new projects. The language he used with them was consistent. He reminded them on a regular basis that the projects they completed were *"theirs"* not his.

Growing vegetables in both the indoor garden and outdoor beds provided Rod with an effective educational tool for his students to understand food production. At first some of his students asked him if they could grow cheese in their gardens. Some students had limited knowledge of what was grown and what was manufactured or processed. Rod wanted his students to understand what could be grown in Saskatchewan and that they had the ability to grow their food themselves. *"It's that whole empowerment thing. I want them to know they can do it. It doesn't take that much. Some pots, some soil, and a lot of love."*

Another way Rod empowered his students was through a website sponsored by the United Nations. This website allowed students to answer questions which, if answered correctly, would lead to sponsors donating a set number of grains of rice to children in developing nations. His students would ask him whenever they had spare moments if they could visit the website to see how many grains of rice could get donated that day. As a result of this, Rod's students felt that they were contributing to the solution of world hunger. Rod believed this was an empowering experience for them.

Considering the outdoor location of the compost bin and greenhouse I asked Rod if there had been any vandalism on any of the projects. His response was that the projects had been left intact. He constantly reminded students that what they built belonged to them. They needed to take ownership of it and they needed to be responsible for it. He believed that the word got out in the community and the greenhouse and gardens became somewhat protected. *"If it gets tagged, we'll paint over it. You'd think that someone would come and take a hammer to it but so far nothing. Nothing."* It could be speculated as to other reasons why the greenhouse, gardens, and compost bin had not been vandalized, but Rod felt that it was due to students' ownership in the projects.

Curtis found that students felt empowered to receive recognition for their work. His school won a provincial waste minimization award, as well as a video production contest for a video they produced on racism. They also entered other environmental challenges for middle years students which Curtis found online; for example, the Ekokids Challenge which provided prizes for organizations and schools that take on environmental initiatives. For his students, entrance into these contests was confirmation that the changes they were making in their lifestyles and in their school were changes that were valued in society. It helped foster the sense that they were actually making a difference. His middle years students wanted to know that what they are doing matters. Curtis believed that the existence of these contests helped his students feel that way.

The two high school teachers, Kevin and Sharon, felt students were empowered when they were given choice in the projects they completed.

Education as a transformative experience.

The teachers in this study mentioned a desire to want to have a lasting impact on their students. They wanted the exposure their students had to new ideas to impact their

choices. For example, Curtis hoped that his students would continue to be vigilant about recycling and reducing the amount of waste that they created throughout their lives. Sharon hoped her students would continue to develop their social conscience and that it would affect the things that they consumed and purchased in the future.

In their teaching, Rod and Sharon enacted what occurs within action competence models. Rod discussed the root problem in reducing litter as he discussed consumerism with his students. Meanwhile, Sharon focused on social justice issues in her class; thereby, also addressing the root of this problem in a different venue. Kevin and Curtis hoped that their students' action projects would have a transformative effect on their students. Both of these teacher participants focused on specific action projects within their school which could lead their students to making more sustainable choices. The effect on students' understanding of the interrelationship between society, economics, and the environment was not evident from our conversations. Kevin and Curtis wanted the projects to make obvious changes in their schools so an example could be set for other students.

Student Response: Teacher's Understandings

Rod shared a story of a student who had gotten into serious trouble at school which involved some property damage. This student was faced with disciplinary action; yet he showed little remorse. During class time, he was extremely disruptive and had great difficulty focusing. This student was also cognitively challenged to the extent that, in grade five, he did not possess basic literacy skills. Rod knew he had to convince this child to become involved in the building projects or he would serve as a distraction, at best, and a danger, at worst, to other students. Rod handed this challenging student a paintbrush and was astonished with the result. He did a phenomenal job painting the greenhouse and he even seemed to enjoy it. When a television reporter came to ask Rod's class about the project and why they were doing so much extra work, this student matter-of-factly replied that he was painting because the greenhouse was his; thereby, exhibiting immense pride in his work.

After viewing a video regarding the damage plastic bags cause to animals and their habitats, another of Rod's students was compelled to write a letter to the mayor about the use of plastic bags. At this student's own home, he was saving plastic bags for

his parents to reuse for groceries. These actions were surprising for Rod because he referred to this student as “*the last person to try anything. The last person to start anything.*” These are two examples of students who though generally not inclined to participate in regular classroom activities, were happily involved in Rod’s class’ projects. Among other realities, Rod’s enthusiasm is very likely one aspect of their learning experience that motivated these students. Perhaps they were also impacted by the stories and videos regarding environmental degradation and they wanted to be part of the solution.

When asked how his students have responded to the projects embarked on in his class, Rod replied:

The love it! They don’t know it but they are learning from all we do. Whether it is journal writing, math, science, or just good old fashioned responsibility, they are having fun and learning. A few have also changed their habits about throwing away food scraps in the garbage bin or buying junk food with lots of packaging. They now know how that will all end up in the city landfill.

Kevin also noticed positive responses from his students. For example, when the new combined course, ‘Physemistry’ was offered to students, many were interested. In total, fifty-eight students enrolled during the first year which necessitated offering the class in both semesters. The content of the course was based around a theme of sustainable development. It was a two-period class and provided students with a credit for both grade eleven chemistry and grade eleven physics. Those students who enrolled knew that for two periods each day they would be immersed in sustainability topics as they related to physics and chemistry.

As mentioned earlier, in terms of Kevin’s sustainability action projects, some of Kevin’s students took great initiative in the assignments while others did the minimum work required. It should be noted that this would be typical of any random grouping of students assigned with a major task in Kevin’s class. Kevin thought that he received better quality assignments when the sustainability action project was a required part of the course instead of being optional. At the time of the interview, he was considering placing it as a requirement once again.

The majority of Curtis's students embraced environmental initiatives suggested by their teacher. During his first year involvement with Destination Conservation Curtis felt that twenty-two of his twenty-five students really embraced the program. He mentioned that he tried to encourage some of his students to become the leaders of the projects and have his students be the messengers for their environmentally friendly messages.

Curtis mentioned that there were a few students who did not embrace the program as he had hoped. It appeared that recycling was emphasized to the point that a few of his students seemed to rebel against it. Curtis figured that they were tired of hearing about what could be recycled and of the daily garbage inspections to check for misplaced recyclable items.

I think I just got frustrated. When we started the program [Destination Conservation Saskatchewan] I would explain where everything goes and after a couple of weeks there would be juice boxes in the garbage can. It would really annoy me and I'd remind my class over and over. I think that they realized that it frustrated me and they kind of played on that.

Curtis admitted that he did not approach teaching his students about recycling in the best way that year; therefore, he changed his approach the following year. He explained that it was impossible to force students into recycling but that they had to understand why it was important and they needed to feel that what they did made a difference. Later, when he found a misplaced juice box, his approach was more casual and he would reinforce that they were doing a good job and ask for a volunteer to put it into the correct container. Curtis found that patience and encouragement were the best tools to encourage his students to become involved. He also provided words of affirmation so that his students knew that they were doing a good job.

Both Kevin and Sharon mentioned that the age of students impacted how they responded to sustainable development topics and to new programming in general. Both teachers felt grade eleven students responded very well. Sharon mentioned that grade eleven students tended to be very self-motivated and that if teachers shoulder tap them to try something new, many would take the idea and run with it. Kevin tried to incorporate sustainability themes into grade ten Science but found that the grade ten students did not

respond well. *“They seem like such an ambivalent group of students at that age,”* he explained. Sharon concurred with Kevin’s sentiment. She found grade ten students to be very focused on the social aspect of school to the detriment of their academic work. Both Sharon and Kevin also mentioned that they had similar difficulty with grade nine and grade twelve students. Grade nine students were acclimatizing themselves to their new surroundings in high school and grade twelve students were focused solely on graduation.

There was a difference in how the teachers perceived how gender of students impacted their interest in sustainability class projects. Curtis found the girls to be more interested while Rod, who also taught elementary school, found the boys more interested. Rod found that his grade six girls were hesitant to use tools and doubted their ability to contribute to some of the projects. Both high school teachers noticed a greater interest on the part of female students. Sharon mentioned that difference was fairly typical in psychology courses offered at her particular school. No generalizations can be made from these perceptions as only four teachers were taken into account.

Discussion of theme three.

The four teacher participants’ perceptions on the impact introduction to sustainable development had on students was organized into three sub-areas: empowerment, education as a transformative experience, and student response.

The empowerment of students can be linked directly to different strategies that could be used to teach about sustainable development. Jensen and Schnack (1997), Lundegard and Wickman (2007), and Barrett (2007) proposed an action competence approach which allowed students to critically engage with the underlying problems in society and then to engage in critical action to overcome these problems. This approach transcended simply educating students about recycling or composting as discreet units separate from one another. For an approach to be considered as action competence approach students need to learn through the decision process of taking on action projects and assessing the progress they made.

Jensen and Schnack (1997) refer to examples such as recycling old newspapers or taking public transit as activities instead of action, illustrating the difference in intent. Jensen and Schnack would find actions, such as the ones listed above, as lacking in that they do not promote critical thinking and they do not address the deeper values at play.

Kevin's sustainability assignment would be the best example of an action competence approach from this study. Students chose their own topics and critically reflected on the problem before arriving at a solution. During this experience, Kevin also emphasized the interconnection between what they learned in class and each student's project.

In terms of the view that the teacher participants viewed education as a transformative experience, they all hoped that their students' choices would be impacted by the issues discussed in class. Palmer and Birch (2003) and Hart (2003) agreed that Education for Sustainable Development was fundamentally about making individuals want to change their behaviours after impacting their attitudes and beliefs. Projects such as the sustainability action projects would have raised awareness and brought about both personal and social transformation. From my experience, when students have a lot of exposure to sustainable development ideas, those ideas impact the decisions that they make years after leaving the class.

IV. Theme Four: Modeling Environmentally Conscious Behaviours

All of the teacher participants in this study took the old adage "practice what you preach" to heart as they attempted to model sustainable practices in their own lives. Rod's passion for making environmentally friendly choices was so much a part of his language and way of life that one could not help but acknowledge the powerful role model he was for all those around him. He used everyday occurrences as teachable moments; for example, he took pride in explaining why he chose to use his travel coffee mug instead of the disposable cups provided by the neighbourhood coffee shop.

Kevin conducted his own action plan alongside his students.

"This year I am biking [to work] once per week and if, for some reason, I don't, I put \$10.00 towards green energy. However, if I bike twice a week, I can earn \$10.00 back. Over the winter I accumulated \$160.00 towards green energy; however, I have been biking lately and the pot is down to about \$90.00." Modeling was evident here for Kevin's action showed students his commitment to sustainability action projects and provided them with a positive example.

Curtis gave credibility with his words by modeling sustainable choices whenever he could. He talked to his students about how his own family tried to make choices that would lead to the least effect on the environment possible. For example, his family wanted to see how much waste they could reduce at home and therefore measured the amount of weeks they could go without putting their garbage out for city pick-up. They were able to last a month without filling their garbage can by making small changes in their choices about packaging and food waste.

Discussion of theme four.

Higgs and McMillan (2006) found that when students experience their teachers as role models demonstrating their commitment to sustainability in their life choices, students are more likely to be open to change and perhaps adopt them. While teachers have little influence on the culture and role models students are faced with outside of school, they can still have an impact on students. When students are given the same message repeatedly and also observe their teachers living that message themselves, they are more likely to adopt those behaviours.

V. Theme Five: Spirituality and Values

Initially, two of the teacher participants mentioned that their decision to teach about sustainable development was related to their own spirituality. Curtis linked his desire directly to his faith as a Roman Catholic. Sharon linked it to her sense of humans' relationship to God.

Curtis' message about environmental sustainability was directly linked to his faith. His message became a focus in the religion program and all aspects of school life. He based his teaching on Gospel values and how protecting the Earth was part of having a relationship with God. He felt that it was his responsibility as a Christian to be a steward of the Earth. He pointed out that teachers teach what they believe to be important, regardless of whether those topics were currently in the curriculum. If a teacher was passionate about electronics, stories and examples about electronics would permeate that teacher's lessons. For Curtis, sustainability and protecting God's Earth and forming a connection with the Earth were what he believed to be important. Therefore, those ideas were what he integrated into his teaching on a daily basis.

Like Curtis, Sharon's interest in social justice and sustainability was linked to her faith. Sharon spoke about education being fundamentally about relationships and humanity's relationship to the Earth and to God as central to that notion. Sharon also spoke about how teachers' values relate to what they teach in their classroom. Sharon described all education as values education in that teachers teach what they value and what they perceive to be important. What teachers value and what they do not became part of the hidden curriculum of schools. Sharon pointed out that what was left out of the curriculum became something that may be viewed as not valued, because these topics were not generally overtly named, examined, and enacted.

Rod and Kevin did not initially mention spirituality or their employment with a Catholic school division as affecting their choice to teach about sustainable development. I went back to these two teacher participants to ask if their faith was a motivator. Kevin stated: *"In my mind, we have a moral, ethical and spiritual responsibility to teach about sustainability, environment, and energy issues."* Rod also felt that his sense of spirituality and the First Nations' spirituality he brought into his classroom were related to his interest in sustainable development.

Discussion of theme five.

Initially, I expected those teachers who were teaching about sustainable development to relate it to a desire for their students to become more socially conscious global citizens. In my own classroom, sustainable development is the theme I used to foster a better understanding of what it meant to be part of a community and to be a good citizen. All teacher participants mentioned in some way that they hoped for their students to come to value the environment through the experiences that they shared in class and with one another. The teachers' goals were also concerned with creating a sense of community and responsibility within their schools and classroom.

When I was writing the literature review I examined how values were linked to Education for Sustainable Development. The link between Education for Sustainable Development and values education was emphasized by UNESCO (2003) where ESD was described as fundamentally being about values of respecting others, diversity, the environment, and the Earth's resources. All teacher participants in this study agreed upon

this notion. The value of respecting others, the Earth, and us was mentioned by all as one of the reasons for teaching about sustainable development.

By values education I do not mean a packaged program that attempts to teach isolated values to students. I understand values education to be part of one of the Common Essential Learnings in the Saskatchewan curriculum (Saskatchewan Education, 1993). It could be placed under Personal and Social Values and Skills. An example of this was when Sharon took her students to the youth center. She hoped to teach her students to show empathy, compassion, and respect through their exposure to the stories of young people who experienced hardships and challenges.

In this theme, I chose to link spirituality with values because I see them as intrinsically connected (Hill & Johnston, 2003). The teacher participants shared the view that their values arose from their spirituality. I had not predicted that spirituality would be brought into teacher participants' motivations for teaching about sustainable development. None of my original research questions were concerned with teacher participants' spirituality. Both Curtis and Sharon initially linked their interest in teaching about sustainable development to their own spirituality. This compelled me to ask Rod and Kevin if working in a Catholic school system affected why or how they taught about sustainable development.

Originally I had not examined any literature on the connection between teachers' spirituality and their desire to teach about sustainable development. After exploring the connection with teacher participants I went back to the literature for further information.

English and Gillen (2000) define spirituality as "awareness of something greater than ourselves, a sense that we are connected to all human beings and to all of creation" (p. 1). The teacher participants in this study identified their spirituality with their Catholic faith.

Hill and Johnston (2003) wrote about how accepting responsibility for caring for the environment was a spiritual act that can begin to rejuvenate one's humanity. Caring for the environment appeared to renew Sharon and Curtis in some way. Sharon mentioned how she found being in nature restored her spirit. Curtis agreed that camping or spending times outdoors was rejuvenating for him and his family.

VI. Theme Six: Meeting Challenges and Finding Acceptance

The teacher participants mentioned a common obstacle in teaching about sustainable development. This challenge involved the level of acceptance their projects had with other staff members. Some of the students' projects necessitated the cooperation or input from other teachers. For example, in Rod's school, all the other teachers needed to agree to keep a compost bin in their classroom and to remind their students to use it. In Kevin's case, he needed the support of his administration as he led the student-initiated Sustainability Club. Curtis needed other staff members to remind their students to use the correct recycle bins and to model those behaviours in class. Sharon needed funding and support from her school division and administration in order to successfully carry out her newly created course on Social Justice. None of these teachers were working in total isolation. All of them needed cooperation from other staff members. While the majority of staff members were very willing to cooperate, there were some who were reluctant to make changes in what they were doing.

Discussion of theme six.

Since Education for Sustainable Development was not overtly part of any of our curricula, Hart (2003) suggested that some teachers have difficulty fitting it in amongst the other demands on their time. He stated that it is difficult to "assign priority to environmental education among the cacophony of competing demands that characterizes the world of schooling today" (p. ix). Similarly, most governments have focused on structuring the educational system with the intent that students will be prepared to enter a global knowledge-based society as workers. Despite the political and social climate of schools, Rod, Kevin, Curtis, and Sharon found a way to incorporate what they believed to be crucial in students' educational experience into their classrooms.

Reflection on the Themes

The themes that emerged from the interviews matched many of the themes evident in the literature. The first theme was concerned with the motivations teachers had for teaching about sustainable development. The motivations provided by teachers in my study matched very closely with the motivations that Hart (2003) found when he too interviewed teachers.

I found very little research done on the second theme that was concerned with teaching style and the teaching of sustainable development concepts. While there are many articles questioning the definition of sustainable development it was difficult to locate literature questioning how teachers define the concept and what subtopics they bring into their classrooms. I placed student assessment in my second theme because teachers' comments about assessment and evaluation were often linked to their philosophies of teaching and learning. Yet once again, there was a complete lack of research on the link between assessment and Education for Sustainable Development.

The majority of research I found on Education for Sustainable Development had to do with the impact the concepts had on student learning. Empowerment was the topic of a number of studies and I found this to be a prevalent theme that arose from my interviews as well.

I did not consider that modeling environmentally sustainable practices would have been such a prevalent theme in the interviews. However, all participants mentioned that it was an important aspect of their teaching. I was particularly impressed with Kevin who conducted his own action project along with his students each semester. This not only modeled an environmentally sustainable practice but in Kevin's case, also modeled the process students would engage in during their assignment by undertaking his own action project.

The fifth theme was concerned with how Education for Sustainable Development was related first to teaching about values and to teachers' own spirituality. I can see how spirituality related to Education for Sustainable Development in a similar manner as teaching values could be related to the topic. All four of my participants taught in the separate school division in Saskatoon. Two of my participants clearly and repeatedly emphasized the connection between their faith and what they were teaching. I thought the desire to teach about values would have been one of the main motivations for teachers who were teaching about sustainable development because, to a large extent, it is what motivated me. More than anything else, I want my students to develop integrity and respect. That respect involves respect for themselves, others, and the Earth. Those notions form the basis of everything that I do in my classroom, including teaching about sustainable development.

My last theme of meeting challenges should not come as a surprise. There were always challenges to face when starting a new program or attempting something new. Not all people are comfortable with change and some find coping with change very difficult. The teachers in my study had the expected obstacles and challenges: lack of support and lack of resources. They all mentioned that teachers needed to be resourceful in order to acquire what they needed in order to do their jobs. While some schools already possessed some resources for teaching about sustainable development most teachers were searching out resources themselves.

Chapter Six: Implications for Practice and for Further Research

Implications for Practice

Inspiration.

As a teacher, I was inspired by the work of the four teacher participants in this study. Their extraordinary stories of compelling learning experiences as students engaged in action projects motivated me to reexamine how I teach about sustainable development. My hope is that other teachers reading this study will also be inspired by the teacher participants' stories.

Rod's enthusiasm for what he is doing in his classroom is both inspirational and infectious. He made incorporating sustainable development seem so easy and natural. Even the physical construction of a greenhouse was spoken about as if it was just another undertaking and not as the major project I would assume. Rod admitted to never having built anything in his life; yet, he took on the building of the greenhouse with gusto.

Curtis' story was inspirational because he was a teacher who showed real commitment to both his students and to his involvement with Destination Conservation Saskatchewan. I also found his story to be inspirational because he admitted to struggling with some of his students who were not engaging in the activities and initiatives his Destination Conservation Club were trying to implement. He reflected on his role and changed his language and actions in such a way that got everyone more involved and excited about what their club was undertaking. Educators will need to rethink how they view curriculum and their own practices to find what works for them in integrating sustainable development into their classrooms

The fact that Kevin was taking great lengths to incorporate sustainable development into his high school physics and chemistry classes showed his commitment to sustainability. Also, his participation in action projects alongside his students served as a model for them and other staff members. Kevin took on the challenge of raising awareness for sustainable development, despite a lack of interest at his school. He felt it

was an integral aspect of science education and that motivated him to develop the new combined science course that would focus on sustainability. Kevin saw that no programming was in place and made the decision to change it. At the high school level, teachers may have less support to enact sustainable development. To alleviate this, teachers must find ways to incorporate sustainable development in ways that work within the confines of their assigned classes. Kevin's sustainability projects were an example of a way to integrate sustainable development into science.

Lastly, listening to Sharon speak about how she engaged her students in social justice was also inspirational. She was committed to experiential learning and whenever possible took her students outside of the classroom and into the community or into nature. Any time a teacher leaves the school grounds, it involves a significant amount of work for the teacher. Despite this extra workload, Sharon found a way to make field trips a regular part of her program.

Getting started: Implications for educators.

Those teachers who are currently teaching about sustainable development are doing so because they find it to be personally important. The message from my teacher participants was that they felt that it was an integral part of the educational process. For those teachers who think that incorporating sustainable development into their classrooms now, before any kind of curricular or school division mandate occurs, is too daunting of a task, I have several suggestions for implementation.

First, make use of existing programs. Curtis was involved in Destination Conservation Saskatchewan, a provincial initiative that was aimed at reducing the waste generated in schools. Rod was involved with Little Green Thumbs, an initiative aimed to encourage students to become engaged with food production and sustainable farming practices. There are numerous programs and organizations with which schools can form partnerships.

Second, expect to go beyond the normative view of education and what traditionally has occurred in classrooms. Teaching about sustainable development will require hands-on, experiential tasks that encourage students to become engaged in the issues. These activities can necessitate relinquishing control on the part of the teacher but,

from the perceptions of the teachers in this study, can have a positive effect on students' learning experiences.

Third, look for resources on the Internet. In Appendix D there is a list of websites that the teacher participants in this study found to be particularly useful. This is by no means an exhaustive list; there are hundreds more that could be added. In my own classroom, I have found that my students get more excited when technology comes into play in what we are doing. Web-based activities and games that teach about sustainable development are a welcome part of their education.

Fourth, there will be the need to find allies in carrying out sustainable development in schools. These allies may be administrators or other teachers who share an interest in sustainable development or at least will offer support in teaching about sustainability. Forming partnerships with community members, organizations, or other teachers with the shared interest can provide valuable resources and information that can be used in classrooms.

Fifth, teachers will need to serve as a model for making sustainable choices for their students. This may mean making changes in their own behaviours. Consistency between what teachers say and how they act is important in encouraging students to adopt the same types of behaviours.

Sixth, allow yourselves to be inspired by the students' responses to the teacher participants' efforts in this study. The student in Rod's class whose school experience was marked by academic and social challenges became fully engaged in the process of constructing the greenhouse. With a hammer and nails in his hands, he was in his element, learning a new, practical skill and making a positive contribution to the class project. Examples like this can show you the transformative power action projects can have and the positive effect they can have on students.

Curriculum renewal.

With the attention Education for Sustainable Development is receiving in the media, or at the very least, the attention environmental concerns are getting, there is a chance that curriculum will be written to address these issues. If this happens, will teachers still have the freedom to emphasize the topics in which they are the most interested? Will other teachers, who have little interest in sustainable development, do an

adequate job of motivating students to undergo a personal and social transformation as they examine their daily life choices?

If curriculum renewal does occur to bring sustainable development into classrooms, Bonnett (1999) believed that the inevitable question would become: What was it that should be sustained? This value-laden question indicates that not everything can be sustained and as soon as one decides what is to be sustained, what is not sustained may be considered to be not worth sustaining. What is left out of curriculum indicates what society values as much as what is included. What and how sustainable development is included is an important question that, I hope, would be given considerable attention during the process of curricular renewal.

Implications for Future Research

This study was a qualitative study, the participant sample was small and therefore the results cannot be generalized. However, themes emerged from the transcript data and many new questions have arisen. These questions have brought to light other topics relating to Education for Sustainable Development that have yet to be researched. The following lists some of the research questions I believe could be examined:

- How many teachers are teaching about sustainable development in their classrooms in rural and urban areas?
- How does teaching about sustainable development relate to teachers' own spirituality outside of the Catholic school divisions?
- How does teaching about sustainable development relate to a First Nations perspective on humans' relationship with the Earth?
- What are students' perceptions of the impact their actions have towards creating a more environmentally sustainable world?
- Every time we put more emphasis on environmental studies we put less emphasis on other subjects; how would this affect students' education?
- How would a mandate to teach about sustainable development affect Canada's resource based economy?
- How would students who are engaged in sustainability projects be affected in terms of their attitudes towards school?

- When students are not exposed to outdoor experiences or environmental stewardship during their formative years, can they develop a passionate love for the land? Can teachers make a difference?

Closing Remarks

We are now four years into United Nations Decade for Education for Sustainable Development, specifically marked for focusing on the Earth's ecological future. I questioned what progress was being made to this end in our provincial educational system. I wondered what teachers were doing and how this declaration impacted their decisions.

The definition I chose of Educational for Sustainable Development when I began this study was the following: "all aspects of public awareness, education and training provided to create or enhance an understanding of the linkages among the issues for sustainable development and to develop the knowledge, skills, perspectives and values that will empower people of all ages to assume responsibility for creating sustainable futures" (Ravindranath, 2007, pp. 191-192). I initially chose this definition because it contained an emphasis on the values that underlie learning about sustainable development and in the promotion of action. After speaking with the four teachers and examining the different concepts they bring to life in their classrooms, I would like to propose that Education for Sustainable Development encompasses all the training, public awareness, and educational activities that enrich our understanding of the connection between social justice and the environment while facilitating people of all ages to take action to promote justice and respect for all people and the Earth.

The one thing that will make the most difference in teaching students about sustainable development is the teacher's passion. All the teacher participants in this study demonstrated their passion through their commitment, creation of interesting action projects, and interest in sustainable development. Passion and enthusiasm can be passed so easily from person to person. When we see someone who truly loves what they are doing or what they are talking about, it makes us want to become part of that.

As for me, this work has reinforced my commitment to teaching about sustainable development. Being able to talk with other teachers who share my passion was one of the

most rich professional development opportunities of my career. My practice as a middle years teacher has been transformed by my research. I have been introduced to a variety of resources that can be adapted for use in my own classroom and my enthusiasm for teaching about sustainable development has been renewed.

As Suzuki and McConnel (1997) stated: “We can only rediscover our human connections with the earth if we begin with our children’s education” (p. 23). Our schools are the perfect location to begin to teach children about their responsibility toward the Earth. I am even more convinced that this is possible after speaking with my teacher participants and hearing their stories.

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Appendix A

You are invited to participate in a study entitled: Teaching About Sustainable Development: Teachers' Viewpoints. Please read this form carefully, and feel free to ask questions you might have.

Researchers:

Jennifer Jaspar
(306) 651-0354
jjaspar@scs.sk.ca

Dr. Janet McVittie
Curriculum Studies
College of Education
(306) 966-7582
janet.mcvittie@usask.ca

Purpose and Procedure: The objectives of this study are to enrich our understanding of what selected teachers in Saskatchewan are teaching about sustainable development and to uncover what they are doing that has an impact on student learning and to explore their perspectives about what causes students to change their behaviours. The study will consist of semi-structured interviews of four teachers who are teaching at a variety of grade levels in Saskatchewan.

Your participation would involve you emailing your responses to some introductory questions to the researcher. We will then meet for one to three interviews which will be audio-recorded. These interviews will each last between one and three hours and will be conducted at a time convenient for you. The total time commitment from you would be from two to six hours, depending on how much we are learning from one another!

The results of this study will give information as to what is being taught, how it is being taught, and how teaching about sustainable development can be a transformative tool in the lives of students.

Potential Benefits: We believe your input is vital to the study, however, while participation may provide you with opportunities for critical reflection on your experiences, there are no certain benefits for you.

Potential Risks: We believe there is little or no risk because you have full and voluntary control over what you contribute to the study.

Confidentiality: Only you and I will read the actual transcripts of the interviews, and possibly my supervisor. My supervisor and I will not report what you say to anyone else, nor publish it, until you have had opportunity to read over the transcripts to verify what you said, what you meant, and what you would like reported.

You will be given the opportunity to review the final transcript of the interview sessions. At that time, you can add, modify comments you made to ensure that the transcript accurately reflects what you said or intended to say.

All data associated with this study will be stored by Dr. Janet McVittie for a period of five years in a secured location in the College of Education, University of Saskatchewan, and will be accessible only to the researchers. Your transcripts will not contain your name.

Pseudonyms will be chosen by the participants for use in the transcription and reporting of data and all available steps will be taken to ensure privacy and anonymity. If you chose to use your own name, you may.

Right to Withdraw: You may withdraw from the study for any reason, at any time, without penalty of any sort. Your decision to participate or withdraw will not have

any impact on your standing within your school division nor will this affect your relationship with the College of Education. If you withdraw from the study at any time, data you supplied for the study will be destroyed immediately, if you request.

Questions: If you have any questions concerning the study, please feel free to ask at any point; you are also free to contact the researchers at the numbers provided above if you have questions at a later time.

Ethics Approval: This study has been approved on ethical grounds, by the University of Saskatchewan Behavioural Sciences Research Ethics Board, on February 10, 2008. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office (966-2084). Out of town participants may call collect.

Feedback on Results: We are happy to share results with you. A summary of research findings will be generated and, at your request, will be sent to you in an email attachment upon completion of the study.

Consent to Participate: I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the study described above, understanding that I may withdraw this consent at any time. I have signed a second copy of this consent form and kept it for my records.

Signature of Participant

Date

Appendix B

Semi-Structured Interview Questions

1. a) How did you become interested in the teaching of sustainable development?
b) When did you first begin to take action in teaching about sustainable development?
c) What motivates you to teach this?
2. Why do you feel it is important to raise awareness of sustainable development?
3. Where do you begin?
4. a) What sorts of activities have you been doing in your classroom to teach about sustainable development?
b) What formal, planned lessons do you teach that either you have created or have borrowed from another source on sustainable development?
5. Did you develop your own resources or did you find resources accessible to you?
6. Do you think it is easier or harder to incorporate sustainability issues into your practice than someone who teaches a different grade level? Why?
7. How are sustainable development practices being modeled in your classroom?
8. What particular agencies, programs, or organizations have you worked with which have aided you in teaching about sustainable development in your classroom?
9. a) How have your students responded to learning about and being involved with sustainable development?
b) What do you do that impacts students in such a way that they take ownership for sustainable development projects?
10. What resistance or obstacles in teaching about sustainable development have you met?

Appendix C

1. a) How did you become interested in the teaching of sustainable development?
b) When did you first begin to take action in teaching about sustainable development?
c) What motivates you to teach this? Why is it important to you?
2. What sorts of activities have you been doing in your classroom to teach about sustainable development?
3. What particular resources, agencies, programs, or organizations have you worked with which have aided you in teaching about sustainable development in your classroom?
4. a) How have your students responded to learning about sustainable development?
b) What do YOU do that impacts students so that they take ownership for sustainable development projects?
5. What, if any, resistance or obstacles in teaching about sustainable development have you met?

Appendix D

Saskatchewan Environmental Society www.environmentalsociety.ca

Little Green Thumbs Saskatchewan <http://www.littlegreenthumbssk.ca/>

Jane Goodall 'Roots and Shoots' www.rootsandshoots.org/

Saskatchewan Envirothon

www.saskriverbasin.ca/Envirothon/Envirothon_index.htm

David Suzuki Foundation

www.davidsuzuki.org/_pvw370829/Climate_Change/Science/

Sustainable Living Challenge www.sustainableliving.com.au/

Car Free Day www.carfreeday.ca/alternatives.php

Sustainable Table www.sustainabletable.org/

EcoKids Challenge www.ecokids.ca

Go Green Saskatchewan www.environment.gov.sk.ca/gogreen

Green Tube www.gogreentube.com

Environmental Green Blog: We Heart World www.weheartworld.com

The Green Squad <http://www.nrdc.org/greensquad/>