CONNECTEDNESS TO NATURE:
COMPARING RURAL AND URBAN YOUTHS’ RELATIONSHIPS WITH NATURE.

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ABSTRACT

Only a few decades ago, people spent considerably more time engaged in outdoor activities, fostering connections with the natural environment. Currently, many people regard themselves as separate from the natural world instead of maintaining a connection to the earth. Today’s youth face a plethora of factors that discourage them from developing significant relationships with nature. This study was designed to determine which factors had significant impacts upon rural (n=50) and urban youths’ (n=42) connectedness to nature. During this mixed methods research, respondents participated through an online survey that included ‘Connectedness to Nature Scale’ statements. Ten semi-structured interviews further explored youths’ connectedness to nature. A comparison of the rural and urban findings suggests that rural youths have more opportunities to connect and develop more significant relationships with nature whereas urban youths may be slightly less connected to nature overall but have similar concerns for the environment.
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CHAPTER ONE: INTRODUCTION

In recent years, an increased interest in humans’ relationships with nature, (P. Kahn, 1994, 1997, 1999; P. Kahn & Kellert, 2002; Kellert & Farnham, 2002; Louv, 2005) as well as concern for environmental and human well-being, has been re-ignited (McKibben, 2007; Naess, 2008; Suzuki & McConnell, 2002). Some environmental theorists have suggested that developing relationships with nature could direct individuals towards a greater ethical and moral understanding of environments as well as a connectedness to the natural world (Abram, 1996; Devall & Sessions, 1985; Leopold, 1949; Vinning, Merrick, & Price, 2008). Developing social movements are continuing to raise public awareness regarding environmental issues, emphasizing the need for social change in how North American people interact with the natural world (Charles, Louv, Bodner, & Guns, 2008).

Unfortunately, children are developing detrimental relationships with non-natural world items such as video games and computers, thus creating a generation that prefers indoor settings, drawing them further away from natural environment connections (Zaradic & Pergams, 2007). Payne (2003) found a current movement in educational pedagogy that aspired to replicate nature using virtual reality and computers rather than deal with the ‘risks’ of experiential field trips.

Although technology should not be considered entirely negative, an American Environmental Values (EcoAmerica) survey (2006) found that 91% of 1500 survey respondents agreed that “most kids these days care more about video games and portable music players than about wildlife and clean air” (p. 5) providing further recognition that connections between youths and nature are continuing to decline. Research released from the Henry J. Kaiser Family Foundation (2003) found that children under the age of six are spending an equal amount of time (1 hour 58 minutes) immersed in media (television, computer, video games etc...) as they spend
outdoors playing (2 hours 01 minute). In 2005, the Henry J. Kaiser Family Foundation also found that young people aged 8-18 spent over 8.5 hours per day engaged in ‘multi media-tasking’ activities.

In another compelling study, Evans and McCoy (1998) estimated that people spend approximately 90% of their lives within the confines of buildings. Equally detrimental to the well-being of children are the findings that adults spend approximately six hours per week shopping, upwards of 40% less time with their offspring than parents did in 1965 and are only engaged in forty minutes of play per day with their own children (Orr, 2002). In a similar study (albeit contradictory data), Future Foundations (2006) researchers determined that parents in 2000 spent an extra hour per day looking after their children than parents in 1975 did due to parental over-protectiveness in reaction to apparent societal changes such as stranger danger and bullying (as cited in Hill, 2007). Parents have become afraid to allow their children to play in their front yards, on the streets, or outside in general. Parents are combating this fear by keeping children indoors and allowing their children to participate in a sedentary lifestyle, which may affect aspects of their physical, mental, emotional, and sleep health (Active Healthy Kids Canada, 2008; Alliance for Childhood, 2004).

This research study attempted to understand what factors influence the connectedness to nature of rural and urban youths. This mixed methods study focused on two Manitoba high schools; one based in the downtown core area of Winnipeg and the other in Rivers. The sample population (n=92) was composed of volunteer youths from these two high schools who completed an online questionnaire. The online questionnaire contained a few demographic queries as well as ‘Connectedness to Nature Scale’ (CNS) statements, which forecast participants’ ecological behaviours and relationships with nature (Mayer & McPherson-Frantz,
2004). Following the questionnaire, five volunteers from each group participated in a semi-structured interview process that provided more in depth explanations of their connectedness to nature and possible reasons why some youths are connected to nature while others are detached from nature.

In this investigation, an overlying attribute, ‘Values’, binds together several environmental concepts including, ecological identity, sense of place and ecological literacy. These concepts are explored to consider their significance in the development and growth of one’s connectedness to nature. The degree to which these concepts influence individuals varies from person to person and is dependent on a variety of precursors including, prior knowledge, lived experiences, cultural background, encountering and conversing with people who display their compassion, caring, and dedication for environmental concerns. The above stated concepts are examined in detail in the Literature Review while the precursors are introduced in the section below along with a diagram illustrating my perceptions of how connections to nature are developed.

At this point, an introduction to the Venn Diagram 1.1 entitled, Connectedness to Nature: Interrelationships of Concepts and Precursors (See p. 10) is important. This representation introduces interrelatedness between three main concepts and influential precursors. An overlying attribute, ‘Values’, acts as a bond between all these concepts and precursors as they form a relationship with the natural world. The following is the researcher’s perception and understanding of how the four precursors collectively influence the three concepts. Further development and understanding of these concepts is expanded in Chapter 2 while the influencing precursors are briefly described below and further examined in Chapter 5.
Prior Knowledge

Prior knowledge (and continued learning) acts as a foundation for each of the three previously mentioned main concepts to be developed. Disinger (1985) believed that knowledge was an important factor in determining an individual’s future environmental responsibility. The role of prior knowledge in forming environmental values is also significant. Kellert (2005) states, “The natural world greatly aids this emerging capacity (forming basic understandings) because it affords numerous highly stimulating and engaging opportunities to identify and order basic information and ideas” (p. 68). The natural environment provides a venue and the context from which to develop necessary cognitive skills. Brody (2005) describes learning in nature as including ‘trail markers’ such as: direct experience, cognition, personal and social learning, affective development, and time. He considers these fundamental to be the human experience and suggests, these trail markers use notions of Thinking, Feeling, and Action to influence the way individuals respond when they encounter new unfamiliar concepts. Without basic building blocks for a child’s cognitive development, the process of understanding new concepts may confuse children when confronted with a variety of decision making matters.

To educators, a child’s early cognitive development and the role that education plays are critical to the learning process. Brody (2005) suggests, “...learning requires building upon prior experience with additional information and experience. Learning often requires a recognition of prior knowledge, the mental accommodation of new ways of seeing, feeling, and thinking about knowledge” (p. 606). Each new experience is assembled upon earlier reference points in one’s memories to create a deeper understanding of whatever it may be that is being learned.

Nature not only acts as a construct for learning and as an opportunity for enhancing the aforementioned reference points but according to Kellert (2005), “nature is the richest, most
detailed, and most readily available informational context they are ever likely to encounter” (p. 69). Nature provides endless opportunities for children to explore and develop their learning potential, increasing their prior knowledge of the world before them. Who, what, when, where, why, and how people teach children influences an individual’s lens of thought, as education is “involved in initiating pupils into views of reality (Bonnett, 2004, p. 43). Carson (1998) believed that early childhood is a time to prepare the soil for learning.

Once the emotions have been aroused—a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration or love—then we wish for knowledge about the object of our emotional response. Once found, it has lasting meaning. (p. 56)

Carson (1998) also stated that the ‘seeds’ of knowledge and wisdom could be planted in a child; then a potential in the development of informed environmental values and understanding may emerge rather than having a child whose mind is filled with factual information that he has not yet understood enough to become assimilated. Unfortunately, the educational systems that many students encounter demand that learning includes pre-determined facts being taught rather than students learning how they feel about their connections to what is being taught. In Pepper (1994), “Schumacher (1973) argues that education is the ‘greatest resource’ because it maintains and strengthens not only human daring, initiative, and constructive activity but also a regard for nature” (p. 215). He also contends that no matter how youth are educated, a complete change of values must complement the ‘reorganisation’ of societal beliefs regarding natural environments.

* Cultural Backgrounds *

Children are besieged by culture, as it affects all aspects of their lives (Pressley & McCormick, 2007). Cultural backgrounds helps to shape ecological identity, sense of place, and
ecological literacy through the influence of opinions, beliefs, and attitudes of parents, grandparents, politicians, peers, and community members. Despite the difference in experiences between low-income and affluent citizens, Evans, Juen, Corral-Verdugo, Corraliza, and Kaiser (2007) believe “there are good reasons to expect cultural heterogeneity in environmental attitudes and behaviour” (p. 129). Although according to Linden (2007), it may be beneficial to extend children’s understanding of other people’s identity by exposing them to other cultures in order to understand that not everyone has the same background. Linden defines cultural background as “the patterns of behaviour and associated beliefs (not necessarily of faith) that are shared by the individuals within a given group” (p. 33). Unfortunately, some people have little or no cultural awareness to reference. These individuals then become somewhat lost in the myriad of other cultures or subcultures within North American society.

P. Kahn (2003) insists that although culture may play a factor in determining people’s beliefs and values regarding the environment, the differences between cultures and their environmental beliefs are surprisingly similar. According to Alwin (1996), some differences occur when children are being left to develop their own versions of culture and values and without the knowledge of their ancestors’ (parents’ generation) understanding of the environment. This development also leaves youths susceptible to the persuasions of societal influences (i.e. various technologies, consumerism etc...) which Alwin calls generational replacement. Alwin also suggests that as a parent becomes less strict in developing values with a child, the potential for youth to fill that “void” with values independent of their parent’s beliefs becomes more attractive.
Carson (1998) considered that to maintain a sense of wonder, the child “...needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in” (p. 55). Kals and Ittner (2003) stated that along with meaningful and positive experiences in natural settings, these experiences are best to be shared with “significant others” (p. 152). Unfortunately, many parents and adults feel inadequate when faced with an inquisitive child. Without passionate individuals willing to ignite the sense of wonder in children, magical moments and meaningful encounters with nature may not occur. Therefore, educators, family members, and community members who possess a passion for the natural environments should get involved in some form of educating local youths in hopes of enhancing the lives of children as well as providing them with the necessary experiences to affect ecological identity development.

Encounters and conversations with passionate, caring, and dedicated role models or just spending time with another person in nature also influence an individual’s environmental beliefs (Palmer et al., 1999; Peterson & Hungerford, 1981; Sivek, 2002). Chawla (2006) cited two reports, Sia, Hungerford and Tomera (1985/86) and Sivek and Hungerford (1989/90), which concluded that childhood experiences such as hunting, fishing, camping and family vacations influenced a child’s future considerations regarding the environment. Interestingly, all of these activities would generally involve an adult taking the child into nature to participate.

The individual who shapes our ecological identity may help influence one’s ecological identity, sense of place, and ecological literacy development into becoming more of ecologically friendly citizens? Adults must be aware also that children and youth may mimic or copy the moral actions of someone they look up to and respect. Eagles and Demare (1999) found that
discussing the environment at home with parents or siblings had an influencing effect on children’s attitudes towards the natural world. When adults demonstrate positive attitudes for children, this role modelling can be beneficial in guiding future behaviours (Linden, 2007).

Lived Experiences

“Lived experiences” is a term that describes everything that an individual has endured throughout their existence. According to Hansen (1994), in order for people to understand actions, they must first understand experiences. Therefore, if youths are to act towards natural environments in an appropriate way, they must experience positive moments with nature. Boxall (2002) found that some children were unable to cope with daily elementary school situations due to various negative experiences early on in their schooling. It follows that a child’s negative experiences in natural environments will create difficulties in enjoying nature in the future. Gebhard (1994) suggested that an emotional connection with the natural world could be maintained if youths are regularly provided with positive experiences in nature (cited in Kals & Ittner, 2003). Whenever possible, adults must provide youths with positive and meaningful lived experiences in order to develop the potential for youths to be environmentally responsible in the future.

Other factors that determine how a person’s lived experiences influence them would include the who, what, when, where, and why of an individual’s lifetime. Good and bad experiences play a role in the development of ecological identity, sense of place, and ecological literacy. How one reacts to these positive or negative experiences is a determinant of their level of connectedness to the natural world. Pressley and McCormick (2007) defend the hypotheses of Barnett (2002) and Zigler, Finn Stevenson, and Hall (2002), which propose that children must
have enriched opportunities that are fulfilling and not experiences for the sake of experience. A valuable experience must be of quality and generally positive.

When adults described what factors affected their development of personal responsibility towards the natural world (attitude), 75% of Canadian, and 71% of Australian respondents chose childhood experiences in nature as their number one reason (Palmer, Suggate, Robottom, & Hart, 1999). Palmer, Suggate, Robottom, and Hart also reported in previous research findings that British, Slovenian, and Greek respondents also emphasized the importance of opportunities to explore nature in developing their long-term concern for the environment.

Hunter and Brehm’s (2004) study found convincing results supporting the importance of life experiences in influencing value orientations towards nature. They examined the value orientations of rural residents towards wildlife and biodiversity. As individuals partake in nature based activities or become attached to a place where these activities occur the likelihood of values concerning the wellness of these places will strengthen (Vorkinn & Riese, 2001). Hunter and Brehm (2004) also suggest that particular events during a youth’s life could result in environmental values being enhanced or altered depending on the event being positive or negative in nature.
Figure 1: Connectedness to Nature: Interrelationships of Concepts & Precursors.
Background and Significance

Vinning, Merrick, and Price (2008) believe that humans were once “psychologically and physically closer to nature than residents of industrialized nations are now” (p. 1). Over the past decades, human relationships with nature have declined significantly due to various lifestyle changes, resulting in detrimental physical, emotional, and mental effects on children (Charles et al., 2008; Louv, 2005). For example, many parents and educators rely on technology or media resources as an ‘edutainment’ tool or babysitter to occupy the child’s attention while focusing on their own priorities. Orr (2002) wondered why people “are astonished to learn that they (the children in the study) neither respect adults nor are equipped with the basic skills and aptitudes necessary to live responsible and productive lives” (p. 4). This unfortunate realization may be one of the causes for how people today situate themselves in the natural world as “in power over” nature rather than “in power with” nature. When people spend time in natural ‘places’, opportunities for relationship building and deeper connections with the natural world may develop (Hutson, 2006). Disappointingly, if that place becomes a room filled with a television or other technological devices, people may reduce their chances to build future bonds with nature (Orr, 2002).

Connectedness to nature and how people develop their connectedness to nature is debateable, however, Shultz (2002) discusses it as “the extent to which an individual includes nature within his/her cognitive representation of self”, (as cited in Mayer & McPherson-Frantz, 2004, p. 504). Mayer and McPherson-Frantz present the Connectedness to Nature Scale (CNS) as a “measure designed to tap an individual’s affective, experiential connection to nature” (p. 504). Developing a connection to the natural world is a key factor in establishing the foundation for humans either to begin or to continue caring for nature (Thomashow, 1996). As people attach
or connect to the natural world, their willingness to help and care for nature will ensue (Disinger & Howe, 1992; Mayer & McPherson-Frantz, 2004). Unfortunately, in recent decades, many humans seem to have lost their instinctive bond with their natural environments (McKibben, 1999) and according to E.O. Wilson (1984), it is imperative that a refined understanding of peoples’ connections to the land be reintroduced as preparation for future generations’ sustainability on Earth.

Connecting children to nature assists in the development of a sense of place, which is a fundamental basis for ecological identity formation in people (Thomashow, 1996). A sense of place is also a factor in developing eco-literacy and the formation of lifelong responsibility and caring for the environment (R. Wilson, 1997). Powers’ (2004) working model for theoretical change in place-based education contends that a child must have a clear understanding of place (knowledge and experience) before they become attached to that place (attitude). Once this occurs, Powers believes children will become more publicly engaged (change behaviours) and the community and environment will benefit from their involvement.

Technological innovations that have increased the rate at which humans manipulate and damage the natural world cause many global sustainability concerns (Naess, 2008). However, according Opotow and Clayton (2003), these technological advances should not be held entirely responsible for the degradation of nature. According to Hansen (2008), the notion of a critical ecological tipping point is more likely than ever before to challenge human existence on Earth. Sustainability issues including climate change, food security, and overpopulation will continue to create a largely uncertain future upcoming generations. Humans must not only consider more closely the effects of technological innovations but more importantly the changes in attitudes,
behaviours, and ways of thinking towards their connectedness to the natural world (Hansen, 2008).

Although changes in attitudes, behaviours and ways of thinking may drive many technological advances, as a society people must now consider if these technologies are beneficial to the sustainability of humankind rather than further exploiting natural environments. People have chosen to decimate the natural environments with their intellect, innovations, and poorly designed strategies (Diamond, 2005; Gelbspan, 2004; Starke, 2005). People must now consider how to use acquired knowledge and technological creations to enhance the sustainability of the planet.

Some researchers report that between 50 to 80 percent of environmentalists interviewed consider their childhood experiences in nature to be the most significant contributor to their passionate beliefs towards natural environments (Chawla, 2007). Correspondingly, Chawla (1999) also reported that the most significant influential factor on individuals’ connection to nature was the amount of time people spent having outdoor experiences. In 2002, Bixler, Floyd, and Hammitt documented that ‘childhood play locations’ influenced their later life interests in “... wildlands, environmental preferences, outdoor recreation and occupations in outdoor environments” (as cited in Wells & Lekies, 2006, p. 3).

Other factors including role models, literature, education, and a loss of natural habitat are also highly rated as influencing peoples’ beliefs (Tanner, 1980). Dutcher, Finley, Luloff and Johnson (2007) reiterated Kals, Schumacher, and Montada’s (1999) findings that “…emotional affinity toward nature was a strong predictor of nature-protective behaviour and that such affinity traced back to present and past experiences in natural environments” (p. 477). For youth across Canada to help develop awareness of environmental issues they need influential role models,
appropriate education, and formative experiences in nature. Orr (1994) states, “The truth is that without significant precautions, (anthropocentric) education can equip people merely to be more effective vandals of the Earth” (p. 5). Without “experiential” learning moments filled with appropriate education, children may choose to proceed in joining the ever growing line of environmental consumption rather than environmental conservation. Suzuki and McConnell (2002) consider that, “Above all we need to reclaim our faith in ourselves as creatures of the Earth, living in harmony with all other forms of life” (p. 208).

Statement of Research Interest

The initial intention for this study was to consider the research questions listed below with an understanding that a more refined focus of the questions would occur through the emergent research.

Initial Research Questions:

Is there any difference between rural and urban Manitoba youths’ CNS scores?

Are there differences between urban and rural youths’ connectedness to natural environments and if so, what are they?

What factors have affected rural and urban youths’ connectedness to nature?

With these research questions in mind, the purpose of the project was to understand the main concepts outlined in the Introduction section including, ecological identity, sense of place, ecological literacy, and values and consider how the various precursors influenced youths’ connectedness to nature. Upon final data collection, an analysis of the statistics and relevant information allowed for the two groups to be compared.
Project Rationale

This inquiry was undertaken in response to personal observations of rural youth becoming progressively disconnected from nature even though the student population was somewhat immersed in natural environments. Students increasingly began to drop out of outdoor-based activities (for example skiing, camping, backpacking, running, and biking for example). When students were questioned regarding their reasons for quitting these activities, many insisted that they actually “didn’t know” why, they just chose to quit. This apathetic student attitude became a focal point in my teaching and volunteering efforts. I did not accept the reason of “I don’t know” as valid. I knew there would be considerations of financial constraints, equipment availability and transportation issues, however many of these students lived in a rural setting where the outdoors was literally outside their front door.

I believed that there must be other reasons for these students to choose not to participate in outdoor activities. I was truly bothered that so many students did not have some connection to nature and considered ways of sparking renewed interest in education for my students. I began to do what I knew best. I took my students outdoors for classes and began taking groups of students on multi-day trips to local, provincial and national parks. My intent was to provide students with experiential opportunities to discover nature and reignite a sense of wonder about their world and their place within it. I wanted to know if my actions, taking children outdoors, would be helpful in re-establishing an interest of the outdoors that was once there.

I worry about the future of my own children. I worry about what kind of mess will be left for them to clean up in future years. I worry that their lives will not be as rewarding as my childhood. As an educator, I have observed other children to be fearful and anxious during their outdoors experiences. Clearly, they had not been provided with enriching experiences at younger
ages. I aim to provide my own children with many experiential opportunities so that they will be informed when developing their personal values regarding the environment and their place within the ecosphere. When many children are playing video games and leading sedentary indoor lives, I can feel good about the fact that my children are engaged in outdoor activities on a regular basis and have the potential for stronger relationships with the natural world as they mature.

**Study Outline**

This research study used a mixed methods approach to collect and analyze data. Mixed methods research is a blend of both quantitative and qualitative perspectives that assists in explaining disparities in the assorted data collected. “The goal of mixed methods research is not to replace either of these approaches (qualitative or quantitative) but rather to draw from the strengths and minimize the weakness of both in single research studies and across studies” (Johnson & Onwuegbuzie, 2004, pp. 14-15). Mixed methods research takes both a breadth and depth assessment of the studied topic, allowing for greater awareness, understanding, and expansion of data. The intention for using mixed methods research is to evaluate and analyze the data from more than one viewpoint. It is anticipated that this will result in a more reasoned and justified understanding of youths’ connectedness to nature.

An online survey (www.surveymonkey.com) was used to gather qualitative data. The surveys administered at both the rural and urban schools took participants approximately 10-15 minutes to complete (Appendix B). The survey included fourteen statements (Appendix B) from the CNS as well as a few questions relating to demographics and approximate time spent outdoors. Once the online survey was completed, five semi-structured interviews were conducted at both the rural and urban schools. From these interviews, qualitative data was gathered to
increase the perspective of youths’ connectedness to nature by allowing the participants to respond freely about their personal thoughts about the natural world. In Chapter 3, the methodology section will be expanded followed by research findings, conclusions, and recommendations in Chapters 4, and 5 respectively.

Study of Limitations and Delimitations

The study was intended to compare rural and urban youths’ connectedness to nature and better understand what factors played roles in determining how connected individuals became through their exposure to various precursors during their upbringing. The sample populations were purposely chosen as a convenience to the researcher. Working in the rural school allowed for easier access to participants and the administration of the online survey and interviews.

Being a researcher and educator in the same building could be considered a conflict of interest. However, students’ grades were never at risk as the students completed the survey anonymously and no marks were awarded or deducted. Only those students who wished to participate in the survey were asked to include an email address in order for the researcher to contact the selected youths for the upcoming interviews. In the case of the urban sample, youths were recruited voluntarily through the assistance of a school representative working in the downtown area school. Similarly, urban youths were not coerced into taking part in this survey but rather were asked to take part voluntarily.

Although unintentional, a larger population of Aboriginal youths in the urban sample was selected to participate in both the online survey and interview processes. Many Aboriginal youth from this school were sponsored to attend a city school and had moved off their home reserve lands in order to receive a secondary education. Some of the participants noted that they had lived either in a rural area in the past or continued to do so during the summer months and
holidays. Initially, the researcher believed this may produce biased data however, these students, considered themselves to be more influenced by their urban setting than their past rural lives. This project supplies a snapshot of two geographically different school populations with intriguing results. If the opportunity to re-test this project were to take place, greater considerations of the participant demographics could be contemplated.

Other limitations of this research may have included the use of technology to conduct the online survey. It is plausible that some youths have limited computer literacy skills or are not interested in computers in general. In addition, the vocabulary used in the survey and interviews may have been intimidating or unfamiliar to some of the participants. For example, the ability to distinguish between the words nature, natural, wilderness, and environment may have played a factor in how some participants responded to various statements or questions. Furthermore, some rural youths may have altered their answers due to society’s sloppy definitions of words including rural, nature, natural, and agriculture. A child-based CNS survey is currently being developed by the CNS originators that should be better suited for participants in the child category and possibly for students with literacy impediments.

The average age of the interviewees from the urban demographic was approximately two years younger than their urban counterparts. Although participants were chosen at random, an older group emerged from the rural population. This difference in age could have accounted for their lack of experience in natural settings and inability to provide detailed description of those experiences.

When beginning this project, the proposal took much longer than anticipated. Unexpected delays after the proposal had been approved prevented the research from being completed in a more timely fashion. In retrospect, if the proposal had been completed earlier, more time may
have allowed for a greater number of participants to take part in the survey and interview processes. Equally important is the consideration that if a better understanding of the research process been clearer early in the proposal stage of the project, more schools and a greater number of youths would have been asked to participate which would have made for a greater representation of the rural and urban settings. Despite these limitations, these results provide additional knowledge in understanding how youth best connect to the natural world.

*Myself as a Researcher*

While preparing for my thesis work, the journey began by researching back to when my great-great-grandparents and their children arrived in Quebec City on July 13, 1875 aboard the S.S. Peruvian No. 30 (Barkman-Friesen, 2001; Goertzen, 1976). They were part of a major Mennonite migration that would influence the way people viewed Canada’s natural environments in the future. My ancestors immigrated to Canada to begin a new life predominantly working in the agricultural expansion of the west. Considered excellent farmers in Russia and Germany, the Mennonite people built new “relationships” with the Canadian landscape to understand among other things, the local climates, weather conditions, and geography before experiencing similar success on Canadian soil.

History describes them as determined people able to endure and connect to the harsh realities of the Canadian wild lands in order to survive. Unfortunately, the Mennonite people, among others, were a factor in the early development and environmental exploitation of the land through farming practices. During this era, the Mennonites were recognized as the first settlers to prove that the difficult Canadian prairie terrain could be altered into a landscape suitable for agricultural use (Goertzen, 1979). Immersed into a new world, the natural environment and
agricultural pursuits assisted in creating a new identity for the immigrants that would ultimately connect them to the land.

I have also learned a great deal about nature and my place within the environment through my family’s past way of life. My family’s lived experiences, conversations, and passion for the environment have evoked emotions and the development of an ecological identity in me. Their contributions and influences have afforded me the ecological roots to connect to, care for, and understand the natural world in such a way that I am inspired to pass their teachings on to my three sons and others that I teach.

Both sets of my grandparents were farmers in southern Manitoba. Their knowledge, appreciation, and concern for the environment, animals, and community still rings clear in my memory of them today. They had learned what was essential for survival in the unforgiving prairie climate without many of today’s modern amenities. Their lived experiences and relationships with the land and community, not computers figures or television reports, told them when to plant their crops and when to harvest. In addition, they learned through conversations with neighbours, family, and friends who had compiled other necessary information about how to live and practice agriculture. This knowledge passed down from generation to generation provided a base from which families succeeded or failed in agriculture and ultimately in life. Today, it seems that generational knowledge has become an afterthought as we watch a vast amount of information disappear as the population ages and passes on.

Although my grandparents are no longer alive, I think back and wish I had observed and learned more from their connections to the natural world. I wish now that I had asked more questions and listened more intently to the discussions at the dinner table or while we worked outside. I unfortunately missed many opportunities to engage into a deeper understanding of my
elders’ who were passionate and educated about the natural world around them. Much of this passion and knowledge was passed on to my parents during their youth while growing up on the farm. What I was able to learn and remember from my parents’ recollections has also been a factor in developing my identity and a connectedness as a member of the natural community.

While growing up in Winnipeg as a youth, I lived an urban lifestyle full of the modern conveniences, which were more readily available to city residents and included city buses, movie theatres, shopping malls, and zoos. In Winnipeg, natural settings were also available to explore and I enjoyed my time in whatever natural environment I could find. Fortunately, I was encouraged daily by my parents to engage in the outdoor activities although I lived in an environment where the outdoors could be forgotten for days at a time.

To counter this, I would often hike the “monkey-trails”, explore the Assiniboine River and Sturgeon Creek, play in the local play-parks, or become “lost” in the Assiniboine Park forest with my friends. I was not encouraged to play in the house unless the weather became problematic. Rain, snow, wind, and heat were still just part of growing up as a child in the 1970s. I was not taught to avoid the elements but rather I was expected to accept and enjoy whatever weather there was. I am from a generation where the outdoors was still considered a safe place to play and where ‘natural’ world experiences were part of growing up and not to be avoided. It was during these times that the ecological roots and values towards caring for the natural world I have today were formed.

No matter where the location, I was often allowed to venture off alone into the fields, brush streams, and creeks to explore various natural places and begin understanding, my connections and place within the natural world. With early and constant encounters with prairie and boreal forest ecozones as my playground, I was developing my ‘roots’ for growing and
living as a member of the web of life rather than a possessor of the natural world. I encountered the best rural and urban life while growing up in Manitoba and this presented an opportunity for me to develop relationships with the natural world.

Although I spent a majority of my youth living in an urban setting, I spent many weekends and summers months living a rural life with my family. I am thankful to my parents, aunts, uncles, cousins, siblings, and friends for providing me with such rich and meaningful opportunities to explore and bond with the natural world. Although I did not likely reflect these sentiments back then, there were unlimited possibilities for me to learn and create relationships with the Earth. Whether I was at the family farms in southwestern Manitoba or the green spaces in my home community in Winnipeg, the natural world was always waiting to teach me something new. My connections with nature began at an early age and were developed through my lived experiences with people who demonstrated a caring characteristic for the earth. They willingly shared their cultural background based around relationships with nature and knowledge learned or passed down from others.

The opinions and concerns for environment and community were hidden inside this once shy, confused boy, unsure of how to express his love for the outdoors and beliefs in protecting nature to his peers or adults. It was not until more recently that I have observed a disconnection between children and the environment. Today, I attempt to help others reconnect with natural environments by providing them with experiences via field trips and conversations to develop their own passion and sense of wonder. The relationships I had with the natural world as a youth were fundamental in developing the person I am today and I hope for others including my children, my students, and community members to have similar experiences.
As I look back at my ancestors’ experiences as new Canadians, I have learned that technology helped them to increase production and decrease workload. I was able to observe my grandparents, aunts and uncles become more reliant on technology throughout the years to increase the ease of farming, for entertainment purposes as well as for general communication. I now see myself as being more dependent on technology than I ever considered. Correspondingly, I rely less on prior knowledge or generational knowledge passed down from my grandparents and parents. This increased dependence on non-natural world items makes me wonder what my children’s world will be like when there is the possibility that even fewer people will care for natural environments, if any are remaining.

My motivation for beginning the Environmental Education and Communication program at Royal Roads University was my wife, Erika, and her persistent encouragement. My inspiration for my thesis and forging my way through this journey are my sons, Timber, River, and Leaf. My concern for their future, health, and well-being has driven me to consider what might make a difference in their world. How can I help to keep them connected to nature and plant seeds of knowledge and understanding (ecological literacy) without placing the weight of the world on their shoulders? How can I help children and youth connect to natural surroundings to develop an ecological identity and sense of place within their communities? As they will be left to deal with the situations that my generation and others before have created, how can I best prepare them for this time?

In conclusion, I have chosen to compare rural and urban youths’ connectedness to nature because of the environmental changes and the human dynamics with nature I have observed over the past several years. I have witnessed the destruction of wild places I once loved and was connected to. In the past decade, I have also watched my students become more technologically
astute and less environmentally aware or connected. I was a “city kid” who was fortunate enough to live, work, and play in rural Manitoba during weekends and summer months. The combined experiences in both rural and urban locales helped to form the environmentalist that I have become today. I do not see many of these similar types of experiences being offered to the youth of today with any consistency. I wish to discover which experiences present the best opportunities for youths to develop their connectedness to nature. This research study could contribute to a better understanding how citizens in both rural and urban communities could be transformed into more ecologically conscious caretakers of the earth.

**Summary**

This study explored a comparison of rural and urban youths with regard to the factors that developed their connectedness to nature. Analyzing and reflecting upon the results enables a better understanding of how both rural and urban youth connect to nature. With this information, parents, educators, and community members (among others) can decide how to educate youth best to understand the importance of connections with natural environments. This is essential for future generations to ensure the sustainability of natural environments. E.O. Wilson (2006) asserted that humans are genetically hard-wired to natural environments as is the need to feel emotionally connected to nature. He asserted that this “connectedness” will someday come full circle and allow us to cherish all of life—not just our own. As a whole, society must provide the youth with opportunities to reconnect with the natural world and help young people to build relationships with nature.
CHAPTER TWO: LITERATURE REVIEW

Preamble

While heavily influenced by Arne Naess’ philosophical notion of Deep Ecology, Devall and Sessions (1985) concluded that an ecocentric viewpoint is one’s belief that everything is connected to everything else on Earth. Vogels (2007) supports that “an ecocentric view of the world asserts that the nonhuman world has intrinsic value in itself and is not dependent upon its obvious instrumental value to humans” (p. 42). Many highly respected environmental writers also believe that forming a connection or emotional attachment to the natural world influences an individual’s future ecological behaviour and develops a more environmentally consciousness citizen (Leopold, 1949; Orr, 1992; Sobel 1996; Suzuki and McConnell, 2002; Thomashow, 1996). However, young peoples’ attitudes towards natural environments are influenced at a very young age (Bryant & Hungerford, 1977) and must be nurtured in order to affect change in their attitudes. If all humans considered themselves as equal parts of the web of life rather than the highest level in a hierarchy of existence, people may be able to slow down or reverse the devastation humans are currently inflicting upon natural environments.

In western culture, children are exposed to the ideals of consumption from an early age. From their first toys, food choices, and entertainment, children are led to believe that being a good citizens or people means they must be an active consumer (helping the economy) and that buying things will make them happier (S. Kahn, 2006). Messages informing citizens that they are not good enough unless they purchase certain items are filling the minds of children and adults and directing society towards a culture driven by greed, wastefulness, and over-consumption. Wanting more “things” means people must work longer hours, more days, and in some cases
multiple jobs in order to sustain their way of life, which leads to less time to enjoy simple, more affordable, and accessible things in life such as the natural world.

Not only can nature be enjoyable to experience, it also provides a framework for people to discover or rediscover themselves. Cobb (1959) wrote, “...I became acutely aware that what a child wanted to do most of all was to make a world in which to find a place to discover a self” (p. 540). If many of today’s youths feel disconnected with the natural world and lack an appreciation for local environments where will they begin to discover themselves (Louv, 2005). Without meaningful locales to connect to place or to self, people are more likely to continue developing connections with human-made constructs such as computer games and the internet instead. Gould (1991) once stated, “We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well—for we will not fight to save what we do not love” (p. 14). This bond with nature becomes the foundation for ‘ecological roots’ which are formed when situated in a place and compose our own identities, communicate with the land, and resolve and reflect upon what is truly important in peoples’ lives (Thomashow, 1996). Louv (2005) indicated that children seem to have replaced their natural world ecological identity that was once part of childhood with a technological and artificial identity that is currently eradicating their connections to the environment.

One of the causes for the disconnection with nature may very well be the rapid increase of computer and video technology thrust upon youths in schools and at home in recent years (Zaradic & Pergams, 2007). Many rural school divisions attempt to provide their students with comparable computer literacy opportunities to that of urban school students. In this competitive world, rural children must accept new technology in order to contend for better paying jobs, scholarships, or university placements (Renwick, 2007). New technologies are constantly being
introduced to save time and make for an easier life however, technological advances also
increase “sit-down” or “screen” times resulting in children often spending more sedentary time
indoors. Max Frisch argued that technology has the “happy knack of so arranging the world that
we need not experience it” (as cited in Payne, 2003 p. 532). When people no longer need to
experience the world, an apathetic attitude towards how we interact with the nature will continue
to be cultivated in the public mind.

If children continue to spend increased time in a fabricated world they will increasingly
become less healthy and less likely to engage in relationship building with nature and their local
environments, choosing to stay indoors and remain sedentary instead. As Edward Abbey
declared in Desert Solitaire (1968), “the indoor life is the next best thing to a premature burial”
(as cited in Freeling, 2006, pp. 22-23). His statement seemed to be predictive of today’s younger
generations as they continue to drift further away from connections to their local environments.
Unfortunately, this direct contact in natural settings is important in developing elements of
creativity, problem solving, as well as intellectual and emotional development (Kellert, 2005).
Technology cannot take the place of natural world learning and the benefits that exude from
experiencing ‘life’. On average, children spend between six and seven hours per day and thirty to
thirty-five hours per week in school buildings. A recent study by Active Healthy Kids Canada
[AHKC] (2008) found that children ages 10-16 also spend upwards of 42 inactive hours per
week in front of computer, television, and video game screens. In essence, children spend more
time occupied with technology than most of their parents will spend at work during the week.
Andersen, Crespo, Bartlett, et al (1998) found that one quarter of American children (ages 8-16)
watched four or more hours of television per day while 67% watched two or more hours per day.
As television viewing time increased (potential for activity time decreased) this correlated with
higher Body Mass Index (related to percentage of body fat and total body fat) and skin fold thickness (body fat) scores.

Katcher and Beck (1987) found that never before in the history of humanity have people spent so little time in contact with the natural world. This discovery, combined with continued urbanization, technological advances, and decreased physical activities are factors in the increase of numerous health related consequences including diabetes, coronary heart disease, and obesity (AHKC, 2008). Louv (2007) reported that only six percent of children between the ages of nine and thirteen play outdoors on their own while participation in activities such as bike riding were down 31% since 1995. Burdette and Whitaker (2005) reported that children participated in 25% less free playtime in 1997 than in 1981. Of Canadian children ages 2-17, approximately 26% are considered overweight or obese with surprisingly higher rates reported in rural communities (as cited in AHKC, 2008). Similar findings were also reported in several communities across the United States where obesity levels in both urban and rural children were on the rise however, rural children rates are escalating faster than their urban counterparts (South Carolina Rural Health Research Center, 2007).

This preventable sedentary time is compounded by an increased expectation of provincial government education departments to engage children in additional computer technology time in all subject areas. (Manitoba Education, Citizenship, & Youth, 1998). Although technology is an important piece of educational practice, many other important subject areas, like earth education, are neglected. Orr (2004) believes, “all education is environmental education. By what is included or excluded, students are taught they are part of or apart from the natural world” (p. 12). As contact with nature decreases, there is concern that children may never seek the experiences necessary to understand the significance of ecological principles including sustainability, eco-
literacy, and conservation. It is perceivable that future generations of children may not develop any connection to natural environments. If such a case should arise, these generations may not deem the protection of the environment as a necessary cause requiring action.

The following section explores the composition of connectedness to nature by reviewing literature from three main concepts, Ecological Identity, Sense of Place, and Ecological Literacy. As well, the notion of Values is discussed and how values assist in forming all other components of an individual’s connectedness to nature.

The Meanings of Values

Values is an overlying theme that connects all three concept groups and four main precursors. The meaning of values has various definitions, which often come with a connotation of monetary worth. “Modern values about material possessions are connected to our perceptions that economic growth is essential for a good life” (Marten, 2001, p. 175). Edwards and Abivardi (1998) perceive that “government has a responsibility to ensure that some areas are protected for wildlife (at most, a few percent of the total land area), the needs of conservation cannot be allowed to constrain economic activity outside the area so designated” (p. 240). Unfortunately, these ‘ecological islands’ become too isolated to ensure that species continue to thrive, in essence de-valuing their worth.

To different people and different groups the value of natural environments can be quite different. Disappointingly, many people are still unable to appreciate nature as more than just an asset or a commodity. They have forgotten about the connection of nature being an essential component necessary for future human existence. Allsopp (1972) believed that “We share the Earth with other species. Some we cannot do without and for others we should have a sense of responsibility...Man has trusteeship for nature” (p. 91). Calgary, Alberta is an example of
environmental disregard, in which natural environments are rapidly developed into shopping centres, housing communities, and transportation infrastructures to satisfy consumer demands. The economic boom in Alberta during recent years has lead to new communities swallowing up riparian ecosystems that protect the river systems and caused substantial habitat loss. During such rapid landscape changes, animals and plants species are displaced or cut off from natural corridors (DeStefano, 2009) decreasing the potential for sustainable biodiversity.

Human values have changed over time. The Culture and Media Institute (2007) found that 74% of Americans believe there are lower moral value standards than 20 years ago. According to Suzuki and Taylor (2009), one reason for moral decline is that humans are attempting to fill a void, an ‘emptiness’ missing from peoples’ souls. Instead, this void is filled with a “ritual” of consumerism, purchasing disposable goods in exchange for hard-earned money. To many people, shopping malls are more important than schools and churches. In the United States, store hopping was selected as the number one activity for 93% of teenage girls (as cited in Suzuki & Taylor, 2009, p. 23); and in 1987 the number of shopping malls exceeded the number of High School facilities (Orr, 2002). Pipher (1996) defends that urban families need to consider how much of their lives are situated around shopping malls and consumerism. As a counsellor, Pipher insisted that her clients, both children and adults begin spending time with their families in natural settings to combat some of the issues the families were facing.

Without such valuable family time, the unfortunate results are that values the youths are developing from the shopping malls experiences are simply to earn money, spend it on material items, feel good about themselves for a while and when people no longer feel good about themselves, start the process over. However, values can also be defined as “desirable, abstract,
trans-actional goals that serve as guiding principles in people’s lives and as criteria they use to select, justify, and evaluate actions, people, and events” (Killen & Smetana, 2006, p. 301).

So, if values are an individual’s moral compass that guides one’s ways of thinking, feeling, and acting then, values could be considered as significant in the framing of the concepts and precursors that potentially develop an individual’s connectedness to nature. If this is true, then the establishment of values should be considered an action and not a passive quest for moral development. “Children do what we do, not what we say. If we don’t change our ways first, what incentive do children have to behave more responsibly?” (Suzuki & Taylor, 2009, p. 214).

Adults must actively demonstrate to the children that they too care about the state of the planet and begin a process that leaves behind a once valued consumerist belief. If “values are basic ideas that guide us in how we should behave” (Callenbach, 2008, p. 145) then individuals, communities, and nations must begin to model appropriate environmental behaviours.

In order for behaviours to change locally, core values may need to be transformed at home, at school, at work, and individually. Tough economic and environmental decisions must be made about values for the sake of people, plants, animals, and the ability of the planet to remain sustainable well into the future. Theologian Paul Tillich (1957) suggests the ultimate concerns for humans are whatever it might be that justifies our value system. How people decide to live as a society or even globally could be based on this ultimate concern. One might think that as an ecological “tipping point” of our planet becomes ever so apparent with emergent research, that societal or individual actions and behaviours would have already changed to sustain life in the future. The length of time required to change either individual or societal values in regards to environmental concerns cannot be determined. Changes occur regularly that
influence individual or societal values. A bigger question for future research when considering changing “values” is, “Where does one begin?”

While values are not inherent; they are developed and influenced through a variety of methods including: direct instruction, observation, participation and guided action, and reflection (Halstead & Pike, 2006). In a similar manner to how advertisements promote new cell phones or video games, environmental values must be embedded in a child’s mind through education, family values discussions, and community role modelling efforts. Moreover, if Hungerford and Volk (2001) are correct in stating that, education’s goal is to mould human behaviour then education of many methods must play a much greater role in developing the core values in youth.

Values are constantly undergoing changes in people’s lives. According to Van Matre (1990), building a child’s values “...will take multiple focused exposure, much reinforcement, and repeated application” (p. 139). In some regards, moral development begins almost immediately for a child when they are born, however the core value development typically begins between the ages of 7-15 years old (Pressley & McCormick, 2007). Therefore, developing appropriate values is important while a child is still young and establishing their understanding of personal beliefs and worldviews. For youth to develop connections to nature, they must be provided with significant learning opportunities by their parents, teachers, and family and community members. Ecological battles and the protection of fragile ecosystems will be won within the communities.

Communities must invest in educating the youth and public through a variety of means. For example, accessing interested adults from older generations who are willing to introduce children to the skills and ecological knowledge before this generational knowledge is lost.
Marten (2001), believes that environmental and community education is fundamental to ecological values adoption. Sadly, educational experts including Orr (2002, 2004) believe that the education systems and curriculums, which have ultimately not changed in a century or more, are the reasons for much of global economic and environmental plight. Marten (2001) expands this belief and concludes that:

Modern education compels us to spend thousands of hours acquiring skills for professional success, but our ecological and community skills are limited. Ecological and community education is learning to form community visions and to think clearly about policy alternatives. It is the ability to think strategically about local ecosystems in terms of whole systems and connections among its parts-including connections between social systems and ecosystems. (p. 177)

In some Scandinavian countries, including Sweden and Finland, children do not begin elementary school until age seven. (In Canada, children typically begin Kindergarten at age five). Until then, many Swedish children spend time with parents or grandparents, learning their language, culture, and traditional ways of life. All parents receive 480 days of parental leave per child so that they are able to spend more time with their offspring. These parental leave days are paid by the government and must be used before the child turns eight years old, at which time they begin the formal education process. All children are encouraged to participate in a sporting activity to keep them active and healthy. They also spend a portion of each day outdoors as this introduces them to respect and conserve their natural surroundings (Swedish Institute, 2009).

The scope of this family oriented system is to allow more opportunities to instil core family and cultural values prior to a child attending school.

In addition to communities listening to their members and youths, governments and families must take active roles in value development. Kellert and Farnham (2002) found that “Rather than talking to people about values, the land ethic, or the sacred, it is more important to
listen—to listen to what they say about their own experiences, their connections to special places: their stories” (p. 143). Minor changes in values can be observed locally as more families and communities accept the activities of composting, recycling, and alternative transportation (for example car pooling or cycling) as part of their daily routines. In a 2008 Gallup Poll, 28% of Americans reported making Major Change while 55% indicated Minor Changes in living a more “Green” lifestyle and protect the environment (Jones, 2008). Many corporations are also beginning to contribute to sustainable development actions as the environmental awareness movement continues to branch out into all sectors of society. As more people voice their expectations for businesses to comply with sustainability principles, more businesses will have to follow suit to remain viable. People across the country must begin to voice their concerns to all sectors of society and demand changes in how people currently live for the sake of our future generations’ continued existence.

**Ecological Identity**

This section explains the abstract concept of ecological identity. Ecological identity will be defined in stages to break down the concept into smaller, more precise pieces in order to understand the mystical phenomenon.

First, the concept of identity is introduced to prepare for a deeper understanding of ecological identity. “Identity is a set of meanings attached to the self that serves as a standard or reference that guides behaviour in situations. When an identity is activated in a situation, a feedback loop is established” (Stets & Biga, 2003, p. 401). One would hope that if a situation related to natural environments were activated, an ecological identity feedback loop would be generated and a genuine innate concern would be evoked. Unfortunately, when individuals are
not attached emotionally to situations, the feedback loop may not set in motion and the ecological identity development would then stall (Stets & Biga).

In the 1960s, Carson’s *Silent Spring* evoked emotions in readers who then took a closer look at natural environments and how people were distancing themselves from a ‘harmony’ that may have once been present between humans and the earth (Garrard, 2004). Kellert and Farnham (2002) defend Dubos’ (1972) reasoning that if the ecology field could provide an understanding of the connections between living things and their environments then science and religion too, could develop a means in which people consider their “ethical duties to nature” combined with “scientific knowledge” and their “sacred beliefs” (p. 7). If a bridge between the scientific world and ecological beliefs (religious beliefs included) can be made, there may be a chance to develop a more respected and academically acceptable understanding of how individuals connect to the natural world.

More recently, Louv’s (2005), *Last Child in the Woods* sparked a social awareness for adults to consider the possibility of a non-medical condition termed, *nature deficit disorder* as a cause for many of children’s physical, mental, and emotional health problems. As environmentalists continue to spread messages about their concerns facing the environmental health of the planet and ecosystems, concepts such as *ecological identity*, *sense of place* and *ecological literacy* are becoming more mainstream subject matter in academic discourse in explaining ecological behaviour (Stets & Biga, 2003). Kellert and Farnham (2002) contend, “In short, we need a common vocabulary, a language that allows thoughtful people to cross over safely and share ideas about science, and the natural world” (p. 1).

Some researchers consider ecological identity to be a social construct formed to help humans understand their place within the natural environment (Light, 2000; Thomashow, 1996).
This constructed identity must however be dynamic in character and flexible to change as an individual’s worldviews change (Hayes-Conroy & Vanderbeck, 2005). In some situations, this orientation becomes an individual’s social role providing a sense of belonging or personal significance (Hayes-Conroy & Vanderbeck) that can be determined by such things as occupation, where a person resides, their affiliation with an environmental organization, or possibly one’s gender (Mueller & Abrams, 2001; Vogels, 2007; Wells & Lekies, 2006). Thomashow (1996) describes ecological identity as how people would perceive themselves “in relationship to nature, and that the degree of and objects of identification must be resolved individually... each person’s path to ecological identity reflects his or her cognitive, intuitive, and affective perceptions of ecological relationships” (p. 3).

Environmental experts have a variety of definitions of ecological identity including Pawlik (1991) who describes it as an individual’s constantly evolving process of learning, understanding, and interpreting the world and the connections of self to that world. Similarly, Linneweber, Hartmuth, and Fritsche (2003) define environmental identity as “...the sum of a person’s perceptions and evaluations concerning nature and environment and their relevance for everyday contexts” (p. 228). Zavetoski (2003) considers ecological identity to be “...that part of the self that allows individuals to anticipate the reactions of nature to their behaviour” (p. 299). Ecological identity has also been defined in terms of how humans orient, situate, or understand themselves in relation to the natural world as developed through a variety of experiences, relationships, and personal interpretations or motivations (Bogner, 1998; Hayes-Conroy & Vanderbeck, 2005; Stets & Biga, 2003; Vogels, 2007). These relationships with nature also constitute a responsibility and obligation to the natural world from which one should never walk away (Vogels). If an ecological identity continuum was developed, one end would represent
individuals with the strong moral, emotional, and passionate caring characteristics towards the environment. A consumer whose concern for the environment is non-existent would represent the other end of the continuum. Every citizen on earth would be situated somewhere within this continuum.

_Sense of Place_

For many years, conservation departments developed policies to protect the land from human exploitation. Unfortunately, the planners seemed to have forgotten about the relationships people need in order to want to protect the environment. The development of relationships between children and their special places is ultimately foundational to the conservation of nature itself (Forbes, 2006). Naess believed, “The movement toward the development of a sense of place is strengthened through a tightening of the interrelation between the self and the environment” (Drengson & Devall, 2008, p. 45). The connections and relationships that children build with nature are as important in developing attitudes towards the environment as they are to the creation of a sense of place; a fundamental basis for ecological identity formation in people (Thomashow, 1996, p. 194). Many researchers (Capra, 1999; Forbes, 2006; Louv, 2005; Van Matre, 1990) believe that engaging children in various outdoor experiences will facilitate relationships and develop a sense of place with local environments and their communities. For relationships and a sense of place to develop however, Fisman (2005) found that ‘sustained’ contact with the natural world (more specifically with one particular place) resulted in positive attitudes and awareness of local environments.

Van Matre (1990) describes sense of place as: (a) being at home in a natural community; (b) feeling caught up in the synergy of an area; (c) seeking new dimensions and forces in a familiar place; and (d) absorbing over time the textures and moods and qualities of a piece of the
A sense of place is also a factor in developing eco-literacy and the formation of lifelong responsibility and caring for the environment (R. Wilson, 1997). Developing sense of place takes time before a true understanding and knowledge of the importance of an environment is realized. This process should begin during early years and continue through a child’s senior years of education and beyond. E.O. Wilson (2006) believes, “the ascent to nature begins in childhood, and the science of biology is therefore ideally introduced in the earliest years. Every child is a beginning explorer naturalist” (p. 139). Children are naturally eager to learn more about their world. Basic ecological fundamentals such as eco-literacy, sustainability, and sense of place could be adapted to current curricula and educators’ lesson plans. Dewey (1897) believed that all curriculums needed to be redeveloped to include real life learning and proposed that place could be a useful tool for teaching children (as cited in Orr, 1992).

Without a sense of place, and a more reasonable understanding of their world, children may not care about the natural areas that for example land developers covet for profit. David Sobel (1996) reiterates this notion when he stated,

> Once children feel connected to nature and “the environment,” physically and emotionally, they’ll be compelled to seek the hard facts, and they’ll take vested interest in healing the wounds of past generations while devising feasible, sustainable practices and policies for the future. (p. ix)

Children need to feel that they belong to something. Without this attachment, a child can feel lost and vulnerable “Each of us needs to belong, not just to one person but to a family, friends, a group, and a culture” (Vanier, 1998, p. 35). Although Vanier does not speak of Sense of Place directly, he uses examples of nature within his writings. For example, “We need to be rooted in earth, nourished by this earth and by the sun, water, and air in order to grow and reach
fulfillment...” (p. 68). Vanier acknowledges that for people to connect to a place or with a community, the development of belonging is valuable.

Ecological Literacy

Literacy is the ability to read and the search for knowledge (Orr, 1992). Ecological literacy is “driven by the sense of wonder, the sheer delight in being alive in a beautiful, mysterious bountiful world” (Orr, p. 86). Ecological literacy requires all citizens of the earth to become responsible inhabitants who understand environmental issues within local and global environments (Roth, 1992). Therefore, ecological literacy requires a continuous reframing dependent on the context in which it is construed. Some people arrive at a definition of ecological literacy by describing what should be included within the framework of an ecological literacy policy for education. Some experts including Orr (1992) and Klemow (1991) explain key principles that everyone should clearly understand before entering adulthood rather than provide clear understandings of what ecological literacy might be.

These unclear understandings may be the very reason why many educators avoid ecological literacy in their current teaching repertoire. Many of these educators may possibly not understand ecological literacy or the key principles required to educate youth. Educating the educators would be the first step in emphasizing the importance of ecological literacy for youths. This would require a concerted effort by education departments and school divisions to make available professional development opportunities for teaching staff. This pedagogical change will take time, money, and a great deal of effort and change in the way the public perceives the purpose of education.

Orr (1992) borrows Garrett Hardin’s suggestion that ecological literacy is the ability of students to consider the question “What then?” (p. 85) or “What now?” to be included in
defining ecological literacy as people may face more ecological issues in the future. Ecological literacy acts as a line of defence or a safety net for future generations to assist in making better choices regarding how actions will affect the natural world or human existence for that matter. Ecological literacy allows for a connection of past values to present day and future situations. Understanding what was ‘right’ from the past and how that information should apply to the future understanding of the planet should be reinforced and repeated.

Is the current education process is working effectively to create better caretakers of the earth, or are we creating as Wendell Berry proclaimed, ‘itinerant professional vandals’ (as cited in Louv, 2005, p. 220) of the earth? The education system has created consuming citizens that are more knowledgeable about video games and cartoon characters than of the natural world situated outside their homes and schoolyards. David Orr (2002) describes how people are able to recognize over 1000 corporate logos but less than ten local natural plant and wildlife species (p. 2). With the growth in popularity and literacy in the technological domain and movement away from ecological understanding does not bode well for the future of the natural world.

In a recent publication of the Oxford Junior Dictionary, a decision was made to exclude over 90 nature-based words to make room for more technological vocabulary. Words such as ‘beaver’, ‘dandelion’ and ‘willow’ were replaced with more cyberspace friendly words such as ‘blog’ and ‘MP3’. According to artist and conservationist, Robert Bateman, “This move will only help to alienate children from their wild neighbours. It’s a step in the totally wrong direction. If kids don’t know the name of something, they won’t care about or think about it” (Get to Know, News section, 2008). In response to Bateman’s concern, the head of children’s dictionaries at Oxford, Vineeta Gupta, stated that older versions of dictionaries included nature-based words because people lived in a ‘semi-rural’ environment but now their environment has
changed (Children & Nature Network [CNN], Commentary News section, 2008). Gupta also professed that, “Children's dictionaries are generally revised every four years, so the criteria for inclusion of such words revolved around whether they might be around in four years time” (CNN, Commentary News section). Apparently, knowledge of nature-based words may no longer be relevant because they might not be around in the future. When anthropocentric attitudes of businesses involved in education begin to adversely affect a child’s ability to make informed decisions about his or her world then how education is delivered must be re-thought.

According to Orr (1992), ecological literacy should be the foundation of education across North America; evoking a connectedness between humans and nature as well as a sense of responsibility for Earth stewardship. “Not only are we failing to teach the basics about the Earth and how it works, but we are in fact teaching a large amount of stuff that is simply wrong” (Orr, 1992, p. 85). Without a general knowledge understanding of ecological principles and the context knowledge to support such principles, children will not be able to make informed and critical decisions for the future. Orr considers how ecological literacy helps to form appropriate ecological attitudes but shows concern for the neglect of ecological literacy into education. He foresees an unfortunate future where large business, schools, and governments are managed by ‘ecological yahoos’ (p. 86) who continue to consume the Earth’s resources.

Although education is not a guarantee for a more environmentally astute population, Orr (2004) proclaims that it will be an “...education of a certain kind that will save us” (p. 8) from the environmental concerns facing our planet and with nature waiting to “teach” our children, should environmental education and ecological literacy be included in children’s daily learning. Using nature as a context for learning may be a more effective and efficient way for teaching children about the Earth. According to Lieberman and Hoody of the California State Education and
Environment Roundtable (1998) in a study of over 40 schools across the United States, when using the local environment as an integrated context for learning, educators will observe positive effects in student achievement and in-school behaviour. For rural educators, humanitarian and environmental based projects or lessons may be a meaningful and efficient way to teach students.

Summary

A growing number of studies support the need for youth to develop relationships with natural environments. Many of these studies call for the development of ecological identity, ecological literacy, sense of place, and values. Unfortunately, the world that children currently interact with emphasizes relationships with technology rather than natural environments. Many of the opportunities for children to engage with natural settings have been forgotten or continue to be ignored by parents, educators, and community programs. The hectic pace of life in the 2000s can often “steal” time away from people rather than enhancing their experiences. As life experiences speed past our children, quality-learning opportunities are squandered. When these experiences are foregone at an early age, missed opportunities to develop strong ecological values may result in generations of youth who do not understand the significance of the natural world.

Today, societal values tend to support the need for economic prosperity and development rather than understanding the importance of ecological connections and the sustainability of natural environments. The current concern for the future seems rather shallow and inconsiderate of the subsequent generations. When so many studies predict that planet Earth’s sustainability is in jeopardy if global changes are not introduce, why are people willing to risk the chance of global catastrophe? Educators, parents, and community members must protect future generations and educate youths about the world being left for them to mend. If the current adult populations
are not yet willing to accept environmental lifestyle changes, they must provide youths with opportunities to ask questions and through dialogue consider what will be required to sustain life in the future. Experiential learning in nature can provide a better understanding of ecology. In essence, convincing the youth to care for the earth when past generations have not, will be a difficult undertaking. A major objective for education systems, local communities, and governments should be to teach children about their role as part of natural systems not how society should exploit natural setting for economic profit.
CHAPTER THREE: METHODOLOGY

Research Design and Rationale

The purpose of this chapter is to describe the research methodology used in comparing rural and urban youths’ connectedness to nature. Research is “the systematic attempt to (a) collect information about an identified problem or question, (b) analyze that information, and (c) apply the evidence thus derived to confirm or refute some prior prediction or statement about that problem” (Hittleman & Simon, 2002, p. 2). A new pragmatic design called mixed methods research blends both qualitative and quantitative research paradigms to examine the major concerns of the research projects (Tashakkori & Teddlie, 1998, pp. ix-x). Quantitative and qualitative research have common features however, “They result from different theoretical perspectives about the overall purpose of research. Despite those differences, the two types can be considered complementary, and they may be combined in a single research project” (Hittleman & Simon, p. 2). This study began by seeking answers to the following research questions:

1. Is there any difference between rural and urban Manitoba youths’ CNS scores?
2. Are there differences between urban and rural youths’ connectedness to natural environments and if so, what are they?
3. What factors have affected rural and urban youths’ connectedness to nature?

The mixed methods style of research did help to produce the desired data and provided opportunities for the researcher to adjust components of the research as the study moved forward. This development is discussed in the section below describing the survey and interview processes.
To begin, an online survey was used to administer the CNS statements in order to collect quantitative data. Quantitative research describes, compares, and attributes causality through numerical measures and mathematical analysis of the differences of those measures (Hittleman & Simon, 2002). “...most quantitative researchers would argue that they do not aim to produce a science of laws (like physics) but aim simply to produce a set of cumulative generalizations based on the critical sifting of data,...” (Silverman, 2000, p. 5). Quantitative research provides a more traditional format for conducting research and displays results through statistical analysis while providing researchers with information regarding what has influenced or will positively affect a variable upon another (Hittleman & Simon). For example, in the context of this study, does living in rural areas affect a person’s connectedness to nature? Alternatively, does living in an urban area negatively affect a person’s connectedness to nature? This positivist approach “bases knowledge solely on observable facts and rejects speculation about ‘ultimate origins’” (Tashakkori & Teddlie, 1998, p. 7). This process will help answer research questions and determine how to develop greater connections with nature between you and natural environments. Understanding what influences youth to build relationships with nature may be useful in further studying of how these influences can be used in future youth’s formal education, home life, or community life.

The quantitative information guided the semi-structured interviews. What the participants provided within their online answers influenced the direction of the interview questions. A preliminary list of interview questions was created, and then altered slightly once the online survey data was gathered (Appendix C). The purpose for the interview questions being altered ensured that significant topics from the survey were also addressed during the interviews. For the researcher, this provided an overlap or transition between the two data collection methods. As
well, the researcher had questions stemming from the survey, which then could be addressed through dialogue during the interviews. The interviews assisted the researcher to gain a greater perspective of the participants’ viewpoints of their connectedness to nature. This qualitative portion of the study allowed for a determination of what factors affected connectedness to nature in rural and urban youths. Both the qualitative and quantitative portions of the study determined if there are any differences between these two groups.

The goal of qualitative research is to understand human experiences and make meaning of the information provided by the participants (Silverman, 2000). Hatch (1995) believed that qualitative researchers are not worried about the statistical analysis but rather “look to inductively answer research questions by examining students and others who influence them in natural contexts, in interaction with other people and objects in their surroundings” (as cited in Hittleman & Simon, 2002, p. 38). Strauss and Corbin (1990) considered qualitative research to “give the intricate details of phenomena that are difficult to convey with qualitative methods” (p. 19). Denzin (1989) believes that qualitative researchers attempt to find detailed information that, ...evokes emotionality and self-feelings. It inserts history into experience. It establishes the significance of an experience, or the sequence of events, for the person or persons in question. In thick description, the voices, feelings, actions, and meanings of interacting individuals are heard. (p. 83).

For these reasons, qualitative methods within the overall data collection were used to allow for a more in depth understanding of the participants’ responses to statements and questions from the online survey and interview portions of the study.

Although the quantitative findings displayed important data, the main differences and understandings became more apparent during the qualitative portion of the research. The tones, inflections, gestures, and emotions that observed during the interviews were just as compelling
as the interview dialogue itself. Observation notes recorded the ‘feelings’ of the participants’ conversations as the researcher engaged as an active listener through the interviews. During many of the interviews, the participants’ words came to “life” as they described their connections to nature and experiences in their own world from the past, present, and future. The conversations not only provided further understanding of the participants’ thoughts about nature but also allowed their feelings to be revealed and observed. Ultimately, the participant and researcher together, take part in composing reality (Woods, 2006)

The participants from each school voluntarily answered a 10-15 minutes on-line questionnaire. A questionnaire allows for a larger sample of participants to respond to a series of questions or statements (Woods, 2006). One of the questions asked students to include their email address if they are interested in voluntarily participating in a second portion of the research study. Five students from each school took part in the in-person semi-structured interview. The students who considered participating in the interview portion of the project were chosen randomly through a random number table generator (www.Stat Trek.com). As numbers were generated, the corresponding participants were written down and then contacted to confirm their participation. If they agreed to participate, no further participants would be required. If any refused to take part in the research, participants would randomly be selected until the appropriate number of participants was found. The audio-taped interview took place in the student’s own school under the watch of a divisional employee or appropriate supervisor.

After data collection through the semi-structured interview process, all interviews were transcribed interpreted using a Thematic Analysis approach. This approach picks out recurrent themes (categories and subcategories) from the respondent answers in attempt to develop an understanding of participant’s statements (Patton, 1985). Although a qualitative approach was
initially used to review the interview transcripts in order to generate codes, a quantitative approach was used to analyze the coded data. Throughout the interview process, meanings were clarified during the interviews when participants presented answers or comments that were ambiguous or vague. Clarifying participants’ statements assisted in developing thematic codes for the results.

To find major themes and concepts about youths’ connectedness to nature the collected rural and urban interview data was compared. In some regards, interviewer bias is reduced in this project because one researcher interviewed all 10 participants thus creating a more consistent process for all the interviewees. On the other hand, if a researcher has a biased opinion regarding what the research data should conclude then findings will become unreliable. The researcher asked an academic colleague to review one rural and one urban transcript to corroborate the thematic analysis findings. The colleague was asked to note any repeated words, phrases, or concepts that may have arisen while reviewing the interviews. The colleague then provided a list of possible thematic codes to compare with what the researcher found during the analysis of the interview transcripts. This process was a way to ‘triangulate’ the research findings and will be further discussed later in this chapter.

Each of the interview transcripts were sorted through several times, searching for major emergent themes. Further consideration regarding potential themes or subthemes was also developed during this process. When analysing both the interview and online survey answers, a combination of techniques was used in determining the themes of this project. First, finding and creating a list of repeated words or phrases within the transcripts of the interview (Ryan & Bernard, n.d., para. 6). Second, a technique called “Pawing” (Ryan & Bernard, para. 46), where data is highlighted, and colour-coded to find common words or phrases within the interview
transcripts. As thematic codes emerged, the researcher continued to filter through the lists of words and phrases. The list was reduced to five main themes and participants’ quotes supporting these themes were matched up correspondingly. Commonalities between the interview and questionnaire answers were observed which acted as a form of triangulation thus increasing validity.

During the online survey stage, questions surrounding how the procedures and presentation of the survey could be improved were present. For example, clear instructions, a larger sample population from both the rural and urban areas, and better knowledge of statistics and data collection were of constant consideration. Throughout the interview process, uncertainty about the interview process and interview questions would be altered somewhat if the project were to be repeated. Even during the data collection and analysis process, some ambiguity arose to whether the results truly meant anything. The sheer amount of recorded data, both quantitative and qualitative, could not possibly be included in the final thesis. This researcher wondered if the data presented in the final report could actually encapsulate the essence of the participants’ thoughts and feeling. This concern among others regarding the thesis weighed heavily on the researcher’s mind throughout the process.

Participants and Sites

The opportunistic samples include one rural school and one urban school in Manitoba. School A is a combined junior and senior high school located in rural southwestern Manitoba. The voluntary participants took part in the survey and interviews during May and June 2009. School A’s community has a population of 1,193 and is located approximately 30 minutes or 45 Kilometres from the nearest major urban centre. The town’s inhabitants are predominately
employed in the agricultural sector, a variety of local businesses including restaurants, and hardware stores, or commute to the urban centre for work.

Prairie grasslands and river valleys surround the School A’s community. The town site is situated near a Manitoba Provincial Park that boasts a large lake and two major river systems, providing community members with plenty of open spaces to engage with natural environments. The town has allotted for green spaces for residents to participate in hiking, skating, biking, skiing, and snowshoeing activities. The town is surrounded by a gentle rolling landscape primarily used for farmland. The schoolyard backs onto a large agricultural society fairground, which then leads to open prairie landscapes. Very few mature trees can be found within the schoolyard however, efforts have been made with younger trees being planted in recent years.

School A has a population of approximately 185 students from Grades 7 through 12. The school also has 17 full and part-time employees including two administrators, 12 educators, and four educational assistants, one librarian and two custodians. School A boasts a unique populace with several immigrants from overseas including families from England, Scotland, Germany, Ireland, the Netherlands, and Switzerland among others. A very small number of students who begin their grade twelve year at School A fail to graduate. Many students of School A pursue higher education in universities, colleges, and trade professions. During the research project, 50 participants volunteered to complete the online survey while five took part in the interview process.

School B is located within the core area of a major urban center in Manitoba. This major centre has countless opportunities for people to engage in relationships with the natural world. Two major river systems with many various sized tributaries around the city are available to explore. Many parks, green spaces, and natural wild lands are situated in most districts of the
city; however, some industrial areas do not offer the same opportunities as more suburban communities. Unfortunately, the area in which this school is located has a limited amount of natural wild places and is located near train tracks, industrial production sites, and busy streets and bridges linking the north end of the city with the downtown area. The schoolyard is an entirely different picture. Large mature trees surround the athletics field and a terrarium/garden is a central attraction in the courtyard, providing a very natural setting.

School B has approximately 570 students with 70% being of Aboriginal descent (School Representative, personal communication, December 12, 2008). Many of these students are sponsored by their local First Nations Bands and have travelled from various communities around Manitoba. School B offers 14 vocational programs for students to choose from including: Automotive Repair, Power Mechanics, Hairstyling, Food Services, and Horticulture and Landscaping. Nonetheless, the dropout rate is ‘substantial’ (no statistical data was available for a conclusive percentage or amount) at School B but the school offers programming to motivate students to complete their high school requirements. The school’s policy allows students to accumulate graduation credits by piecing what they have done in past semesters with their current successes and building towards a high school diploma (School Representative, personal communication, December 12, 2008). Forty-two voluntary participants took part in the online survey while five youths were interviewed during this project.

**Instruments Used**

For the quantitative section of this mixed methods study, an empirical tool called the *Connectedness to Nature Scale* (CNS) (Mayer & McPherson-Frantz, 2004) was selected to compare rural and urban youths’ connectedness to nature. The CNS is a measure of participants’ “level of feeling emotionally connected to the natural world” (Mayer & McPherson-Frantz, p.
503) through fourteen easily administered statements that predict participant ecological behaviour. Five studies have previously tested the validity and reliability of the CNS instrument. According to the authors, CNS “has good psychometric properties, correlates with related variables (the new environmental paradigm scale, identity as an environmentalist) and is uncorrelated with potential confounds (verbal ability, social desirability)” (Mayer & McPherson-Frantz, p. 503).

The measure of the CNS is considered to be reliable in that it depends on a multi-item scale. The multi-item scale relates to reliability in that it only measures one trait and can be retested with consistent results. The CNS has been shown to “demonstrate the internal consistency, unidimensionality, test-retest reliability, and convergent validity of the scale” (Mayer & McPherson-Frantz, p. 505). In the five previous studies conducted by Mayer & McPherson-Frantz the coefficient alpha results for reliability of the Connectedness to Nature Scale were: .84; .82; .82; .79; and .79 respectively. The authors claim of the CNS being reliable and valid is based on “... the items comprising the scale repeatedly have been shown to load on a single factor and exhibit high internal consistency” (Mayer & McPherson-Frantz, p. 512).

The CNS questions will be administered via an online questionnaire using the web-based program called Survey Monkey (www.surveymonkey.com) (Appendix B). Online questionnaires are useful tools for both the participants as well as the researcher. The participants are able to complete the questionnaire when it is convenient for them within a specified period; researchers cannot coerce participants and will not be present during completion of the questionnaire and therefore not influence results (Cohen et al., 2007). The CNS uses a Likert five-point rating scale for the questions (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree). These commonly used rating scales are able to “build in a degree of sensitivity and differentiation of
response while still generating numbers” (Cohen et al., p. 325). Hannan (2007) considers the Likert scale to serve as a self-coding for explanations of the asked statements. Although rating scales provide useful information, there are limitations, for example, each individual respondent might interpret the rating numbers differently; respondents may not be telling the truth; and there is no forum for respondents to provide personal narrative regarding their thoughts, beliefs, or opinions (Cohen et al.).

In the qualitative portion of this study, five volunteer participants from each of the two communities were asked to take part in the semi-structured interview process (Appendix C). The interviews enabled participants “to discuss their interpretations of the world in which they live and to express how they regard situations from their own point of view” (Cohen et al., p. 349). This format ensured that participants would supply answers for specific areas of the research while allowing some freedom to express their personal opinions about topics of which they felt were important in relation to connectedness to nature. The interviews lasted approximately 30-40 minutes depending on the level of interest and the quality of responses by participants. One interview lasted well over one hour as the respondent wished to speak of her experiences in Scotland as well as in Canada. While discovering participants’ feelings, attitudes, and beliefs about the natural world, the interviews presented precisely what the researcher had hoped.

When reflecting upon the data collected, considerations included: a) whether the research actually measured what was intended to be measured (Validity) and b) If what was being measured was what should be measured, and whether there were any errors (Reliability). For this research however, validity is not considered relevant to the qualitative portion of the study. As the interviews are somewhat interpretive, validity may not ever be truly consistent (Tashakkori & Teddlie, 1998). One person’s interpretation of a participant’s viewpoint will differ from another
researcher’s understanding. Tashakkori and Teddlie suggest two possibilities for testing for validity. The first being judgemental validity where a researcher asks an ‘expert’ for their thoughts on the gathered data. The second test suggests for researchers to collect empirical data (empirical validation). This “triangulation” allows a researcher to test for consistency against other measures of ‘related constructs’ (p. 82). “Triangulation refers to the use of more than one approach to the investigation of a research question in order to enhance confidence in the ensuing findings” (Bryman, 2008, p. 1). Once the coding was complete, a cohort member from the Master of Arts Environmental Education and Communication program confirmed the findings through Investigator Triangulation (Denzin, 1970) of one rural and one urban set of transcripts. Opinions from this colleague were offered to validate the original findings. As well, during the final Residency at Royal Roads University, project presentations were effective in receiving peer reviews about the methodology process. These reviews were followed up with peer debriefing sessions where researchers could further discuss their projects and receive appropriate feedback. Computer software programs were not used to generate themes or validate themes in this research because enough qualitative data (participant statements or quotes) relating to each of the themes were present to enhance validity.

In regards to the reliability of the interview transcriptions, the researcher first listened to the interview conversations at normal playback speed, then returned to transcribe at a much reduced playback speed in hopes of catching as many of the words and statements as possible. The initial transcriptions were confirmed by listening to the conversations for a third time to ensure that words and statements of the participants were not missing from the data collection and further enhancing the reliability of the research. “Reliability is the degree to which the results of a measurement accurately represent the true ‘magnitude’ or ‘quality’ of a construct”
Hammersly (1992) defines reliability as “...the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions (p. 67). Tashakkori and Teddlie also suggest that when testing for reliability, the test should be repeatable in approach. Although this project was not designed for the researcher to retest, it is encouraged that other researchers expand upon the findings from this project. Finally, real-life contextual observations of the participants’ comprehension, honesty, detail, and authenticity further addressed the reliability of the interviews (Cohen et al, 2007). The ability for a test to be repeatable acts as a form of triangulation to check for consistency. This mixed-methods research could be re-tested as the online survey and another researcher could administer interview questions easily.

**Pilot Surveys and Interview**

As a precautionary measure, a pilot survey was conducted prior to the release of the online surveys to rural and urban youths. Thirteen adult participants completed the survey and emailed various comments back to the researcher regarding syntax errors, spelling mistakes, and general feedback on the readability of the questions, statements, and overall details of the research. The pilot results were not included in the final analysis however; corresponding data was observed when results were compared with the pilot findings. Participants’ responses assisted in making corrections that had previously been overlooked. The pilot survey also provided an improved understanding of how the many features of SurveyMonkey.com worked as a data collection instrument. Changes were made to the method of data collection and analysis to better fit the needs of the researcher. The pilot survey helped identify relevant information that would have been missing from the actual surveys. Similarly, information gathered from the pilot survey assisted in re-developing the semi-structured interview process.
Additional changes to the structure of questions and formatting of the interviews were made after completing two forty minutes interviews. During the pilot interviews, the interviewees were invited to provide: (a.) Actual answers to the stated questions; (b) feedback regarding the wording of these questions; and (c) suggestions for other possible questions that they felt would have added to the conversation. The interviews were paused to discuss concerns or suggestions whenever necessary. During this time, notes were taken and any notable changes were made after each of the interviews. Minor changes were made to the semi-structured process to enhance the interview experience for the interviewee and for the researcher. Changes included: (a) re-organization of the questions for better ‘flow’ and discourse during the interview; (b) additional questions were included regarding the importance of *home*, *roots*, and *education*; (c) addition of sub-questions that would assist in continuing the conversation depending on the interviewees direction of thought (various angles of conversation were considered for each main starter question); and (d) elimination of the *values* questions in hopes that the participants would discuss this topic without prompting. The pilot interviews helped to increase confidence about the process and understanding about how the conversations might proceed during the official interviews. When transcribing the pilot interview, the opportunity to work with the newly purchased Sony digital recording system (Sony ICD-SX68 IC Recorder LPE/MP3) also built confidence in the overall interview procedure. When transcribing the actual interviews, a Dell Inspiron 640m laptop was used as well as the Nuance’s Naturally Speaking transcribing software.

**Summary**

Through a mixed methods approach, the initial intent was to determine if there are differences between urban and rural youths connectedness to nature scores and if so what are the
differences. Secondly, the researcher wanted to conclude what factors may have influenced youth’s connection to the natural world. The online survey and semi-structured interview process provided avenues to reflect and make conclusions regarding the research questions. The online survey and CNS statements provided data to better understand whether or not a particular group would be more connected to nature than the other group while the interviews provided a more in depth understanding of how these connections might have been formed. This information will be further discussed in Chapters 3 and 4 of the research.
CHAPTER FOUR: DATA ANALYSIS AND RESULT FINDINGS

Demographics of the Online Survey Respondent

Overall, 92 respondents participated in the online survey. The data is summarised in the table below.

Table 1. Demographic Descriptors of Respondents

<table>
<thead>
<tr>
<th>DEMOGRAPHIC DESCRIPTORS</th>
<th>RURAL</th>
<th>URBAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Participants</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>Male</td>
<td>36%</td>
<td>42.9%</td>
</tr>
<tr>
<td>Female</td>
<td>64%</td>
<td>57.1%</td>
</tr>
<tr>
<td>Ethnic Background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>78%</td>
<td>7.1%</td>
</tr>
<tr>
<td>First Nations/Aboriginal</td>
<td>2.0%</td>
<td>54.8%</td>
</tr>
<tr>
<td>Métis</td>
<td>6.0%</td>
<td>21.4%</td>
</tr>
<tr>
<td>African-Canadian</td>
<td>2.0%</td>
<td>0%</td>
</tr>
<tr>
<td>Asian</td>
<td>2.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>OTHER: Scottish, Irish, German, Jamaican, Dutch, Original, Ojibwa/Cree, and one “ALIEN”.</td>
<td>10%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Average Hours Per Week Spent Outdoors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21+ Hours</td>
<td>8.0%</td>
<td>9.5%</td>
</tr>
<tr>
<td>16-20 Hours</td>
<td>18.0%</td>
<td>9.5%</td>
</tr>
<tr>
<td>11-15 Hours</td>
<td>16.0%</td>
<td>7.1%</td>
</tr>
<tr>
<td>6-10 Hours</td>
<td>40.0%</td>
<td>23.8%</td>
</tr>
<tr>
<td>1-5 Hours</td>
<td>18.0%</td>
<td>47.6%</td>
</tr>
<tr>
<td>Zero Hours</td>
<td>0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>MEAN Hours</td>
<td>6-10 hours</td>
<td>1-5 hours</td>
</tr>
</tbody>
</table>

The overall demographic data consisted of 56 females (61%) and 36 males (39%) taking part in the online survey. The average age of the 92 participants was 16.55 years old with a median of 16 years of age. The rural demographics included 78% White or Caucasian participants while the urban counterparts consisted of over 70% participation by people of
Aboriginal/First Nations or Métis origins. Factors of culture, ethnicity, race, or origin were not considered at the outset of this research project but provided intriguing data to consider once the data was analyzed. The research intended to spotlight a comparison between urban youths and determine if one group had a greater connection to the natural world. Although this ethnic or cultural factor was not an intended focus, it is mentioned later in the discussion section of the paper and does provide enticing opportunities for future research.

The urban participants spent a greater amount of time outdoors per week in the 1-5 hour category and marginally different in the Zero (none) and 21+ hours categories when compared to the rural respondents data. The rural respondents however, spent nearly double the amount of time outdoors per week in the remaining three categories of 6-10 hours, 11-15 hours, and 16-20 hours. The mean values for the rural group and urban groups respectively were the 6-10 hours category and the 1-5 hours category. This data suggests that a larger number of rural participants spend almost twice as much time outdoors as compared to the urban population.

**Connectedness to Nature Scale (CNS) Survey Responses**

The Connectedness to Nature Scale (CNS), developed by Mayer and McPherson-Frantz (2004) describes that a “connection to nature is an important predictor of ecological behaviour and subjective well-being. The CNS promises to be a useful empirical tool for research on the relationship between humans and the natural world” (p. 503). Frantz, Mayer, Norton, and Rock (2005) also found the CNS to enable “...future researchers to investigate in a very concrete manner factors that increase or decrease Leopold’s sense of connectedness to nature that seems critical for improving environmental conditions” (p. 434). These researchers hold Leopold’s work in the highest regard and consider it an important foundation piece for their own work.
Mayer and McPherson-Frantz’s study (2004) intended as a “…measure to tap into an individual’s affective, experiential connection to nature” (p. 504) draws correlations with this research. Mayer and McPherson-Frantz have performed numerous studies with the CNS to determine correlations with other paradigms. The CNS considers the respondents feelings and experiences versus cognitive values as is measured in the New Environmental Paradigm developed by Dunlap and Van Liere (1978). In this research, the researcher preferred to use the CNS as a means to capture “individual’s trait levels of feeling emotionally connected to the natural world” (Mayer & McPherson-Frantz, p. 503) as opposed to what the individuals cognitively understand about nature.

**CNS Scoring**

Survey respondents indicate their connections to nature by using a five-point Likert scale to rate how strongly they agree or disagree with the 14 CNS statements (Appendix B). The maximum score possible on the CNS is five (5) and the lowest possible score, depicting respondents as least connected to nature is one (1). Three statements (numbers 4, 12, and 14) are reverse scored in the data and have been adjusted in the compiled data. The maximum score on the scale is 70 points and the lowest score possible is 14 points. The researcher has provided the following information in the data findings:

1) T-test scores and significant data;

2) Mean Statement Scores and Mean Differences between rural and urban results; and

3) Participants’ comments regarding the CNS survey.
**T-Test Results**

A t-test for independent samples was administered using [www.vassarstats.com](http://www.vassarstats.com) to determine whether any statistical significant difference existed between the means scores of the rural and urban students on the CNS scale. Only students who completed all fourteen statements on the scale were included in this analysis.

The t-test data indicated that no statistical significant difference existed between the mean scores of the rural and urban students on the CNS.

Table 2. T-Test Results for CNS Scores

<table>
<thead>
<tr>
<th></th>
<th>RURAL</th>
<th>URBAN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= (number of respondents)</td>
<td>48</td>
<td>35</td>
<td>83</td>
</tr>
<tr>
<td>(\sum x)</td>
<td>2397</td>
<td>1704</td>
<td>4101</td>
</tr>
<tr>
<td>(\sum x^2)</td>
<td>120791</td>
<td>85166</td>
<td>205957</td>
</tr>
<tr>
<td>SS</td>
<td>1090.81</td>
<td>2205.54</td>
<td>3328.07</td>
</tr>
<tr>
<td>Mean</td>
<td>49.94</td>
<td>48.69</td>
<td>49.41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean a- Mean b (Rural-Urban)</th>
<th>T</th>
<th>df</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.25</td>
<td>+0.88</td>
<td>81</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Table 3. Mean Results for each CNS Statements

<table>
<thead>
<tr>
<th>CNS STATEMENTS</th>
<th>Rural Responses n=50</th>
<th>Rural Mean (a)</th>
<th>Urban Responses n=42</th>
<th>Urban Mean (b)</th>
<th>Mean Difference (a-b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I often feel a sense of oneness with the natural world around me</td>
<td>49</td>
<td>3.7</td>
<td>40</td>
<td>3.5</td>
<td>+0.2</td>
</tr>
<tr>
<td>2. I think of the natural world as a community to which I belong.</td>
<td>49</td>
<td>4.00</td>
<td>38</td>
<td>3.6</td>
<td>+0.4</td>
</tr>
<tr>
<td>3. I recognize and appreciate the intelligence of other</td>
<td>49</td>
<td>4.2</td>
<td>40</td>
<td>4.1</td>
<td>+0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I often feel disconnected from nature.</td>
<td>49</td>
<td>3.7</td>
<td>40</td>
<td>3.3</td>
</tr>
<tr>
<td>5.</td>
<td>When I think of my life, I imagine myself to be part of a larger cyclical process of living.</td>
<td>49</td>
<td>3.7</td>
<td>39</td>
<td>3.4</td>
</tr>
<tr>
<td>6.</td>
<td>I often feel a kinship with animals and plants.</td>
<td>49</td>
<td>3.7</td>
<td>41</td>
<td>3.9</td>
</tr>
<tr>
<td>7.</td>
<td>I feel as though I belong to the Earth as equally as it belongs to me.</td>
<td>49</td>
<td>3.8</td>
<td>41</td>
<td>4.0</td>
</tr>
<tr>
<td>8.</td>
<td>I have a deep understanding of how my actions affect the natural world.</td>
<td>49</td>
<td>3.9</td>
<td>41</td>
<td>4.2</td>
</tr>
<tr>
<td>9.</td>
<td>I often feel part of the web of life.</td>
<td>49</td>
<td>3.7</td>
<td>41</td>
<td>3.5</td>
</tr>
<tr>
<td>10.</td>
<td>I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’.</td>
<td>49</td>
<td>3.6</td>
<td>40</td>
<td>4.0</td>
</tr>
<tr>
<td>11.</td>
<td>Like a tree can be part of a forest, I feel embedded within the broader natural world.</td>
<td>49</td>
<td>3.5</td>
<td>40</td>
<td>3.3</td>
</tr>
<tr>
<td>12.</td>
<td>When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.</td>
<td>49</td>
<td>2.6</td>
<td>41</td>
<td>2.7</td>
</tr>
<tr>
<td>13.</td>
<td>I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.</td>
<td>49</td>
<td>2.9</td>
<td>41</td>
<td>2.9</td>
</tr>
</tbody>
</table>
14. My personal welfare is independent of the welfare of the natural world. | 49 | 2.9 | 39 | 2.4 | +0.5

**CNS Statements have been borrowed with permission from author Cindy McPherson Frantz (Oberlin College) via email on January 24, 2010.**

The results in Table 3 include respondents who only completed partial CNS surveys. However, when a statement was left unanswered it was not included in the overall results. In comparing the mean scores of urban and rural responses for each of the fourteen CNS statements, no significant differences were observed. The mean CNS scores revealed that the rural and urban respondent were like-minded when answering the statements. Rural mean scores were found to be slightly greater in eight of the statements while the urban means scores were found to be marginally better in five of the statements.

The rural respondents also scored almost a half (.5) point higher in statement 2 (“I think of the natural world as a community to which I belong”) while the urban group scored a half (.5) point higher in statement 10 (I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’). Both groups responded equally for statement 13 (I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees).

In the final portion of the survey, respondents were asked if they would be willing to participate in a one-on-one interview relating to the topic of Connectedness to Nature. Only 13 of 50 rural participants and 11 of 42 urban participants agreed to take part in a semi-structured interview. Five interviewees were then chosen from each demographic using a random number table generator (www.Stat Trek.com). All of the participants chosen for the interview portion of the research accepted this role except for one individual who cited that a busy schedule in their current employment position would make it impossible to participate. A fifth rural individual
was selected using the results from the random number table generator and accepted the invitation to participate in the interview growing the total number of interviewees to ten.

*Participant Comments Related to the Survey*

When the surveys were completed, the researcher had the opportunity to receive feedback from a few of the participants. The participants considered the online survey to have been effortless and easy to complete. The only complaints were related to the terminology being used in the CNS statements. Several of the words were not necessarily words that a youth might use on a regular basis. For example, connectedness, oneness, life force, web of life and kinship are not necessarily terms used in everyday conversations. In speaking with the developer of the CNS via email, a newly designed children’s version of the CNS will soon be tested for validity and reliability. Depending on the final target group age range, this item may have been beneficial for the participants. The possibility of a definition sheet being included was considered however, this might have persuaded the participants to answer the CNS statements in a certain way. A second complaint was the inclusion of the disclaimer used on the second page of the survey. This legalese portion was confusing for many students but none reported it to have affected their completion of the survey.

According to an urban school staff supervisor, the progress of one participant stopped when pondering the question which asked ‘how much time per week do you spend outdoors?’ The student was somewhat distraught when he realized that other than leaving his house for his car, and the car to enter the school and then the reverse process on the way home, he actually spent ‘ZERO’ hours outside in natural settings. Another participant commented to the researcher that after completing the survey, she began to think more about how she interacted with the
outdoors. She mentioned later, that for several days, she looked at things differently and tried to consider her connection to ‘things’ that were non-human.

*Semi-Structured Interview Responses*

As the CNS scores determined that both the rural and urban youths have similar beliefs towards the CNS statements, the semi-structured interviews were an opportunity to expand upon participants’ personal thoughts. These interviews provide for a better understanding of what, if any, differences there may be between rural and urban youths connectedness to nature (See Appendix D).

In this section, the researcher will occasionally refer back to the CNS statements and the CNS survey results as they assist in triangulating the validity and reliability of the data. The researcher looked for connections between the quantitative data (CNS statements) and what emerged from the qualitative (interview) data. More specifically, the researcher attempted to link the recurrent themes developed in the interviews with the CNS statements to consider if there was some overlap between the qualitative and quantitative portions of the study.

The participants were eager to offer their thoughts regarding their connections with nature and how those relationships may have been formed throughout their childhood. In the section below, a brief description of the five rural and five urban interviewees is presented as well as the thematic coding process that includes the main themes, sub themes, and interview observation notes.

*Rural Interviewees*

The five rural interviewees consisted of five females aged 17, 18, 19, 19, and 20 years old, an average of 18.6 years of age. As described earlier, the lone male who was chosen was
unable to participate due to work commitments. All five of these participants consider their primary residence to be rural as their homes and their families are situated on farms in rural Manitoba. Three of the participants currently attend university and had been living part-time in urban centers but still considered themselves to be rural residents. The other two attended high school in a rural town with a school population of approximately 185 students. One of the participants was of Aboriginal descent while the other four considered to be White/Caucasian.

**Urban Interviewees**

The five urban interviewees consisted of two males and three females aged 15, 16, 16, 17, and 17 years old for an average of 16.2 years of age. All five of these participants consider their primary residence to be urban as their homes and their families are situated in a major urban centre. One of the interviewees lives in rural Manitoba during the summer months but considers his primary residence to be in the ‘city’. All of these participants attended high school in a core area school in the downtown of a major urban centre with a school population of approximately 700 students. Four of the participants were of Aboriginal descent and the other participant was considered to be White/Caucasian.

**Coding of Themes and Sub-Themes**

The researcher initially sorted meaningful quotations from all participants to correspond with each of the main questions asked during the semi-structured interviews. This was done in order to determine if any main themes would emerge directly from the questions. Once this sorting was completed, a thematic analysis approach was used to determine four main themes relating to youths’ connectedness to nature. Within each of the main themes were a number of sub themes that allow the major categories to be broken down in an understandable and coherent
manner. This section will be broken into three parts to create better understanding of the participants’ beliefs towards their connectedness to nature. First, each of the main themes or sub themes will be introduced through a brief explanation or definition. Second, excerpts of the statements expressed by the various rural and urban respondents will be used to support the third section, which explores the significance of these themes in relation to youths’ connectedness to nature.

How the themes were derived will provide some clarity at this point (Appendix E). Throughout the online survey and interview portions of the project, various emergent themes became apparent to the researcher as the data, interviews, and transcriptions were processed. First, the researcher sorted and categorized significant statements made by each of the participants according to the questions asked during the interview (Appendix E). This extensive catalogue of data was analyzed to further sort the information into groups and lists. An initial list of approximately 20 main themes emerged during this stage of the data analysis. This list was too large to get into the details and understanding of what the participants’ feelings were towards their connectedness to the natural world.

The researcher sorted through the transcripts a second time, highlighting, and colour coding the recurrent themes. Descriptive notes were placed in the margins of the transcripts to indicate where the themes took place in the transcripts. Several compiled lists referencing participants’ statements to the initial theme headings were created. Within these lists, the researcher began to create further lists of sub themes that assisted in providing information on the main theme headings.

A second copy of the transcripts was physically cut up with scissors and sorted under theme headings. These headings were modified and altered until the researcher felt confident
with the choices. To ensure validity of these themes, a fellow academic colleague from Royal Roads University was asked to review one rural and one urban transcript and offer her opinion about the chosen themes. Her findings were remarkably similar to what the researcher had found. Finally, the sheer amount of data in each of the categories was considerable and seen as a final step toward triangulating the data and ensuring validity.

After reviewing the interview transcripts and undergoing repeated thematic coding considerations, the four main themes, which emerged, were:

1) *Home*;
2) *Lived Experiences*;
3) *Media, Technology, and Literature*; and,
4) *Sense of Wonder*.

Within each of these four main themes, various sub themes were used to further describe the interview data. To ensure anonymity, interviewees were labelled as RS (Rural Subject) and US (Urban Subject) followed by a number representing the order in which they were interviewed (1, 2, 3, 4, or 5). An example of this labelling looks like RS1 or US1 and will be appended to the respective quotes from the interviews. No significant indentifying names of people, places, or things were used in the transcriptions if it was believed that a person could be identified through the transcript data.

Occasionally, the statements provided by the interviewees overlapped between one or more of the main or sub theme categories. For example, in the main theme, *Lived Experiences*, sub themes such as *Culture* and *Education* could have been placed under the heading of *Home* however; the researcher believed these themes were a better fit under an aforementioned heading. Similarly, one sub theme heading, *Special Places*, was used twice as a sub-theme under
Home and Lived Experiences as it seemed to best be described the contextual meanings in both groupings.

Main and Sub Themes

Home

The notion of Home can mean many things to different people. What is the significance of Home? This is significant because everyone has personal feelings regarding what Home means to them. It can be the place one lives, or the place where one feels most comfortable. A person’s house, town, city, municipality, province, or country could be considered as Home. Across the planet Earth, billions of people would collectively consider it as their Home. The main theme of Home also contains several sub-theme categories, which may help to develop a clearer understanding of what participants had discussed in their interviews. These themes include a) Roots, b) Special Places, c) Sense of Place, and d) Values. Below are a number of examples from the interviews, which describe the significance of Home.

RS1 reflects upon the importance of Home in her life as she has recently moved away from her rural home in order to attend university. Her passionate description details the need for youth to learn more about and accept the places around them while finding the beauty of Home.

I still think that like the beauty of my House nestled amongst the trees is the most beautiful thing I’ve ever seen. (RS1)

I think the first thing we need to find something that connects youth to their HOME and to where they are now. So it’s not about getting away and getting to somewhere else bigger and better but finding, like what’s around them and what excites them about that place. That is where your roots are, your knowledge, where you grew up. I think people are too quick, me included to get away from here, get out of this place. What is right at home, is you. (RS1)
RS3 observes the importance of the getting to know her home as a youth and discusses how urban youth might not be able to connect to nature because of a lack of opportunities.

Just the whole area is part of my home, even like if you go a couple miles from my house you can see sand hills, and basically, one of the last natural grassland areas left. Our pastureland up there it’s just so nice and constantly having people coming and research rare birds and stuff and I feel kind of connected to that... (RS3)

Like people who grew up in the city and never really interact with nature as a kid and stuff never really know and they just see cement...I can see how they wouldn’t really understand because they haven’t had the chance. (RS3)

In the city, there is lots of traffic, a lot of shootings. Especially here. (US1)

When discussions took place during the interviews regarding Home, the urban participants did not characterize their Home with any positive connotation. While some had moved around a lot and not connected with their communities, others felt unsafe if they wandered around their community. Rural participants described Home as being calming, relaxing and a place of letting their guard down and feeling safe. The theme of Home is significant and correlates with CNS statement 2 (“I think of the natural world as a community to which I belong”). With a mean score of 4 out of 5, this statement resonates with rural respondents half a point higher than the urban participants who did not feel that Home was a significant factor in their lives.

a) Roots

According to Thomashow (1996), one’s family Roots can play a major role in an individual’s ecological development and connectedness to nature. Many of the interviewees discussed how important Roots were in their personal lives.
I think that my roots, because I’ve lived here my whole life are the only thing making me want to come back. I was definitely like yeah, I don’t want to live here but all you have to do is come back and you realize that it’s not a place you want to leave forever. So, I think that for roots they are something that you can’t control. It becomes an uncontrollable feeling. (RS1)

Yeah, they [Roots] are necessary because, kids I mean they need their parents, and need their parents guidance and just need that and then you get that stuff when you are young and it continues... it sets a foundation. (RS4)

Roots are very important to me. Things I said back there earlier in the interview, like experience and being outside and stuff...When I feel bad and I go and do some cultural activities I’ll come home and I’ll feel good, real good. I feel happy. (US5)

The Aboriginal history, I don’t know much about it because my grandfather ah, he was in a residential school. Every time my mom tried to ask him about who we are, he wouldn’t want to talk about it. So, I don’t know much about my aboriginal history, but at this school with aboriginal education I am learning who I am. (US1)

Surprisingly, several of the urban participants stated that Roots had little or no major influence in connecting them to nature while rural participants felt that their upbringing and root development was vital in forming connections with natural environments.

I would say roots are semi important. It’s good to have lots of roots in places you feel comfortable with. (US3)

“Actually, I have always lived in this part of the city. So, roots are not that important. I wouldn’t mind living in a different area because it would be new and it would be different. (US4)

(Roots importance) Not really. I don’t know. Cause when I was growing up, we moved around lots in the city. Kind of got use to lots of places. After I got use to it, ‘OK, we’re moving’. Get use to the next place, “Ok, we’re moving?” (US5)
b) Special Places

“Places shape human history—both collectively and individually...children growing up in an inner city tend to differ in some ways from children growing up in a rural community” (R. Wilson, 1997, p. 191). Wilson goes on to say, “Places shape the stories of our lives” (p. 194). Without these important stories or conversations with the natural world, the future of humankind is in jeopardy. In the late 1980s, David Sobel (1996, 2002) conducted research on children’s experiences with special places. He concluded that special places of all sorts including what children called forts, dens, bases, and bush houses were considerably significant in how people built relationships with the natural environments. Sobel found that although cultures and landscapes for many children worldwide would vary, the special places that children interacted with were not very different from one another. These special places were also important for children to learn about themselves; places that were just for them with little or no adult interference. All of the rural participants described special places that were memorable and influential on their outlook towards the natural world. Below are two examples of rural participants who describe the calming influence of their special places.

...there are lots of places that I’d love to go, all over the world but there is a little waterfall that is by my creek. It’s nice to sit there and think you know? It is quiet and it’s very pretty (laughing). It’s just really relaxing. (RS3)

Actually, there is a place, across from our place, not exactly our place but a friend’s place. There is a creek that goes by there. I take a run up there sometimes and talk to myself. The water, the beaver damn, the sound, it makes me calm”. (SR4)

When describing special places, many of the urban interviewees found it difficult to come up with a place and reason for that place being significant. Several made connections to city-
based sites, which included cement sidewalks, and manmade visitor attractions (i.e. Winnipeg Forks downtown). The urban group did not seem to have many special places from their past to reflect upon. In a few cases, participants stated that travelling to these special places had not taken place for a number of years.

I mostly stay inside but I like the thought of going outside to a nice park or something. (US4)

I don’t know? I haven’t been too much places. Probably the Whiteshell Provincial Park. I’ve been there only once and I found it really beautiful. It has a lot of history. I love the rocks, rock formations, the petroform sites. It makes me feel connected to my Aboriginal history. (US1)

However, one urban participant described a downtown location as a social gathering place to meet with friends as well as an inspirational place to write her poetry and short stories.

The Forks or the downtown market is special. I see my friends there. We just sit by the river watching and sometimes walk around, and through the little trails sometimes. I go there to get inspiration for my writings. (US2)

c) Sense of Place

Sense of place can be described as how people respond when interacting with nature and in nature (R. Wilson, 1997). These all-important experiences with and in environments are crucial in forming peoples’ sense of place. Lutts (1985) states, “just as we shape our environments, they shape us” (p. 38). Not only does sense of place include physical environments, it also comprised of a person’s experiences and how those experiences are interpreted (Stedman, 2003, p. 672). Stedman finalized his definition of sense of place as “...encompassing meanings, attachment, and satisfaction” (p. 672).
Sense of place is a foundation piece in forming one’s ecological identity (Thomashow, 1996). This identity formation is fundamental as children begin to make connections or build relationships with nature. Participants were asked to describe their current relationship status with nature and when the last time nature excited them. The following sub-theme examples depict several participants’ sense of place and their feelings when interacting with nature. A few rural and urban participants, describe positive relationships with the natural world and the enjoyment they receive when in natural settings.

I would really love to have and the relationship I know I can have, the times I can have outside I feel a really strong connection and I know that the feeling I have it’s a different feeling. It’s just like its a good feeling, solid underneath that feeling like there is no ulterior motive for anything. It’s just how you feel and I know that I could make time and make room to have more of that instead of that other fake good feeling that I can get from watching TV or whatever. (RS1)

Two weeks ago, the thunderstorms, when it rained so hard, so hard. Anything that can make you feel, hear, see. I guess that’s like needing to have certain amounts of like sensory ability to get you excited....There are moments that are just you know moments that take your breath away and it can be exciting as well. (RS1)

Nature’s beauty. Like when I go down to the creek and I see the water and like I’m excited when I see a beaver. I think you lose part of yourself if you don’t do that (go outside). I mean it’s part of you. It’s who you are and you can’t just deny that. It’s no wonder shy people are so screwed up. (RS4)

Last year, 2008, when we went to Bird’s Hill Provincial Park beach, and mostly to go swimming. I had a good view of the lake there and the island they kind of had. I don’t know if its an island or if its connected. It just made me feel at home and in peace. (US1)

Everything. It’s just like, it’s a feeling I don’t know how to explain it but its cool. I have lived in the city most of my life and when I go out there [to where many family members reside] it’s like, I go and I like go to sweat lodges, the little Tipi’s and stuff. It makes
me feel like I want to go out and do more stuff and see nature and stuff. It’s pretty cool. (US5)

Several of the rural and urban participants provide examples of either not connecting at all with nature or having lost touch with nature in recent times. Many of these participants seemed to enjoy nature and had at one point strong relationships with the natural world but commitments and a busy lifestyle have gotten in the way of continuing to connect with nature.

I’ve been definitely thinking about it more. I’m kind of sad. I have such a strong connection with my house and you know the landscape. I was thinking, driving to work and I’ve driven that same road how many times, that eight miles over and over. I like just like now there’s just, I don’t get really much out of it you know maybe when the field comes out or the flax looks so beautiful and the sunflowers at the bottom of the hill, they are so beautiful. I really don’t get a lot out of it right now. It makes me sad. (RS1)

Umm, sometimes I don’t feel as connected to nature as I think I should be. Like when I go out in the morning to the bus, sometimes I’m caught in my own little thoughts and I have to tell myself, ‘OK, like open your eyes. Look, look at how pretty things are!’ and I feel better. Because I’m actually noticing things and I feel like I’m a part of it. But once I’m get there I’m OK. (RS4)

Not very good. Just because I live in the city [attending University] and don’t really have a backyard. It is more like a parking lot and so I don’t really spend a lot of time outside besides just spending time on my deck. There is just no space to do anything outside. When I go home to my Dad’s, the two little kids [young siblings] are always playing outside on the tree house or swing set and like it’s a nice backyard with trees at the back of it. It’s fun. (RS5)

I mostly stay inside but I like the thought of going outside to a nice park or something. (US4)

I don’t know. When I’m around it (nature), I really get into it. Maybe I see a nest and stuff and I get all ‘Oh, look at that’. I can spot different trees and know what they are. I actually know quite a bit about nature. I like it too but in the city, it’s more like having fun... (US5)
d) Values

Although Values are to be a major influence an individual’s connectedness to nature development, the researcher purposefully excluded questions asking about values during the interviews. The intent was to see if participants would consciously discuss values as significant in the development of their connectedness to nature. As described in the Literature Review, values are a driving force in the development of an individual’s worldview development. Although, the data presented does not fully represent values as significant, P. Kahn (2006) believes that “nature plays an important and perhaps irreplaceable role in moral development and the moral life” (p. 461). Unfortunately, very few participants actually spoke directly about values as being essential in connecting to nature. In hindsight, the research would have been more complete if questions regarding values had been asked at the end of the interviews.

Values are important, because kids I mean they need their parents, and need their parents’ guidance and they get that stuff when you are young and it sets a foundation. (RS4)

CNS statement 3 (“I recognize and appreciate the intelligence of other living organisms”) received higher scores from the rural and urban groups respectively. This rural score did not surprise the researcher because the roots, values, and connections to special places of the rural respondents seemed to be rather significant in their development of respect for nature. However, the equally high score of the urban participants was unexpected when comparing their interview comments.

Lived Experiences

Lived experiences are all of the positive and negative experiences individuals endure throughout their lifetime. These experiences influence how people feel, think, and act towards
future experiences, and the people, places, and things that may be part of those experiences. What youths have encountered may determine their future values, beliefs, and attitudes towards nature. Palmer (1993) found that outdoor experiences were the most significant factors in children developing genuine concerns for the natural world. Explored in the next section are the following sub-themes: a) Significant other; b) Special places; c) Education; and d) Culture.

I know that one time I was helping my Dad clean out culverts and was sucked part way down, and my Dad had to grab me and I thought if that culvert wasn’t there this wouldn’t have happened. And that culvert is interfering with nature, I don’t know. (RS2)

[At age seven]...in the field is probably one with my Dad and the second, where we go x-country skiing in the back of our house. There is a row of trees that like, it doesn’t matter how sunny it is, hardly any light gets in and I have fairly strong memories of walking or skiing down there when I was young. (RS1)

Many of the rural participants described their lived experiences as influential in their upbringing as children. They clearly envisioned moments from the past and gave in-depth descriptions of their moments with other people, places, education, or their cultural backgrounds. A few of the urban participants were unable to recall fully any specific experiences that were particularly influential, or meaningful.

a) Significant Others

As stated in the Literature Review, Carson (1998) believed all children require just one adult with which to share and learn from when experiencing the wonders of the natural world. Participants were asked to describe situations where significant people may have influenced their connectedness to nature. The ages of the children should be noted, as they have described their lived experiences, and special places below. The younger the children are when influenced, the better chance they will have in developing a genuine concern for the Earth later in life.
[At age four] Mom taking me out to the dugout...It’s a man-made body of water uh, ours is pretty much abandoned. It’s pretty much natural now. There is a stream going into it. There are cattails, the deer drink here, there is a grey owl in the tree. It’s very “naturey”. (RS4)

[At age four] I was pretty young. I use to go out to my reserve and use to do stuff with my great grandpa....Yeah like farming and stuff. (US5)

[At age six] My friend and I use to go behind my creek ever since we were able to run around and stuff and we use to play outside and play tag and....a bunch of stuff out there. (RS3)

I have no idea how I’ve become the person I’ve come to be...so I’m not quite sure really if there was anything, there is nothing that I can think of as defining in people or like earlier on....I’ll remember many [university professors] for influencing me and my new kind of mindset they’ve given me for sure. (RS1)

You definitely did in Leadership class on both of our trips. I learned a lot from you. Things that I never knew before and your different activities were always fun. (RS2)

You! Just because you were always taking us on trips and you know when we stayed overnight at Clear Lake and stuff like that. And then being outside and playing sports and games in phys ed class. (RS5)

The horticulture teacher. When I was in Grade 8, my brother and I came to this school for classes for horticulture and we all brought home terrariums, mine was the only one that survived. I still have it today. (US1)

There is this one guy, and he every now and then will come and get me and he’ll ask me if I want to go and do this stuff and right away I jump and I’ll say, “Yeah, I want to do this, no questions” (US5)

My brother. Actually both of them. They have both been doing this stuff longer than I have. (US 5)

Similar to what was described in the Lived Experiences main theme heading, rural participants were able to recall much more vividly several meaningful and influential moments involving significant others than their urban counterparts. Some of the urban participants did
have influential people in their lives while others had trouble choosing anyone who had an influential impact in connecting them to nature.

b) Special Places

In this section, the heading Special Places has been used for a second time because the researcher believed that special places was significant and influential in different situations.

[At age five or six;] The earliest memory would probably just have to be like around when I was five or six, just walking through forests and stuff. I use to live by this [urban] forest thing and I use to hang out in there and play with my friends for hours a day (US3)

[At age four] Probably, when we lived in Scotland. We um...were close to my Grandparents so we would always go for walks with them through the woods. We just called it the woods. Their backyard was just this mass of trees everywhere. They did a lot of gardening that we use to help them with like just gathering the food from the garden and stuff. (RS5).

c) Education

Educating the youth is pivotal in making changes for the future of the planet. However, without an environmental education curriculum and willing teachers to support such environmental teachings, natural environments will continue to be in decline. Orr (2004) considers it myth, the notion that knowledge and technology will fix many global environmental issues. For a century or more, education systems have developed curricula, which discourage learning from taking place outside of the school walls, rarely to include experiential learning opportunities for students to develop meaningful relationships with nature.

In Dewey’s (1897), My Pedagogic Creed, he described an outline for what education should look like for children. Among many other beliefs, he considered schools as not providing the appropriate experiential learning opportunities for children they required to understand
themselves and the world around them. Soon forgotten were the accumulation of facts that the education system was offering as a learning style. Dewey also suggests in his Creed, that if students do not receive meaningful experiences to compare to the instructional information, the child will not ever fully understand the meaning of their education.

R. Wilson (1997) contends, “All education is environmental education, in that it is going on all the time” (p. 193). Comments arose during the interviews suggesting that more environmental education must be included in courses and allow the learners to explore and understand their place within the ecosphere. During high school, a lack of depth, substance, and experience with environmental education materials was an issue for some interviewees.

There never really seemed to be a big topic or a big subject of environmental education in science or whatever. Just because if it’s not taught it’s going to be the same thing in the future. When they get to be 30 we will have no idea about the earth and it will just be continual problem or get continually worse. (RS5)

Asked if she thought the current education curriculum was doing a good job and supplying students with valuable knowledge or experience, RS4 reiterates Dewey’s assertion that experiential learning is necessary:

We don’t understand it so far so. We need more experience, more personal experience. Going out on field trips and seeing things. I am somebody who has to DO something to learn it. I think most people are that way. I think people will go out and do stuff or get some experience with it, then they’ll understand it. (RS4)

I think if everyone learned at a younger age, when they got older they would have knowledge and now it’s like I need to learn all of this now. It’s never been taught. (RS5)

Contrary to what many of the other interviewees felt, US3 would like the education system to connect him more to the natural world but thinks that being provided with facts was enough for
him to better understand his connections to nature. The following is an excerpt of the dialogue between the interviewer and US3:

(US3) I think that education could be used to connect people to nature but that is a hard one. Just teaching more about the world around us and giving good facts in class.

(Interviewer): Are facts enough to help you learn?

(US3) I don’t know? No, I do not think so. Maybe presentations would open some eyes.

(Interviewer): How do you learn best in or out of school? How do other classmates learn best?

(US3): I learn best just thinking about things on my own. As for the others, I do not know. I do not interact with people very often.

This last statement by US3 could be a reason for why he was not interested in experiential learning, as it often involves other people being present while participating and learning. Unfortunately, this seems to be an issue for this participant.

d) Culture

Surprisingly, many of the interviewees in this study did not consider culture as influential. Some had questions about Canadian culture, while others felt that their culture had escaped them and not provided them with anything that would connect them to the natural world but rather just their experiences of where they lived and what they participated in daily.

I have trouble with cultural questions, because I just don’t think um we as Canadians have a true culture. I’m a third generation Canadian, and I don’t see Canadian as a culture actually. I have trouble with the whole concept of culture. Most of Canada being rural though, I think that there is a personal viewpoint of nature. Not that you might appreciate it more but certainly you have a different view than others. (RS2)
Not so much that culture was influential, it was more my Dad’s family. Growing up they had this farm. They lived and breathed it kind of thing. And I like Scotland, it reminds me more of like olden days. Like, like walking places and like there you don’t see huge trucks. (RS5)

Three of the ten participants considered Culture to have a large influence on their beliefs towards the natural world. RS4 is of Aboriginal descent and was adopted by a Caucasian family. The family has been supportive of her being in touch with her culture:

Quite a bit actually. My Aboriginal beliefs, women are supposed to take care of the water. And I feel guilty because I haven’t been doing much because there is so much going on right now. My mom has an Aboriginal friend who introduced Mom to the Aboriginal culture and she has introduced me to it. (RS4)

Sort of, ah I have sweet grass and sage at home, as part of my aboriginal history. I keep sweet grass around because even when it is burnt, burning, it smells nice and sweet and helps clean out the air in my room and that. And sage is like in Aboriginal history. Smudging helps clean out your body. That’s what connects me. (US1)

Yeah, lots! Learning some of the summer stuff in school and then taking part of it somewhere else over here and its pretty cool experience I think. (US5)

When reviewing the interview data, Culture was certainly more influential on the urban participants than with the rural participants. The reason for this difference may be the fact that four of the five urban participants have an Aboriginal background and their school actively promotes awareness of their Culture.

When comparing the interview comments to CNS statements, there were yet again surprises in the results. In statement 8 (“I have a deep understanding of how my actions affect the natural world.”), the rural group ‘agreed’ with the statement however, the urban group had a higher mean score. The rural interviewees spoke of their connections to the world and their understanding that their actions directly affect nature whereas the urban group did not speak to
this specifically. Similarly, the urban group responded with almost a half point higher mean score for statement 10 (“I feel that all inhabitants of Earth, human and nonhuman, share a common ‘life-force’”) even though the interviews proved to be considerably different.

**Media, Technology, and Literature**

Today’s youth are influenced by an increasingly overabundance of entertainment gadgetry and technology that can suppress rather than enhance the appeal of the natural world for youths. While some forms of media, technology, and literature will benefit some environments in becoming more sustainable, generally, anthropocentric viewpoints have altered human relationships with the land especially over the past century. Media, technology, and literature forms all have a unique ‘power’ over many people. Their ability to influence and direct people to act in certain ways may be a future determining factor in how humans relate to nature. This section will address sub-themes of (a) Technology, (b) Television, computer and internet, and (c) Music, movies, and literature.

a) **Technology**

Technology when used for the greater good of humankind still has some impact on natural environments due to the fact that materials to create these ‘luxuries’ come from the natural resources of the Earth. Technology has allowed humans to have whatever they desire in mass quantities. Unfortunately, the energy and resources that go into creating new televisions, cars, cell phones, computer, foods, and their plastic packaging creates enormous amounts of waste. However, as the participants below state, there are plenty of reasons why people should embrace technology when it is used in a responsible manner. Equally important to consider is the fact that technology has the ability to either steal people’s time away from nature or enhance it.
I think it’s amazing really what we can do and so I don’t, or would never say that technology is completely the cause of all our problems. I think it is like real life, tangible evidence of we can solve our problems. We have all the tools, now we are or we can, accomplish something if we have to reverse what we’ve done in the past. I know lots of kids who go home and sit on the computer for, from like 4pm until 12 o’clock until they go to bed. I know that’s obviously not the good part but technology in itself can be a positive thing. (RS1,)

...like there’s you know places where they mine for isotopes and stuff that they use for medical diagnostics and stuff. It’s important but it shouldn’t be depleted... (RS2)

In areas of lower socio-economic status, technology may play a lesser role in influencing youths’ connectedness to nature. For example, if urban students cannot afford various pieces of technology, they are obviously less tempted to develop a relationship with technology. If rural participants are spending more time outdoors, a conclusion can be made that there is less time to engage with technology. However, rural youths who farm are surrounded by technology that is used to make farming life more efficient.

b) Television, Computers, and Internet (Screen Time)

Very few of the interviewees discussed technology as more than television, computers, or internet. For this reason, this sub-theme was created to discuss how some of these participants truly enjoy television and computers while others were slowly moving away from being captured by the allure of this form of technology. In Praise of Slow author, Carl Honoré (2004) suggests that television, computers, and internet offers information, entertainment, a distraction, and some forms of relaxation however, these offerings are anything but ‘slow’. They steal time, leave little time for reflection, and dictate the pace of which we engage. Instead of exercising, or reading, spending time with family there has been a dramatic increase in ‘screen-time’ activities for
youths in recent decades. Real connections are not made with these fabricated items. If connections are made with these items, those people are living in a sort of addicted life of fallacy or fantasy where their next ‘fix’ is on the next channel or during a certain time slot.

Actually, you know I might get pulled in by watching TV, no actually I get into a lazy mood and I watch TV. I get really down because I’m not doing anything and then I’m not outside enjoying life... (RS4)

Like, I don’t like to watch TV really. So, I’ve kind of noticed that over the years, that I’ve watched TV less and go outside more. (RS5)

I have a computer at home. Usually, I try to limit myself to at least an hour...I watch an hour of TV a day, too. (US2)

From after school until I would fall asleep (watch TV). So, like 4pm until 11pm but in between I might do a few other things like reach, or play the piano or eat. (US4)

If rural participants are spending more time outdoors, there is less time for them during the day to take part in screen time activities. In both the rural and urban settings, schools are continuing to promote technology as a method for teaching and learning. This researcher would contend that computers, television, and the internet more equally influence both demographics than might be observed in other themes and sub-themes.

c) Music, movies, and literature

For many people, the importance of music, movies, and literature is somewhat significant in influencing or inspiring their actions in life. When the participants were asked to describe how music, movies, literature, or news media had influenced their feelings about nature most of the interviewees felt that there was some relevance but were unable to recall specific names of songs, movies, or literature with any certainty.
National Geographic, I love to look at the pictures. (RS2)

Neil Diamond songs, I guess influence me a bit. Actually, well there is I can’t remember the name of it. There is one movie, “the day the year stood still” (RS3)

*Inconvenient Truth*. I’ve seen it quite a few times. In school, we watched it. So, and that kind of like has opened my eyes at the moment... (RS5)

Um, not really, I just don’t know. I pay attention to weird things like magazines, like national geographic and that kind of stuff and I watched that movie, documentary *Inconvenient Truth*. (US4)

With the increased ease of access to music, movies, and literature via the internet, both demographic groups might be influenced equally. The urban group would most likely have greater opportunities to access music, movies, and literature in large part due to the number of specialty stores available in urban centres.

*Sense of Wonder*

This section discusses some the differences found between the two demographic groups and the explorative opportunities available in their respective geographic locations. While one might hypothesize that rural residents have a greater connection to nature and inherit some deeper understanding for environmental issues, some studies report the opposite. Van Liere and Dunlop (1981) found that concern for environmental issues and natural resource depletion (Arcury & Christianson, 1990) were highest in urban centres. Still, other reports report while other reports describe little or no differences between urban and rural attitudes towards nature (Arcury & Christianson, 1993). This does not mean however, that rural residents have no concern for the environment; they may just observe issues differently or may not be exposed to the global as much as an urban student might.
Carson’s, *The Sense of Wonder* (1998), describes the need for adults to share their knowledge, passion, and joy for the natural world with young people. To ignite a sense of wonder in a child begins a journey of self-identification and how that self corresponds with the natural world. To watch a child learn in natural settings brings allows an adult the opportunity to once again view the world through a child’s eyes.

In this section, the rural participants speak of the multitude of opportunities they have had to engage and embrace nature. Whereas, the urban participants tell a different story, where a few struggle to remember the last time they were surrounded by nature and engaged in meaningful relationships with natural settings. They were eager to discuss their concern for the environment however, this researcher questions whether many of them really knew what natural environments truly are?

a) Rural

Like people who grew up in the city and never really interact with nature as a kid and stuff never really know and they just see cement. I can see how they wouldn’t really understand because they haven’t had the chance. (RS3)

My Dad had a garden and we explored in, and yeah we use to go for bike rides through the forest or trees.... (RS5)

We had a creek by our house like it was a valley and all like I can’t explain it. It was just a little creek, trees everywhere.... (SR5)

Honestly, I don’t think that people are in control of nature. I mean, I guess I see this in farming and stuff with my Dad. He tried to build a bridge across the creek so that he could bring his machinery across the backfield. I mean he even put concrete blocks, and pile dirt, clay, and gravel. It was really solid but every spring, it was washed away and basically a statement of how you can try as hard as you want but nature will eventually reign over it. I don’t think people are in control of nature. (RS3)
b) Urban

Having fun, camping, hiking, swimming, a lot of things. A lot of sport things, relaxing and all of that. It’s better than being in a stuffy place….Its comforting and all that. Like I love being in nature and I actually love being outside and all that, looking at the sun or the stars, the trees, the wind. (US2)

Being at the beach. I remember just the beach. I think it was Bird’s Hill [provincial park].” (US2)

That’s hard. Let’s see I know it. I remember I went camping a long time ago. I don’t exactly remember where. Ah, I must have been really young, that’s why I can’t remember. I know there were lots of trees and stuff around and the mosquitoes were biting me but it was nice and pretty and I didn’t really care at the time. I was little and just wanted to have fun. (US4)

We’ve been hiking before. We’d go hiking every few months, sometimes in the summer. I don’t remember we haven’t been hiking for two years already. But we always go a little out of the city a bit. I’m not sure where though. (US2)

We went on a long canoe ride to the island in the middle of the lake. Just a while ago, May long weekend. We went for a long canoe ride. We seen a couple of eagles, a couple bears, some wolves. (US5)

I don’t know? I haven’t been too much places. (US1)

Ah, outside? Well, there was like quite a few places. Well I just like being out in the country where you can actually see the stars because I like looking at the stars, the moon, and the satellites. (US4)

I like going out onto the reserve sometimes then I can sit on the trampoline and look at the stars or ….We went, camping in a cabin out in the country area and they had a hot tub outside and we were looking at the stars and it was nice and dark around and it was cold out. (US4)

*Observation Notes during the Interview*

Listening to people discussing their past, present, and future was a favourite part of the interviews. For the researcher, listening to people talk about their past, present and future
connections to nature. For some, what they remembered were the clear and vivid descriptions of places and the people that shared those same moments. The researcher could see the participants looking back into their memories, and visualizing the places and people, they loved and cherished. A few participants remembered good times and learning moments shared with relatives who had since passed away. The emotions that poured out of more than a couple of the interviewees was both exciting as a researcher but painful as a person who was watching individuals cope with the loss of loved ones or lost places.

At times, the interviews felt like therapy sessions where the participants opened up windows to their souls. The interviews were not designed to be emotionally driven but for many it became a reminder of what they may have abandoned from the past; some things that were so important to them in years gone by had lost their meaning today. One participant cried for several minutes as she was reminded of an incident where her father had destroyed a family of raccoons recently. She said, “All I could hear were the babies crying and screaming in fear as their mother was killed”. Her tears showed her connectedness to nature and her empathy for living creatures. Many participants’ descriptions implied a sense of despair about the current state of the planet however, they remain hopeful about change.

Summary

In summary, the online survey results (quantitative data) highlighted some minor differences between rural and urban participants’ when comparing the individual connectedness to nature statements however, when comparing the mean scores of the rural and urban groups the actual differences were insignificant. This data concludes that in the context of this research the urban and rural participants have similar thoughts or beliefs towards nature. The survey provided evidence that rural youths spend considerably more time outdoors in natural settings as
compared to their rural counterparts. The survey included results from 50 rural and 42 urban respondents.

The interview results (qualitative) provided a more in depth illustration several differences when comparing the rural and urban groups. Five participants were interview from both the rural and urban groups. Interestingly, the rural participants included four Caucasian interviewees while the Urban included four interviewees of Aboriginal descent. Cultural background or descent was not intended to be a factor but it has been a factor in the results. An observation made by the researcher during the interviewees described the interviewees as ‘therapy’ for the participants. The participants’ responses described a strong sense of despair about the current state of the planet but hopeful in that people will make appropriate changes in their lives to correct the poor decisions made from the past. Four main themes emerged from this data including: 1) Home, 2) Lived Experiences, 3) Media, Technology, and Literature, and 4) a Sense of Wonder. A further exploration of all findings will occur in Chapter 5.
CHAPTER FIVE: DISCUSSION AND CONCLUSION

The qualitative and quantitative data presented in the previous chapter provided relevant insight regarding rural and urban youths’ connectedness to nature. Research suggests that when provided with the appropriate experiences, education, and encounters with passionate role models at an early age, youths may develop a greater understanding and appreciation for nature. When people develop a meaningful connection to something they care about like the natural world it becomes more probable that they will protect it.

In this chapter, the main themes in relation to the Venn diagram labelled *Connectedness to Nature: Interrelationships of Concepts & Precursors* (Diagram 1.1, p. 10) are discussed. The Venn diagram was developed around these four concepts and included the following precursors as factors leading up to one’s connectedness to nature. The factors include:

1) Lived Experiences;
2) Prior Knowledge;
3) Cultural Background; and,
4) Encounters and Conversations.

This Venn diagram (See p. 10) was the researcher’s initial understanding as to what was influential in regards to affecting youths’ connections to nature. The four key literature review sections that will be revisited include:

1) Ecological Identity;
2) Ecological Literacy;
3) Sense of Place; and,
4) Values.
The final discussion in this section focuses on the findings and the research questions along with a review of recommendations for further study.

**Major Patterns and Relationships**

The results of this study indicate that urban and rural populations are similar in some instances while very different in others. For example, the results from the CNS survey illustrate that answers from the two groups were relatively identical. Although rural scores were slightly higher overall, in a few statements, CNS results indicated that urban participants had a greater connection to nature. However, T-test results determined that no significant differences were discovered. As described in the *Chapter 4*, a few results were considered to conflict with what the researcher had predicted. For example, the rural participants answered CNS statement #4, ("I often feel disconnected from nature.") with a response rate of +0.4 points greater than the urban respondents. This particular result conflicted with the responses of the rural participants during the interview portion of the project who considered themselves to be extremely connected to nature and desired to be more connected in the near future. Overall, the results from the CNS were somewhat inconclusive and were unfortunately considered to be a moot point in this study. The more significant differences were found during the interview portion of the study. The interviews provided an opportunity for the researcher to expand upon questions arising from the CNS survey. The interviews also allowed an opportunity for the participants to ask questions if they did not fully understand questions either from the survey or throughout the interview process.

The rural participants were able to elaborate with conviction when answering questions regarding their connection to the natural world. Rural participants provided many examples vividly describing experiences and the impact of those experiences. The rural group discussed in
detail both distant past and recent experiences. A combination of lived experiences, conversations with special people, cultural backgrounds, and prior knowledge among other factors influenced their values and beliefs about nature and their place within the natural world. They described their time spent immersed in nature as extremely important to the development of a caring attitude towards the health of local natural settings, wildlife, and water sources. Rural participants had a greater understanding of nature’s ‘power,’ whether meaning the destructive forces or the beauty of nature. A spiritual or emotional connection to nature was present during the rural interviews. The rural participants regularly described nature as a source of wellness that could provided them a calming effect whenever they experienced stress in their lives.

Rural participants discussed their fears of losing their understanding and respect for the natural world as they headed into larger centres to attend university. Without an immediate natural source for them to stimulate their senses, many interviewees believe that within a short time span, they would have adopted a more urban and sedentary lifestyle. One participant described an incident where she realized that she had spent approximately one month indoors because of academic and athletic endeavours without spending any significant quality time outdoors. She immediately went outside, desperate for fresh air and played in the snow for an hour. She was rejuvenated from the experience and did not allow this disconnect from the outdoors to occur again during the school year.

The urban participants provided a less descriptive indication of their understanding of their place within the ecosphere. Urban participants described experiences that occurred at a younger age rather than in recent times. Their more recent experiences typically described manufactured features and locations within the urban centre. For example, one area, the
Winnipeg Forks (a historical meeting point that has been modernized), is now considered a place where individuals would meet with friends and visit restaurants and various market stores.

Although urban participants seemed to be equally concerned about the state of the environment, they did not have the experiential understanding of why they were worried. One participant did not think that the development of natural spaces should continue because there were already too many buildings, homes, and stores. Unfortunately, this individual was unable to expand upon why land development should be stopped. The individuals who did consider themselves to be connected to nature were connected to a lesser extent than the rural interviewees. Where the rural group engaged in outdoor activities regularly (walking, skiing, running, resting, playing etc...) the urban group considered walking home from school to be part of their time engaged in the outdoors. One participant stated that he did not spend any time outside other than walking from his vehicle into a building while another reported not wanting to be outdoors after school due to all the gang activity and gunshots heard in that community.

**Main Themes, Venn Diagram and Literature Review Discussion**

During the interviews, details describing the rural and urban participants’ perceptions of their connectedness to nature were recorded. From these dialogues, four main themes emerged, which encapsulated the interviewees’ thoughts, feelings, connections, and emotions towards nature. These themes included:

1) Home;

2) Lived Experiences;

3) Media, Technology, and Literature; and,

4) Sense of Wonder.
The readers should consider that all of these themes are interconnected and influence one another in various ways just as the precursors are interconnected in the Venn diagram (See p. 10).

_How did the Main Themes compare to the Venn diagram model?_

As described in Chapter 4, several precursors from the original Venn diagram were repeated during the interview discussions. The researcher was pleased to observe that much of what was considered to be influential on youth in general was being reiterated during interviews. According to the interviewees, the geographic location of the participant’s homes either assisted or hindered in developing a greater _sense of wonder_ during their childhood. The rural group believed that being outside, immersed in nature daily definitely enhanced their understanding of the world while the urban group suggested that their community had nowhere to go for them to explore natural ecosystems.

This _sense of wonder_ influences the development of a foundation of knowledge (_prior knowledge_) from which to make informed decisions when they were younger. Unless, this knowledge base is enhanced with more opportunities to explore and experience nature, the development of one’s understanding will be stunted. While many of the rural participants spoke positively about their interactions with nature (_lived experiences_), they also described situations where they explored the wonders of the natural world either on their own or with someone of some significance (_Encounters and Conversations_). Again, urban participants described a lack of opportunities available to them in the city. As they grew older and their parents spent less time outdoors with them, their base understanding of the natural world was not cultivated as often as their rural counterparts might have been.

What was not repeated when comparing the Venn diagram and interview themes was equally surprising. The initial consideration that _values_ were a driving force in influencing
younger generations was rarely mentioned in the interview portion of the data. The researcher purposefully excluded questions relating to values in order to see if this foundational factor would arise in the dialogue. Unfortunately, only one participant made mention of values during the 10 interviews. The researcher now regrets not asking a concluding question at the end of each of the interviews in order to gather more encompassing and meaningful data.

Many of the rural participants stated that their cultural backgrounds were insignificant when considering their connections to the natural world. One participant struggled with her family being third generation Canadians, because she did not consider Canada to have one true culture. Therefore, she did not consider this factor to resonate with her. One rural participant was heavily involved in her Aboriginal history. She felt a lot of guilt and shame for not feeling more connected to nature and not doing more to promote this in her community. She believed that her culture was definitely one of the main factors that tied her to the land.

A few of the urban participants were currently exploring their cultural backgrounds and learning the importance of their connections to nature. School programming had an influence on their thoughts due to Aboriginal education classes being introduced to students as they entered high school. This data was encouraging to the researcher as the original thought was that culture would have been tremendously important to the rural farming communities and lacking in the urban centre. This could lead to further research exploring the cultural influences of Caucasian Canadians and Aboriginals. The Caucasian Canadians might be faced with discussing their culture while Aboriginals are constantly faced with their culture.

The notion of home emerged during the semi-structured dialogues. This notion did not initially resonate with the researcher when developing the Venn diagram. For the rural participants, home was extremely important. They spoke of their family roots, sense of place, and
special places they had encountered over the years at home. These special places were specific points of origin located on or nearby their family farms. These special places connected them deeply to their home. One participant noted that her home and roots set a foundation for who she was as a person. Unfortunately, this type of powerful comment was not found in discussions with the urban participants. A few urban interviewees mentioned that they had moved around the city often and never truly connected to their place of residence. One urban interviewee stated that she was afraid to go out at night because of the gunshots she often heard in near her house. In this case, the notion of home did not have much meaning for her.

Other Considerations Influencing Rural and Urban Youths Connectedness to Nature

This portion of the paper will discuss additional factors having influential affects on rural and urban youths’ connectedness to nature. In Figure 2: Influencing Factors: Rural and Urban Youths’ Connectedness to Nature (p. 100), a number of influencing factors emerged from the research to accompany the thematic analysis results from the interviews. Although this list is plentiful, there are without a doubt more factors, which other researchers have considered significant in past investigations. More emergent factors will arise in the future research that will challenge youths’ ability to connect with natural environments. The influences that cause children to disconnect from natural settings are literally endless in today’s Western culture. Technology, media, internet, vehicles, video games, health related illness, and a sedentary lifestyle (Media, Technology, and Literature) are only a few of the factors that provide youths with an excuse for why they should not have to engage in outdoor activities. A few of the more significant factors that influence today’s youth are included in the following pages.

Modern influences such as technology, media, and literature input are influencing youths at an increasing rate. As stated earlier in the paper, children and teenagers spend a range of three
to eight hours per day engaged in ‘screen-time’. Through laptops and cell phones, the internet can be accessed just about anywhere today. Rural and urban youth alike are and will continue to be affected by these influencing factors. Users can access information at anytime, regarding any topic of their choice. We must consider if children are ready intellectually to decipher the various fields of information being presented to them when they use technology and media to ‘learn.’

Unfortunately, the information found on internet sites is becoming ‘truth’ for many people. The Google fascination may in fact be decreasing people’s intelligence and thinking skills. This increased speed of access to information emphasizes to children that they can demand to be satisfied instantaneously. Faster food, faster cars, and faster relationships will be on the horizon for the next generation of children. Where will the lure of artificial intelligence and technological advancement (for the sake of pleasure) take society in the future?

With the increased use of technological terminology in our culture, there is concern that a corruption of our language may occur in the near future. The Oxford Dictionary-Youth Edition eliminated many nature-based words from their most recent edition because they were no longer considered to be relevant. When this language disappears in print and in daily conversations, how will conservation efforts have any effect on children when they have minimal understanding of what particular words even mean? To make matters worse in the case of Oxford’s Dictionary-Youth Edition, the eliminated words were replaced with technology-based words. It is almost as if this was planned, the slow dissipation of the natural world. First, a lack of direct contact and experiences with natural settings occurred. As the dilution of vocabulary and understanding occurs, people’s feelings, beliefs, and attitudes towards nature may also fade away. Eventually, there is the possibility for a complete eradication of natural environments to occur so that nobody ever knew they existed.
To combat the extreme example considered above, the education system must take a larger role in informing young people about humanity’s role in conserving natural environments. Educational institutions could do a much better job of bringing the language development and experiences back to the forefront of learning. Brody (2005) believes that “environmental education (EE) is in fact education about the world and that EE like education in general has at its core the notion that meaningful learning takes place in specific situations which embody a set of comprehensive principles of learning. Understanding about learning in nature can inform teaching, curriculum, and research as it relates to EE” (p. 603).

Unfortunately, schools continue to emphasize an increase of technology use in classrooms, in effect condoning a sedentary lifestyle, and decreasing experiential opportunities for youths to learn curricular content in real life setting. Technology should not be entirely discredited as it will have a large role to play in the future of the human race. How humans choose to use technology in the future will ultimately determine the future health of ecosystems across the planet. Regrettably, as more technologically based curriculums are developed for classrooms, the necessity for terminology focused on natural environments falls into disuse. Children’s potential and understanding is affected by the elimination of environmental language and experiences. Direct experience is significant because it allows youths to develop an understanding of “of natural systems and the impact humans have on those systems. Direct experience then allows students to challenge other cultural perspectives regarding environmental problems and examining them critically” (British Columbia Ministry of Education, 2007, p. 9)
Findings in Relation to the Research Questions

In this section, the findings will be discussed briefly in relation to this project’s initial research questions. The research questions will be considered in the order of which they were originally posited. Those questions were as follows:

1) Is there any difference between rural and urban Manitoba youths’ CNS scores?

As described in the Findings section, the data analysis from the final CNS scores found no significant differences between the rural and urban participants when they answered the 14-statement survey. When comparing each of the statements between the two groups some notable differences were observed and have been described in the Findings section.

2) Are there differences between urban and rural youths’ connectedness to natural environments and if so, what are they?

For this question, the answers will be split up into Rural and Urban designations. Once the lists of differences have been developed for each group, a brief comparison will expand upon those differences as well as the similarities.

Rural

The rural way of life is rapidly changing; however, rural populations have more opportunities to connect with nature on a regular basis simply because nature surrounds either their homes or communities. With the natural world possibly right outside the front door, rural residents are influenced by nature and may adopt particular values that demonstrate a respectful ecological attitude. Whether a rural individual lives in a town or in the ‘country’, they may have
more lived experiences that present them with a better understanding of their place within ecosystems.

*Urban*

As someone who lived in both a rural and urban setting as a youth, this researcher understands that urban youth are presented with an excess of distractions (i.e. shopping malls, and movie theatres). This increase in distractions takes away youths opportunities to engage in nature based activities. While these opportunities may exist, the distractions likely offer an apparently exciting alternative to bugs, plants, and animals. Even though urban centres have green spaces and parks, the distance urban residents must travel to experiences more natural settings (i.e. forests, provincial, or national parks) might be a considerable obstacle.

3) What factors have affected rural and urban youths’ connectedness to nature?

Several factors are responsible for how rural and urban youths’ connect to nature. The diagram on following page is an encompassing illustration of the influencing factors on youth’s connections to nature that were found during this research project.
INFLUENCING FACTORS:
ON RURAL AND URBAN YOUTHS’ CONNECTEDNESS TO NATURE.

Literature Review:
(See Venn diagram)
- Values
- Ecological Identity
- Ecological Literacy
- Sense of Place

Precursors:
(See Venn diagram)
- Lived Experiences
- Prior Knowledge
- Cultural Background
- Encounters and Conversations

Main Themes:
- Home
- Lived Experiences
- Media, Technology, and Literature
- Sense of Wonder

Sub-Themes:
- Roots, special places, sense of place, values
- Significant others, education, culture
- Technology, screen time, music, movies, and literature.

Figure 2. Influencing Factors: Rural and Urban Youths’ Connectedness to Nature
**Recommendations for Future Research**

This research has shown that while youth in urban centers have less connectedness to nature, rural youth are not far behind them. The continued support for media technologies in schools and the popularity of electronic gadgetry in western society is one of the major factors influencing all reaches of children today. Satellite television and the internet play major roles in connecting distant populations with urban luxuries. Future research should consider a broader depth of surveys and interviews including more remote areas of the province and a greater range of sample population within the major city. This research could even be expanded to a national level, gathering information from other major centers and isolated communities in determining youths’ connectedness to nature.

In addition, researchers could consider the influences of Aboriginal content in the findings and explore whether or not Aboriginals feel they are losing their connectedness to nature while living on reserves, and what factors are influencing this disconnect. Furthermore, does the aboriginal youth population lose their connectedness to nature when families move into larger towns or cities? How does this relocation from rural or isolated communities change their ecological identity? Finally, another research possibility should consider how current curricula from all subject areas could address the unfortunate disconnection of youth from nature.

**Summary and Comment**

This study described rural and urban youths’ connectedness to nature and explored what influences might have encouraged or discouraged youths from becoming good ecological citizens. The major questions the researcher asked were:

1. If there were any difference between rural and urban Manitoba youths’ CNS scores?;
2. If there were any differences between urban and rural youths’ connectedness to natural environments, what were they?; and,

3. What factors affected rural and urban youths’ connectedness to nature?

The semi-structured interviews and online survey (with CNS statements) offered an understanding of what the rural and urban groups believe about their connectedness to nature. Participants’ qualitative and quantitative responses allowed for all of the researcher’s questions to be answered. The answers to the first two questions surprised the researcher in that there were no definitive differences between rural and urban youths’ connections to the natural world. Rural youths appear to be more connected physically and emotionally to natural settings while Rural and Urban youths have similar beliefs towards environmental issues.

The final question, “What factors affected rural and urban youths’ connectedness to nature?” was answered with surprising details. Although the researcher began this study with an idea about a certain set of factors that may have affected rural and urban youths’ connectedness to nature, the list of factors will be forever changing. As people quicken the pace in which we live and technological advancements are daily occurrences, the list of influencing factors will continue to change in the future.

For now, the best that parents, teachers, and community members can do is to continue teaching children about their place within the world wherever and whenever possible. Education will play a major role in changing social attitudes towards environmental issues. Suzuki and Taylor (2009) states that, “In nature, everything is connected. And while people tend to think that human society is somehow excluded from nature like some sort of observer, we are in fact deeply embedded in the natural world. Because of this, our actions can have profound, unforeseen, and mysterious repercussions” (p. 49). Allowing youths to explore and understand
firsthand what their connection to natural environments is paramount. As well, being involved in children’s explorations, a rediscovery of a sense of wonder may be exactly what the adult population needs during ecologically unsure times. Providing children with these experiences involving direct contact with natural environments will awaken children’s spirits and help make real-life connections to what they are learning in classes. If people fail to provide children with these vital experiences, who will remain to protect and speak for the future of the land?

Educational institutions must consider the adoption of environmental education principles at all levels of education. From the custodian’s cleaning supplies to the lessons teachers prepare, modeling ecologically conscious behaviours for youths to observe would be a giant step towards changing attitudes and opinions towards nature in the future. Appropriate role modelling at home, at school, in the community, on television, in movies, and in what they read would emphasize the need for developing connections with nature. How adults present themselves to youth influences their worldviews and thought processes about natural environments. If children can be taught to care for the earth at an early age, and then continue to observe adults practicing what they have preached regarding conservation of nature, they may be more likely to consider sustainable lifestyles in the future.

As an educator and parent, this researcher has observed that the lives of youths are in constant conflict. Many youths seem to be confused as to what is the right course of action when considering the sustainability of our planet. Often, youths are told and expected to be good ecological citizens as they graduate through their school years. Inundated with consumerist messages, youths are expected to attain a high level of education in order to find a good job. The message continues with an implied expectation that the good job will lead to a good paycheck that will allow them to purchase anything they desire, including a big house, fast vehicles, and
expensive clothing. During the thesis development, a consideration was offered to the researcher regarding youths connections to nature. Could asking appropriate questions to youths be influential in altering their future environmental behaviour? If a child’s parents, teachers, or other influential role models were to posit questions that reached beyond what a child had previously considered, could it potentially plant a behaviour changing “seed”?

In the time-line of the Earth’s existence, human activity is rather insignificant. Unfortunately, the decisions people have made in recent decades and past centuries will continue to affect the quality of life for future generations unless changes are made in the way humans see themselves in relation to the rest of the natural world. “How clearly we understand the world depends on the emotional tone with which we confront our world. Care, trust, and love determine that tone, as they do our relationship with another person” (Rozak, 1992, p. 42). Children and youth need to be educated to consider with greater regard their present actions and future consequences on populations that do not yet exist. Without fundamental changes in how humans interact with nature, the health and future of the natural world will continue to be in jeopardy.

The thesis process was an interesting journey. This experience has taught the researcher to expect the unexpected, to “keep showing up”, and press on no matter how many hurdles are faced throughout the process. With this knowledge, I will be able to provide potentially valuable information to parents, educators, policy makers, or communities as to what might be needed to assist in developing a more nature-connected generation of youths. In Tennyson’s (1842) poem, “Ulysses”, valuable messages can be considered in today’s world. The bolded words below have been borrowed from the Ulysses poem to enhance the researcher’s beliefs. The human population must soon take a pro-active environmental stance:
To Strive in becoming better caretakers of the Earth;

To Seek different ways of doing;

To Find sustainable solutions for environmental issues: and,

To Never Yield to people who are so eager to conquer natural environments.
REFERENCES


APPENDIX A: INVITATION AND CONSENT FORM

INVITATION AND CONSENT FORM FOR
CONNECTEDNESS TO NATURE SURVEY/INTERVIEW

April 20, 2009

Dear Prospective Participant,

    I would like to invite you to be part of a Connectedness to Nature research project that I am conducting. This project is part of the requirement for a Master’s Degree in the Environmental Education and Communication program at Royal Roads University. My name is Mike Klassen and my credentials with Royal Roads University can be established by contacting Tony Boydell (Tony.Boydell@RoyalRoads.ca or 250.391.2501) or David Kirby (dkirby@cc.umanitoba.ca or 204.219.6669).

    The objective of my research project is to explore the ideas of ecological identity, sense of place, and ecological literacy and consider the differences in how youths develop a connectedness to nature in their respective rural and urban communities. In addition to submitting my final report to Royal Roads University in partial fulfillment for a Master’s Degree, I will also be sharing my research findings with other researchers and colleagues in the MEEC program at Royal Roads University.

    My research project will consist of an online survey. A few participants will also take part in a semi-structured interview. The survey will take approximately 15 minutes to complete while the interview should last no longer than 30 minutes. At any point during the survey or interview, you may choose to leave without any consequences. Questions will assist the researcher in understanding what factors influence the connectedness to nature of rural and urban youths. You have been chosen as a prospective participant because you fall within the age range of 15-20 years old. As well, you either live in either a rural or a larger urban community.

    The online survey will be collected through www.surveymonkey.com and will only be accessible by the researcher. Also, note that in the event that your survey response is processed and stored in the United States, the US governments, courts, or law enforcement and regulatory agencies may be able to obtain disclosure of the data you share in this survey through the laws of the United States. However, nothing in this survey is considered to be controversial in any respect. The interview information will be recorded in hand written and audio recordings and, where appropriate summarized, in anonymous format, in the body of the final report. At no time will any specific comments be attributed to any individual unless your specific agreement has been obtained beforehand. All documentation will be kept strictly confidential.

    A copy of the final report will be published. A copy will be housed at Royal Roads University, available online through UMI/Proquest and the Theses Canada portal and will be publicly accessible. Access and distribution will be unrestricted.
Please feel free to contact me at any time should you have additional questions regarding the project and its outcomes. There will not be a debriefing period scheduled after either the survey or the interview sessions. Also, as many of the potential participants are attending high school or early university, please be assured that no repercussions will occur while participating in this project. The researcher is only interested in understanding youth’s points of view regarding their connectedness to nature. In no way will the researcher intend to impose beliefs or values upon the participants during the survey or interview.

You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence. If you would like to participate in this research project, please complete this form and return to your school contact person: __________________________

By signing this letter, you give free and informed consent to participate in this project stated in the attached invitation notice. If you are under the age of 18, you must have a parent or guardian agree to allow you to participate in this research study. This consent form must be complete and turned into your school’s contact person ______________________ prior to participation in either the online survey or in-person interview.

School Name: __________________________
Name: (Please Print): __________________________
Signature of participant: __________________________

If you are under 18 years of age, please have a parent/guardian fill in the below section. I, __________________________ (parent’s name) give permission for my son/daughter to participate in the online survey and the in-person interview (if selected).

Signature of parent or guardian (if under 18 years of age):
____________

Date: __________________________

Please return this consent form to your school contact person as soon as possible.

Thank you for your time.

Mike Klassen
Royal Roads University
204.328.5364/204.728.4880
Email: mike.klassen@royalroads.ca
# APPENDIX B: ONLINE SURVEY AND CNS STATEMENTS

## 1. Welcome to the Connectedness to Nature Survey

**WELCOME:**

My name is Mike Klassen and this research project, *Connectedness to Nature: Comparing Rural and Urban Youths’ Relationships with Nature*, is part of the requirements for a Master of Environmental Education and Communication degree at Royal Roads University.

My credentials with Royal Roads University can be established by telephoning/emailing Dr. Tony Boydel of Royal Roads University (Tony.boydel@royalroads.ca; 250.391.2501) or Dr. David Kirby of University of Manitoba (dkirby@cc.umanitoba.ca; 204.219-6669).

The following page is full of university ethical research information (legal stuff). I encourage you to read it but I have summarized it below:

The information is to let you know that none of the information that you provide will be accessible to anyone else, just me. Your name and contact information will be deleted once I finish my project. You do not have to take part in this survey if you do not want to but I certainly appreciate those who take the time to complete this 10-15 minute survey.

If you would like to enter a prize draw OR take part in a short interview, please leave your email at the end of the survey. Thanks for taking part in my research project.

Finally, all participants should have completed the informed consent (permission form) before filling out this survey. Please hand these forms into your appropriate teacher supervisor.
2. ETHICAL RESEARCH DISCLAIMER:

The first portion of this research project consists of this survey and is foreseen to take approximately 15 minutes to complete. The survey will consist of 14 main questions that are borrowed from the Connectedness to Nature Scale (Mayer & McPherson-Frantz, 2004) as well as a few questions related to individual demographics.

The online survey will be collected through www.surveymonkey.com and will only be accessible by the researcher. Also, note that in the event that your survey response is processed and stored in the United States, the US governments, courts, or law enforcement and regulatory agencies may be able to obtain disclosure of the data you share in this survey through the laws of the United States. However, nothing in this survey is considered to be controversial in any respect and should not be of concern.

At the end of the survey you may choose to provide your email address to enter a prize draw or to take part in a 20-30 minute one-on-one interview. This contact information will not be shared with anyone and will be used to contact you regarding the prize draw or interview portion of the study. This second portion of the research project (if you volunteer) consists of an interview where information will be recorded in handwritten notes and audio digital recordings and, where appropriate summarized, in anonymous format, in the body of the final report. The data from the study will be published at a later date in an effort to provide parents, educators, policy makers and youths with an understanding of how rural and urban youths best connect to the natural world. At no time will any specific comments be attributed to any individual unless your specific agreement has been obtained beforehand. All documentation will be kept strictly confidential.

You are not compelled to participate in this research project. If you decide to participate, you may, at any time withdraw without prejudice. All participants should have completed an informed consent agreement prior to taking part in this survey. Completion of this survey will however be considered as informed consent and your agreement to taking part in this survey.
3. Introduction to Connectedness to Nature

Connectedness to Nature can be defined as how an individual feels connected to the natural world.

Connectedness to Nature may also describe an individual’s relationships with nature.

The Connectedness to Nature survey helps measure your feelings in relation to the natural world (relationships between humans and nature) and assists in predicting your ecological behaviour.

If you wish to continue the survey, please proceed to the NEXT page.
4. Demographics

The following section is only used to gain a better understanding of the demographics of participants who have taken part in this survey.

1. What is your gender?
   - Male
   - Female

2. What is your age as of today? (Only numeric responses are accepted i.e. 15)
   
3. Would you consider your primary residence to be in a rural or urban setting?
   - Combination (Rural and Urban)
   - Rural (Country)
   - Urban (City)
   
   Combination of Rural & Urban (please explain)

4. What do you consider to be your ethnic background?
   - Caucasian/White
   - First Nations/Aboriginal
   - Metis
   - African-Canadian/Black
   - Asian
   - Hispanic
   - Middle Eastern
   - Other
   
   Other (please specify)
5. On average, approximately how many hours per week would you consider yourself to have interacted with nature? (For example, walking outside, biking, gardening, playing games/sports, camping, fishing, reading outside, yard work, hanging out in a park etc...)  

- zero (none)  
- 1-5 hours  
- 6-10 hours  
- 11-15 hours  
- 16-20 hours  
- 21+ hours
5. Connectedness to Nature Survey

This section of the Questionnaire helps measure your feelings in relation to the natural world (relationships between humans and nature) and assists in predicting your ecological behaviour (your attitude/beliefs about nature).

If at any time you do not understand a section in the survey, please do your best to interpret the question and provide an answer.

Please answer each of these questions in terms of the way you generally feel about the natural world. Indicate the extent to which you agree or disagree with each of the following statements using a scale of 1 to 5 where 1 means "strongly disagree" and "5" means "strongly agree".

PLEASE READ ALL QUESTIONS CAREFULLY.

1. I often feel a sense of oneness with the natural world around me.
   - 5 Strongly agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree

2. I think of the natural world as a community to which I belong.
   - 5 Strongly Agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree

3. I recognize and appreciate the intelligence of other living organisms.
   - 5 Strongly Agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree
4. I often feel disconnected from nature.
   - 5 Strongly Agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree

5. When I think of my life, I imagine myself to be part of a larger cyclical process of living.
   - 5 Strongly Agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree

6. I often feel a kinship with animals and plants
   - 5 Strongly Agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree

7. I feel as though I belong to the Earth as equally as it belongs to me.
   - 5 Strongly Agree
   - 4 Agree
   - 3 Neutral
   - 2 Disagree
   - 1 Strongly Disagree
<table>
<thead>
<tr>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. I have a deep understanding of how my actions affect the natural world.</td>
<td>5 Strongly Agree, 4 Agree, 3 Neutral, 2 Disagree, 1 Strongly Disagree</td>
</tr>
<tr>
<td>9. I often feel part of the web of life.</td>
<td>5 Strongly Agree, 4 Agree, 3 Neutral, 2 Disagree, 1 Strongly Disagree</td>
</tr>
<tr>
<td>10. I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’.</td>
<td>5 Strongly Agree, 4 Agree, 3 Neutral, 2 Disagree, 1 Strongly Disagree</td>
</tr>
<tr>
<td>11. Like a tree can be part of a forest, I feel embedded within the broader natural world.</td>
<td>5 Strongly Agree, 4 Agree, 3 Neutral, 2 Disagree, 1 Strongly Disagree</td>
</tr>
</tbody>
</table>
12. When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.

- 5 Strongly Agree
- 4 Agree
- 3 Neutral
- 2 Disagree
- 1 Strongly Disagree

13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.

- 5 Strongly Agree
- 4 Agree
- 3 Neutral
- 2 Disagree
- 1 Strongly Disagree

14. My personal welfare is independent of the welfare of the natural world.

- 5 Strongly Agree
- 4 Agree
- 3 Neutral
- 2 Disagree
- 1 Strongly Disagree
6. Closing

Thank you for participating in the Connectedness to Nature survey. Your responses will remain anonymous and locked by password on a laptop computer. In a few months all survey information will be destroyed/deleted.

If you would like to voluntarily participate in a one-on-one interview in early May, please include your email address (or telephone number and first name). The interview would only last approximately 20-30 minutes in total and would take place at your school. More information will be provided when participants have been selected for the interviews. Only those individuals who have been chosen to take part will be contacted.

You may also enter for a prize draw including baseball caps, gift cards, field guides etc., in appreciation of your participation. Winners of the prizes will be contacted via email/telephone and prizes will be forwarded to your school for pick up.

Thank you again for your time and participation.

Sincerely,

Mike Klassen
Graduate Student
Royal Roads University
mike.klassen@royalroads.ca

1. Would you like to participate in a one-on-one interview related to Connectedness to Nature? Interviews would take approximately 20-30 minutes at your school. If you answer "YES", please proceed to question 2. If you answer "NO" please proceed to question 3.

   - Yes
   - No

2. If you agree to participate please type your email address below. Participants under 18 years of age are required to have parental permission in order to participate--The form you previously completed for this survey also has given you permission to take part in the interviews.

   Email
   Confirm Email (Re-Type)

3. If you would like to enter the prize draw, type your email below then proceed to the DONE button at the end of the page.

   Email
   Confirm Email (Re-Type)
APPENDIX C: SEMI-STRUCTURED INTERVIEW QUESTIONS

Included is a list of questions that I will consider using in my semi-structured interviews. I have also included a few secondary questions that may be used to further draw information from the participants.

1. What are your earliest memories about you in natural settings?
   a. How old were you?
   b. Where did this occur?
   c. Who was with you during this event?
   d. What else do you remember from that moment?
   e. Do you have any other fond recollections from your earlier moments in nature?

2. How would you describe your current relationship or connection to nature?
   a. Would you consider yourself “in power with” nature or “in power of” nature?
   b. Why do you think that?

3. What thoughts come to mind when I say the words, “Natural Environment”
   a. Take your time....what else do you think of?
   b. Remember to think of the two words separately as well: nature/natural and environment.
   c. Is there anything else?

4. What excites you about the natural world?
   a. Why does this excite you?
   b. When was the last time nature excited you?
   c. Is there anything that keeps you from taking part in more ‘nature-based’ activities?

5. In your opinion, how should natural environments be used by humans?
   a. How should nature be used to benefit humans?
   b. Should we use nature at all for our benefit? Why? Why not?
6. How do you feel a ‘connectedness to nature’ could be increased or improved in your generation?
   a. What could adults have done in your life to improve your connections to nature?
   b. What could youths do to improve their connectedness to nature without adult interference?
   c. Where could these types of improvements be implemented to help foster change in the way youths interact with the natural world?
   d. Why do you think that?

7. What in your life has increased or improved your connectedness to nature?
   a. What else?
      i. Are there any people who have influenced you?
      ii. Are there any movies/books/articles/songs that have influenced you?
      iii. Does your cultural background influence how you feel about connectedness to nature?
      iv. What about your lived experiences?
      v. What about your prior knowledge about natural environments?
APPENDIX D: SAMPLE INTERVIEW TRANSCRIPT

Participant 3 Rural (SR3)

Interviewer (I)

I: If you read the disclaimer thing on the survey, it is the same thing here. My project is dealing with how people, youth in general (specifically) and how they connect to nature and how they, how they interact with it, and their relationships with it and that sort of thing. So, what I am going to do is ask you a series of questions, some I may skip through some if you've answered them already and I'll just move on to the next thing I put as much detail into your answers. I if you don't have anything that you can recall or want to say to say about a section, and umm for some of them I might prod a little bit to try to get an answer from you when there is something interesting and um that you've said. I might go on a totally different angle away from my set questions if you bring something up that that is ah also interesting or has to do with my project so, I guess the other thing is if at any time you don't want to continue you can walk away, this won't affect your mark or anything like that. It’s pretty harmless as far I'm thinking or at least that I think anyway. There is nothing really person in it other than you remembering your past. Ok? So, first thing, the first question I'd like you to try and answer is: give me your thoughts or your memories of your earliest memory in childhood, being in a natural setting.

SR3: Oh, geez well, Cassandra and I use to go behind my creek ever since we were able to run around and stuff and we use to play out in the play tag and I don't know it just kind of happened a bunch of stuff out there. We've been outside there as ever since we pretty much could so.

I: ok, how old were you?

SR3: 6-7 and before that my parents had me outside at the beach and stuff, camping.

I: All right, where did this occur you mentioned a creek, does it have a specific name or is it a tributary of something.

SR3: It eventually runs into the Assiniboine (River), it is like right behind my house so.

I: All right, you mentioned someone, Cassandra, was with you. Is there anything else that you remember about a particular moment at the creek?

SR3: One time we were out there and there was blood, it was on the snow and we followed a coyote way out and I don't know we were about 5 feet away from it. It just had a hurt leg and stuff and we kind of made names for it and everything It was just kind of fun, yeah, it’s interesting.
I: Ok, if there were one particular place that you could choose as your absolute favourite
place to visit where would that be? It can even be somewhere you have not been, a place that you
know of that you really like, or whatever. Where would that be?

SR3: I'll have to think about this one. There are lots of places that I'd love to go all over
the world. It would be kind of fun to go on a camping trip kind of out in the middle of nowhere
Our canoeing thing was kind of fun, but there is a little waterfall that again is by my creek---that
is kind of nice. It is nice to sit there and think you know.

I: Ok, perfect, and what makes that place special

SR3: It is quiet, and. I don't know it is very pretty (laughing), it is just really relaxing.

I: All right again, when like, have you lived at your home the entire, like your whole life?

SR3: My whole life, no. Around 2000 or so, we moved from my house to my
grandparents farm which is where I live now.

I: Ok, at this waterfall and creek, how old were you when you visited that place?

SR3: Oh, geez, probably, (sighing), 5-6. I use to go with my grandma and she would cut
down the old trees and stuff and burn the branches and stuff. Ok, so she has a (inaudible).

I: Grandma, anybody else typically go with you to these places?

SR3: Well, my sister.

I: What is your favourite time of year to visit that particular place?
APPENDIX E: CODING SAMPLES AND THEME DEVELOPMENT
This one time when we lived out on the farm near Birtle in Canada, um we had a creek by our house. It was like a valley and all. I can't explain it, it was just a little creek; trees everywhere and if you went from the back of our house you could walk all the way around and make it to the top of the creek at the top of the road. It took about 6 hours to walk the whole thing. So, like on the way, it was hot so like we would swim in the creek.

- How old were you when doing that?
- I would have been 7 or 8 years old and then my mom and brother and his friend and my sister.
- Um if you were to pick one specific place of all the places you've been to or would like to go, what would be your absolute favourite place to go to?
- Like in nature?
- Yeah, outdoors, it doesn't have to be nature specific but outdoors. (Pause) ... probably at my grandpa's in Scotland in the woods. Like in the backyard, in the woods. Just cause we would be there all the time. We played there and we had forts, and had bonfires back there and we just spent some of our days back there.
- Have you been back there since you moved back from Canada?
- Yes, every five years, when I was ten, fifteen and its still the same kind of thing. Everything is still standing.
- And your grandparents are still there?
- Yes.
- What makes, what makes that place unique or special to you?
- Just the memories and the people and the good times. None of my real family is over here [in Canada] like growing up it just kind of that thing. Like tradition, my cousins who would be like five, seven and nine I think, it's the same thing. They spend hours back there. They live on the same lot as my grandparents, so they are always back there building bonfires, building tree forts and going on adventures. It's just so huge, the space. It goes so far back. The farther back you go it's like there's fruit trees and stuff, and um it just keeps being passed on its just kind of a thing that we always do. um...just the people too.
- Um, what time of year would be the most like I know it's a long time ago but what is the most or best time of year to visit that place? Or, are the seasons all that different in Scotland.
- Well, there is like hardly ever any snow, so you can basically go back there whenever and its just going to be colder or whatever. I'd probably say like... April to October area. Like its never going to get super cold in November or December. I mean it is but not to an extreme.
- Right, um...I have to think here if you've mentioned some of this already or not. It's the same kind of thing but you mentioned Birtle and the creek. Is there on particular moment that sticks out that you would never forget in Scotland.
- Umm (Pause) I don't think so... I just remember playing games all the time and like just walking... we'd have no idea how to get back. Its just like everywhere you look it's the same in the trees.
- OK, um how would you describe your current relationship or connection to to the
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Semi-Structured Interview Questions and Prompts

Mike Klassen - Interviewer

Participant: RS5 Date: June 1 69

Included is a list of questions that I will consider using in my semi-structured interviews. I have also included a few secondary questions that may be used to further draw information from the participants.

1. A. What are your earliest memories about you in natural settings?
   a. How old were you? 4
   b. Where did this occur? Scotland
   c. Who was with you during this event?
   d. What else do you remember from that moment?
   e. Do you have any other fond recollections from your earlier moments in nature?

1. B. What or where is your favourite place? Why?
   a. What makes it special?
   b. When did you first visit this place? How old?
   c. Who was with you?
   d. Do you remember what time of year it was?
   e. Anything else that stands out as particularly memorable about this place?
   f. How would you describe your current relationship or connection to nature?

Would you consider yourself "in power with" nature or "in power of" nature?

b. Why do you think that?

Two younger siblings - Out side kids
Step mom outdoor person

Page 1
g. What thoughts come to mind when I say the words, "Natural Environment"?
   a. Take your time...what else do you think of?
   b. Remember to think of the two words separately as well: nature/natural and environment.
   c. Is there anything else?

h. What excites you about the natural world?
   a. Why does this excite you?
   b. When was the last time nature excited you?
   c. Is there anything that keeps you from taking part in more ‘nature-based’ activities?

   (Work - 9-5) not much. (School - studying)

i. In your opinion, how should natural environments be used by humans?
   a. (How should nature be used to benefit humans?) Unleashed is best. Vital to survival.
   b. Should we use nature at all for our benefit? Why? Why not?

j. How do you feel a ‘connectedness to nature’ could be increased or improved in your generation?
   a. What could adults have done in your life to improve your connections to nature? Maybe too late.
   b. What could youths do to improve their connectedness to nature without adult interference? Recycle.
   c. Where could these types of improvements be implemented to help foster change in the way youths interact with the natural world?
   d. Why do you think that?
k. What in your life has increased or improved your connectedness to nature?

   a. What else?
      i. Are there any people who have influenced you?
      ii. Are there any movies/books/articles/songs that have influenced you?
      iii. Does your cultural background influence how you feel about
class connectedness to nature?
      iv. What about your lived experiences?
      v. What about your prior knowledge about natural environments?

8. Finally,

   a. How many hours per week do you spend outdoors?
   b. What activities do you take part in?
   c. Who is with you when you do these things?