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Nature Connectedness & Winter Camping: A Combination of Quantitative and Qualitative Approaches
Winter Camping & Nature Connectedness: A Combination of Quantitative and Qualitative Approaches

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Abstract

A growing body of research indicates that nature connectedness should be an important component of environmental education programs as emerging empirical evidence shows a correlation between connectedness to nature and environmentally responsible behaviour. Despite an increased interest in further examination of the human-nature relationship, research is lacking in terms of specific factors or conditions that influence nature connectedness. In this study, a mixed methods approach was employed to quantitatively assess the impact winter camping had on nature connectedness and then qualitatively determine specific components of the camp experience that influenced this sense of nature connectedness. Nineteen scouts participated on a three day winter camp at Manning Park in British Columba, Canada, where they experienced many challenges such as sleeping in quinzees (snow caves) and learned new skills such as snowshoeing. The Nature Relatedness Scale was used to assess nature connectedness in this study. A pre-test was administered a few days before the winter camp and the post-test two days afterwards. The results from the paired sample T-test show that there was a statistically significant improvement in nature connectedness following the winter camp experience. Eleven scouts were then selected to participate in semi-structured interviews with the aim of gaining insight to the specific conditions of winter camping that influenced nature connectedness. The results indicate that the location of the camp, the condition of being immersed in nature, interacting with wildlife, the positive experience of challenges, the presence of risk, and freedom from technology are all contributing factors that influenced a sense of nature connectedness. An increased environmental awareness was also a prevalent theme which supports research suggesting that there is a positive relationship between nature connectedness and pro-environmental behaviour. It is recommended that programs with the aim of promoting nature connectedness or environmental awareness should include as many of these components as possible. Further research should also be conducted to confirm that these results apply also to other populations as these results cannot be generalized with a sample size of nineteen.

Keywords

Nature Connectedness, Winter Camping, Mixed Methods, Location, Nature Immersion, Wildlife Interactions, Challenges, Risk, Technology, Environmental Awareness
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Chapter 1: Introduction

In recent years, the construct of nature connectedness has received much and more attention, especially when considering the severity of environmental issues further complicated by a generation of unconcerned youth that are disconnected from the natural world. Researchers and educators are beginning to realize that many current environmental education programs have little impact in developing pro-environmental behaviour and are searching for more effective approaches (Zelezny, 1999). There is a growing research showing that nature connectedness strongly correlates with eco-friendly actions (Mayer & Frantz, 2004; Kals et al., 1999; Frantz & Mayer, 2013; Schutz, 2000; Nisbet et al, 2009) and should therefore be an essential component of any environmental education program, yet there is a lack of research and little knowledge of specific factors that influence nature connectedness (Ernst & Theimer, 2011). Until now, most published research takes a quantitative approach in assessing the ability of different programs to influence nature connectedness in a pre-post-test design, however, this does not provide vital information as to what specific conditions influence nature connectedness. One qualitative study (Theimer & Ernst, 2012) did attempt to determine specific influencing factors, yet failed to quantitatively confirm that the assessed programs were even affective in promoting nature connectedness. This mixed methods study was employed in response to the suggestion that “perhaps a stronger understanding of the ability of these EE programs to increase connectedness to nature may have been obtained by a more rigorous design with one program, perhaps using multiple instruments, or mixed methods, to determine not only if a program was successful, but also why” (Ernst & Theimer, 2011: 595). This research aims to first quantitatively confirm that winter camping positively influenced nature connectedness and then qualitatively determine the specific aspects of winter camping that influenced nature connectedness. The research questions are:

1) Does winter camping positively influence nature connectedness?
2) What specific aspects of winter camping influences nature connectedness?

The results of this study aim to address a gap in research and contribute to the discussion of factors influencing nature connectedness. These results will be useful for the development of

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1 E.E. refers to Environmental Education
future environmental education programs as increasing nature connectedness is fundamental for encouraging pro-environmental behaviour. As Gould (1993:40) so eloquently expresses, “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”.

Chapter 2: Literature Review

This review of the literature includes background information for both the quantitative and qualitative research of this mixed methods study. The first section defines and describes nature connectedness, which was the focus of the quantitative research associated with the first research question. The second research question was addressed qualitatively and followed an inductive approach. With this structure, the themes emerging in the results dictated the content of the literature review. Nature connectedness in relation to location, nature immersion, wildlife interactions, challenges, risk, technology, and environmental awareness will be explored.

Nature Connectedness Defined

With mounting environmental issues and a rapidly digitalized society that has become increasingly ecologically illiterate, the notion of nature connectedness has gained much attention among environmentalists, psychologists, and researchers. This is evidenced in the plethora of assessment tools developed in the last 15 years aimed at measuring nature connectedness such as emotional affinity towards nature (Kals et al., 1999), inclusion of nature in self (Schultz, 2001), environmental identity (Clayton, 2003), connectedness to nature (Mayer & Frantz, 2004), connectivity with nature (Dutcher et al., 2007), commitment to nature (Davis et al., 2009), and nature relatedness (Nisbet et al., 2009). So what exactly does nature connectedness mean? Schultz has written extensively about the human-nature relationship and is widely quoted in research. Schultz (2002) describes nature connectedness as a psychological construct that refers to the extent to which individuals include nature as part of their self-identity. A visual representation of this definition can be seen in the Inclusion of Nature in Self (INS) scale also developed by Schultz (2001).
This series of overlapping circles indicates the strength of an individual’s relationship to nature. The first illustration shows two circles side by side with no overlap suggesting a complete disconnect with nature. The last illustration shows two circles completely overlapping suggesting a strong nature connectedness as nature has a strong presence in self-representation.

Schultz (2002: 61) further describes nature connectedness as multi-dimensional containing “cognitive (connectedness), affective (caring), and behavioral (commitment) components.” The cognitive component is the core of nature connectedness and “refers to the extent to which an individual includes nature within his/her cognitive representation of self” (Schultz, 2002: 67). The affective component refers to the extent to which individuals will care for nature and includes emotions of closeness, familiarity, and affection towards nature. The behavioural component refers to a willingness or motivation “to act in the best interest of nature” as a result of feeling connected to nature (Schultz, 2002: 67). Each of these components are also interrelated as

commitment for protecting the environment cannot occur in the absence of caring. Likewise, it would seem that caring is unlikely to occur in the absence of connectedness. Caring, in turn, leads to a commitment to act—intentions on the part of the individual to act in ways that protect the natural environment (Schultz, 2002: 70).

Together, these three components “provide a general framework for understanding human-environment relations” (Schultz, 2002: 70).
Nature Connectedness & Location

The context of encounters with nature is an important consideration when exploring nature connectedness (Liefländer et al., 2013), however, there is much discussion of specific attributes that facilitate nature connectedness in the best way such as indoor versus outdoor programs or the utilisation of local environments versus remote, wilderness type environments. These considerations of location will be further discussed below.

There seems to be contrasts in literature regarding the context of nature connectedness. Most research shows that nature connectedness can be enhanced with direct and authentic experiences in nature (Chawla & Cushing, 2007). There also seems to be a positive relationship as an increased amount of time spent in natural environments correlates to a stronger sense of nature connectedness (Vining et al., 2008; Kals et al, 1999, Frantz & Mayer, 2013). It remains yet uncertain if mere exposure with nature will impact nature connectedness (Müller et al., 2009) or if additional components such as environmental education are necessary. Whatever the case, direct contact to nature is an important component reflected in the recommendation that programs provide time for participants to “bond with nature by just ‘being’ in nature (Ernst & Theimer, 2011: 582). Although it might seem obvious that increasing nature connectedness is best accomplished in natural environments, some research indicates that nature connectedness can also be positively influenced simply by watching nature films or viewing nature through a window (Mayer et al., 2009), albeit not to the same extent when compared to participants that experience nature first-hand. Furthermore, many environmental education programs occur indoors due to time constrictions and convenience (Sellman & Bogner, 2013), however, if nature connectedness plays a strong role in forming environmental attitudes (Kals et al., 1999; Mayer & Frantz, 2004; Hinds & Spark, 2008; Davis et al., 2009), perhaps these programs are not as affective compared to those that are conducted outdoors.

Research shows that an outdoor setting is more conducive for increasing nature connectedness, however, there is much discussion focused on utilizing local landscapes rather than wilderness type settings far from home, especially when increasing environmental awareness is an intended outcome. Experiencing nature in a pristine, wilderness type setting can evoke emotions of awe
and wonder and have positive influences for nature connectedness, however, some researchers (Hill, 2013; Haluza-Delay, 2001) fear that this can create a dichotomous view that nature exists only in the wilderness away from home and cannot be experienced in localized areas. It may become more difficult to learn how “to love and live sustainably in local places” if environmental education programs are consistently occurring in remote, natural places far from home (Hill, 2013:27). The results from a study (Haluza-Delay, 2001) investigating the experiences of teenagers on a twelve day wilderness-adventure trip also support this view. Through semi-structured interviews it was concluded that this wilderness experience caused the participants to conceptualize “nature as a place out there—a reality fundamentally different and removed from their home reality of civilization” which actually resulted in a diminished sense of care for their own home environment (Haluza-Delay, 2001: 43). In another study with similar conclusions (Vining et al., 2008), research was conducted to understand participants’ self-perceived nature connectedness and their understanding of natural and un-natural environments. The results from this study also support the previously mentioned dichotomous view of nature shown by the following conclusion:

*The main finding from this study was the even though the large majority of our participants considered themselves as part of nature, their general perception of natural environments excluded any humans or human involvement while their general perceptions of unnatural environments included mostly human-made entities. It seems that most of our participants had the idea that nature involved pristine preserved land that is uninhabited and unaltered by human beings* (Vining et al., 2008: 8).

This understanding that ‘nature’ is void of human presence encourages a mentality that humans are separate from nature which is counteractive in promoting nature connectedness, defined as the extent to which individuals view themselves as part of nature. One response to this view of nature is that programs seeking to increase nature connectedness or environmental awareness should focus on exploring local natural areas rather than the spectacular scenery or pristine environments of wilderness areas far from home (Huluza-Delay, 2001). It is important, however, to bring attention here to other research (Schultz & Tabanico, 2007) reporting no change in nature connectedness with participants involved in activities using ‘local’ landscapes such as golfing or exercising outdoors. Perhaps when environmental attitudes are taken into consideration then exploring local landscapes may be more effective, however, if the focus is
only on nature connectedness, it remains unclear if local or ‘wilderness’ type environments have a greater influence.

**Nature Connectedness & Nature Immersion**

Nature Immersion refers to the condition of being surrounded and ‘immersed’ in nature for a period of time. When considering nature connectedness in relation to nature immersion, one important aspect is the duration of the nature experience (Sellman & Bogner, 2013). Some research shows that one day programs can have a positive impact on nature connectedness (Sellman & Bogner, 2013), however, repeated experiences over time is ideal as it provides an opportunity to “directly encounter, experience, and to bond with nature” (Liefländer et al., 2013, p. 380). Numerous studies show inconclusive results as to the ideal duration of nature experiences that is optimal for developing nature connectedness. Consider, for example, the following studies that test nature connectedness in programs ranging from one day to repeated experiences throughout a school year.

In a study by Ernst and Theimer (2011), seven different environmental education programs were evaluated in their ability to influence nature connectedness. The results showed that the students involved in only two programs showed a significant increase in nature connectedness. The first program was a week long summer day camp that was six hours each day and the second program consisted of three field trips that lasted two to four hours, all occurring in one month. Ernst and Theimer (2011: 592) noted that “two of the programs, Programs 1 and 5, seemed to best exhibit this characteristic of sustained experiences over time, yet these programs were not associated with an increase in connectedness”. Students in program 1 were involved in daily activities that lasted for part of one semester up to multiple years and program 5 consisted of daily participation in environmental-based activities for half of the school day throughout the school year. With these results Ernst and Theimer (2011) conclude that programs of a sufficient duration but in a condensed time frame, several consecutive days for example, may be ideal conditions for facilitating nature connectedness. Another study, conducted by Sellman and Bogner (2013), tested the impact a one day environmental education (EE) program had on nature connectedness for 114 German students aged 14-19. The results showed a significant increase in nature
connectedness immediately following the program, however, these results were not sustained as the nature connectedness scores for the retention test declined to pre-test levels. Further contradictions include studies that show spending one day at the zoo (Bruni et al., 2008) or one day at a wild-animal park (Schultz & Tobanico, 2007) resulted in an increased nature connectedness compared to a one-day comprehensive environmental education program (Kossack & Bogner, 2011) that did not result in significant positive gains for nature connectedness. A similarity with these studies is that the programs are only during the day. A study (Collado et al., 2013) assessing nature connectedness at children’s summer camps one to two weeks in duration where the participants also spend the night, offers a new consideration as the researchers conclude that perhaps the overnight component may be more effective in promoting nature connectedness. Although there are many other factors involved besides duration when comparing different studies, inconclusive results regarding optimal duration remains apparent. In addition to duration, the ‘place’ of experience is also important when considering nature connectedness in relation to nature immersion.

Although place attachment is not mentioned in any literature related to nature connectedness that could be found, it is an important concept to mention when considering the human-nature relationship, especially in terms of nature immersion. The construct of nature connectedness signifies bonding between individuals and nature, while place attachment “refers to the bond between people and places, or the degree to which a place is important to people” (Kudryavtsev et al., 2012: 231). A parallelism emerges between nature connectedness and place attachment as nature is often considered to be best experienced in particular places such as natural outdoor environments. Place attachment in addition to nature connectedness can be important considerations for any environmental education program with the assertion that individuals are more likely to fight and protect environments in which they feel a bond (Orr, 1994; Louv, 2008). Furthermore, like nature connectedness, place attachment can also be influenced and developed through direct and positive experiences, active engagement, and experiencing the “environmental characteristics of places such as a place’s scenery and wildlife” (Kudryavtsev et al., 2012: 236). This experiential approach is an example of a method for influencing place attachment where place meanings are developed through first-hand experiences which can be accomplished by
providing “unstructured time in outdoor programs to explore places on one’s own” (Kudryavtsev et al., 2012: 236).

In summary, nature immersion is an important theme in relation to nature connectedness and the considerations of duration and place attachment relative to winter camping will be further explored in the discussion chapter.

Nature Connectedness & Wildlife Interactions

The literature reviewed in regard to nature connectedness and wildlife interactions will focus on the prevalent theme of empathy. In regards to empathy, research has considered the impact of perspective taking (Schultz, 2000; Sevillano et al., 2007), dispositional empathy (Tam, 2013), and anthropomorphism (Tam et al., 2013) on nature connectedness. These constructs will be further explored in this section.

Empathy can be described as “other-oriented feelings of concern about the perceived welfare of another person (Schultz, 2000: 402), and in this context, will be extended to include nature and wildlife. The technique of perspective taking, which attempts to gain a vicarious understanding of another’s experience, is a popular approach for inducing empathy (Schultz, 2000). To understand the impact of perspective taking on empathy towards nature and concern for environmental issues, Schulz (2000) conducted a test where participants were shown a series of images. Some participants were instructed “to take the perspective of an animal being harmed by pollution” and others were instructed to remain objective (Schultz, 2000: 391). The manipulation of perspective taking resulted in an increased sense of biospheric environmental concern rather than egoistic or social-altruistic concern, meaning that the participants showed increase concern for the welfare of all living things rather than showing only concern for themselves or other people. Schultz (2000: 403) suggests that invoking empathy through perspective taking “may also have temporarily increased the extent to which participants viewed themselves as interconnected with nature” because taking the perspective of animals can reduce “the degree of separation that participants perceived between themselves and nature.”
In more recent research (Tam, 2013: 92), a new psychological construct called Dispositional Empathy with Nature (DEN) has been proposed which refers to “the dispositional tendency to understand and share the emotional experience of the natural world.” Drawing on knowledge of empathy with humans, such as the positive relationship between empathy and helping behaviours, Tam conducts research to consider empathy in terms of the natural world, its impact on conservation behaviours, and its relation to nature connectedness. This research adds a new component to the previous findings in that Schultz evoked empathy through manipulation whereas Tam is interested in gaining deeper understanding of dispositional empathy that is naturally occurring. The results of this study show that DEN is stronger for females and in individuals that have a stronger nature connectedness or consider nature to be sentient. As predicted, DEN also motivates conservation behaviour. Of particular interest is the relation between DEN and nature connectedness. Most research has empirically evaluated the ability of various programs to nurture nature connectedness, however, it remains unclear as to what specific mechanisms are responsible for influencing this sense of connectedness. In this study, Tam suggests that perhaps DEN can be considered a mediating mechanism influencing nature connectedness. Furthermore, DEN, like nature connectedness, can be influenced through education programs that combine exposure to nature and perspective taking activities. Tam (2013) concludes that although DEN is a new construct requiring further research, it should be taken seriously, especially for researchers interested in the human-nature relationship.

A result from the previous study was that DEN was stronger for individuals that consider nature to be sentient which is further analyzed in another study conducted by Tam, along with other researchers, as they examine anthropomorphism in relation to nature connectedness and protectiveness. Anthropomorphism refers to the “assignment of human characteristics to nonhuman entities (Tam et al., 2013: 514). Because some people find it difficult to empathize with nature, humanizing it, like perspective taking, may be another technique for evoking empathy. In previous studies anthropomorphism was directed to wildlife, but in this study it was extended to include the more abstract entity of nature. The results show that “anthropomorphism of nature was associated with connectedness to nature, which in turn led to conservation behaviour” (Tam et al., 2013: 518). Like DEN, anthropomorphism of nature may increase nature
connectedness as it emphasises the similarities between humans and nature thus reducing a sense of separation from the natural world.

Empathy, whether dispositional or evoked through perspective taking or anthropomorphism, seems to be an important construct in regards to the human-nature relationship that has gained increased attention in recent research.

**Nature Connectedness & Challenges**

There seems to be a general consensus that positive experiences in nature are an important condition for the facilitation of nature connectedness (Chawla & Cushing, 2007; Bruni et al., 2012; Kals et al, 1999; Kossack & Bogner, 2011; Liefländer et al., 2013). Although positive experiences in nature have been repeatedly mentioned as influencing nature connectedness, research fails to mention what specifically constitutes a positive experience. For example, one study concludes that perhaps “participants from Southern California may have a stronger connection with nature because they can experience nature in a more positive way than participants in Indiana who may experience more negative aspects of nature” (Bruni et al., 2012: 211). Does this conclusion then suggest that positive experiences must include aesthetically pleasing views and pleasant weather? Although it could not be determined from literature what constitutes a positive experience, the results of this research indicate that being challenged was an important and satisfying component of the winter camp experience for the scouts and contributed to their positive experience. In light of this, challenges will be considered from a positive psychology perspective and the influence this could have on nature connectedness.

Positive psychology differs from psychology in a traditional sense with a focus on “building positive qualities”, digressing from a “preoccupation only with repairing the worst things in life” (Seligman & Csikszentmihalyi, 2000: 5). In other words, it takes a pro-active rather than a counter active approach in improving the quality of life. The field of positive psychology is expansive and includes experiences, personality traits, and institutions that promote positivity. Several years after its introduction, research began to explore the relationship between outdoor
education and positive psychology with the realization that outdoor education could be a good catalyst for positive psychology.

One aim of outdoor education is to promote growth and personal development. A traditional concept of producing change in an outdoor education context is that of disequilibrium and dynamic tension. These conditions are fulfilled when a conflict occurs that challenges a person’s perceived sense of safety and security. Thus, change is the result of the person’s desire to alleviate a negative internal state. This method of change is often described as taking someone out of his/her comfort zone, which is posited as an essential ingredient for change to occur (Berman & Davis-Berman, 2005: 19).

Berman and Davis-Berman (2005: 17) respond to this traditional view of change and suggest that perhaps growth is better accomplished when “positive factors are present, as opposed to the notion that it is the result of dynamic tension” especially when considering the possibility that if the dynamic tension is too severe “the impact can be counterproductive at best, and damaging at worst.” Other research (Passarelli et al., 2010: 123) supports this position that “creating a reservoir of positive emotions” enables participants to persist through challenges because these positive emotions can “increase one’s resilience or likelihood to persist in the face of adversity.”

Research by Sheard and Golby (2006: 187) sheds further light on the relationship between outdoor education and positive psychology as they empirically test the impact Outdoor Adventure Education (OAE) has on selected aspects of positive psychological development including “hardiness, mental toughness, self-esteem, self-efficacy, dispositional optimism, and positive affectivity”. The researchers identify positive psychology as a “constellation of personality styles, positive self-concept, and positive emotions and moods, [and that] the challenging outdoor environment is conducive to affording demonstrations of those positive psychological characteristics” (Sheard & Golby, 2006: 191). Mental toughness refers to a positive reaction to pressure, hardiness views stressful circumstances as opportunity for growth, dispositional optimism is the general belief that everything will work out to the greater good, self-esteem refers to perceived self-worth and competence, self-efficacy results in achieving goals or overcoming challenges through perseverance, and positive affectivity is characterized by
a joyful, energetic, and enthusiastic disposition. Although the results indicated an improvement in many of these aspects, a statistically significant difference was found only for hardiness. Despite the lack of evidence in these results, it would appear that the very nature of outdoor (adventure) education, with a focus on overcoming challenges, remains conducive for positive psychology and promoting positive psychological outcomes.

Finally, an article titled *Social Psychological Benefits of a Wilderness Adventure Program* (Paxton & McAvoy, 2000) indicates how positive psychology relates to Nature Connectedness. This study examined how participating on a 21-day wilderness adventure course through Outward Bound positively developed the specific aspect of self-efficacy. The result, providing a contrast to the previous study, was that a statistically significant improvement in self-efficacy occurred immediately after the program and continued to increase with even higher scores on a retention test six months later. Many participants indicated that they felt a closer connection to nature as they understood that it was a wilderness setting that facilitated this positive change. This resulted in a stronger desire to preserve these natural areas so that the participants could benefit personally from similar experiences in the future or share these experiences with family and friends so they could also enjoy social psychological benefits such as increased self-efficacy. It would seem that engagement with challenges, typical of outdoor education, can encourage positive psychological development and contribute to developing positive experiences in nature.

**Nature Connectedness & Risk**

Although it has often been assumed that risk, real or perceived, is an important component of adventure programming and an agent for promoting personal development and growth, this assumption has been called into question as researchers indicate that there is no empirical evidence supporting the notion that risk produces positive change. It has been suggested that other approaches, perhaps equally capable of promoting growth, should be explored, especially when considering the scrutiny of risk in a society that is becoming more risk averse. In the context of outdoor education, two main types of risk have been identified, actuarial risk and perceived risk (Davis-Berman & Berman, 2002). Actuarial risk is more technical and refers to the “likelihood of an event (mishap) and the consequences of that event” (Davis-Berman &
Perceived risk refers to “a subjective perception of the potential for injury or death inherent in an activity” and varies at an individual level (Davis-Berman & Berman, 2002: 306).

Before investigating the perceived benefits or criticisms of risk in adventure programming, it should be beneficial to first explore the Adventure Experience Paradigm (Priest, 1991). According to Wolfe and Samdahl (2005: 32), “this paradigm is one of the seminal models in adventure education and is still influential in challenge course programming” today. According to Priest (1991), to attain a peak experience, similar to Csikszentmihalyi’s (1990) notion of flow, there needs to be an appropriate balance between the participant’s competence and level of risk. If there is an underbalance, where the risk is minimal and confidence is high, exploration and experimentation result, but the peak experience will be evaded. At the other extreme, if there is an over balance, where the participants are overly confident or risk outweighs confidence, then devastation and disaster are potential ramifications. The conditions for change and personal growth are ideal when risk and competence are balanced and the participant can experience a peak adventure.

There are several benefits exposure to risk can have for personal development. According to Brown and Fraser (2009: 69), “educational theory […] attests to the value of taking responsible risks with the aim of building resilience in the face of setbacks and frustration. Resilience requires the learner to manage and recognize risks, persevere at things that are challenging and tolerate the feelings that inevitably accompany difficulties.” In addition, “research has demonstrated that OAE often enhances self-awareness and understanding through challenging outdoor situations whereby individuals confront fears, expand competencies, and strengthen identity” (Daniel et al., 2014: 6). Furthermore, exposure to risk can increase self-sufficiency which “is often described as self-confidence and is gained by increasing personal competency that influences subsequent motivation and choices” (Daniel et al., 2014: 6).

Despite these seemingly important benefits that can be further developed through exposure to risk, there is much criticism of the emphasis placed on risk in adventure programming. For example, Davis-Berman and Berman (2002: 308-9) maintain that a more feminist approach to
adventure programming where the “participants feel safe, secure, and cared about” would be more conducive for personal development because “the greatest amount of change and growth comes from a place of comfort, security, and acceptance.” In addition, Davis-Berman and Berman (2002: 307) suggest that “by intentionally heightening the perception of risk in outdoor programs, staff may be pushing participants beyond their ability to cope effectively and may be creating unacceptably high levels of anxiety in participants.” High levels of anxiety can be counterproductive in terms of personal development.

Wolfe and Samdahl (2005) further criticize risk in relation to Priest’s Adventure Experience Paradigm. Even if the benefits of an adventure experience exceeded the potential risks, which Wolfe and Samdahl (2005: 33) indicate is only an assumption, there is a dangerously significant “reliance on the course facilitator to know an individual’s limits—how much risk can a person take before falling into devastation and disaster—and to push just far enough for that individual to reach peak adventure.” Furthermore, because the sense of perceived risk is individualistic, the instructor is faced with the seemingly impossible task of properly assessing the level of perceived risk for each participant and then maintaining an appropriate balance between confidence and risk individually in attaining peak experience (Wolfe & Samdahl, 2005; Brown & Fraser, 2014).

Finally, maintaining risk as an important component of outdoor programming becomes increasingly difficult in a society that tends to exaggerate danger and over emphasize safety, thus perpetuating a culture of fear. Consider the following quote for example:

*Society has become increasingly averse to the risks associated with adventure education. Risks are associated entirely with negative consequences rather than also with the potential to achieve something positive. This, combined with an increasing professionalism of adventure education, an increased concern with legal liability and the concentration of media attention on negative outcomes is likely to diminish the potential of adventure education to use risk constructively.* (Nichols, 2000: 121)

As a result, Nichols (2000) emphasises that more research should be conducted providing further evidence that risk can be a positive agent for promoting growth and gaining valued outcomes such as elevated self-esteem, confidence, and self-efficacy. Furthermore, Nichols (2000)
suggests that it is precisely this culture of fear that limits the possibilities for personal growth of adolescents due to constant supervision and fear for safety that justifies the value of including risk in outdoor programming. Perhaps the potential of risk to facilitate nature connectedness, which will be further explored in the discussion chapter, might provide further justification that risk is beneficial despite the strong criticism.

**Nature Connectedness & Technology**

Technology was not regarded as an influencing factor of nature connectedness in this study, yet it was included as a theme because the scouts were unanimous that electronics should not be allowed on winter camp and could thus be viewed as a potential agent for nature disconnectedness. Although it is quite possible that applications such as *Leafsnap*, *Star Walk*, *Project Noah*, *Geo-catching*, *Audubon wildflowers*, and *Audubon Birds*, could motivate young people to spend more time outside and thus facilitate nature connectedness, technology and electronics are more often associated with creating a disconnect from nature and are partially responsible for the prevalence of nature deficit disorder (Louv, 2008) in young people today. Richard Louv (2008, 2012) has written two books that discuss at length the origins and implications of a condition (non-medical) he has termed nature deficit disorder, which “describes the human costs of alienation from nature” including a “diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses” (2008: 36). Historically, mankind has had an intimate relationship with the land where ecological knowledge was essential for survival, however, “in the space of a century, the American experience of nature has gone from direct utilitarianism to romantic attachment, to electronic detachment” (Louv, 2008: 16). Studies show that “children between the ages of six months and six years spend an average of 1.5 hours a day with electronic media, and youths between the ages of 8 and 18 spend an average of 6.5 hours a day with electronic media—that’s more than 45 hours a week” (Charles et al., 2008:15). Today’s younger generation have even been dubbed Generation M, for multitasking, as using multiple electronic devices simultaneously is not uncommon (Louv, 2008). Society is inundated with technology and such exposure to electronic media can be quite overwhelming and fatiguing. Louv suggests that “neurologically, human beings haven’t caught up with today’s over-stimulating environment” (2008: 138) and that electronic immersion can
reduce “our ability to pay attention, to think clearly, to be productive and creative” (2012: 24). The antidote to such a condition is to spend more time outdoors as nature provides a restorative environment that is particularly effective in providing an opportunity for the brain to recover from mental fatigue and over-stimulation (Louv, 2012). The following excerpt provides further support to Louv’s position.

At a time when the positive effects of interaction with nature for children are being continually supported, children are spending more time indoors in front of a television or computer screen. Without the opportunity and encouragement to get outdoors and engage with nature, children are missing out on the improvements to physical and mental health, personal and social development, cognitive functioning and life chances that previous generations have enjoyed. If this decline in connection continues the consequences for nature could also be catastrophic, as children who are not connected to nature and who do not value and respect nature when they are young are less likely to see the importance of taking care of it when they are older. (Bragg et al., 2013: 5)

Although electronic devices such as GPS and nature apps could potentially encourage outdoor exploration, perhaps, with such high exposure to technology and media, it becomes even more important to provide young people with an opportunity to spend time in nature without distraction to relieve fatigue and recover from over-stimulation.

**Nature Connectedness & Environmental Awareness**

The prevalence of environmental concerns such as pollution, global warming, acid rain, and greenhouse gases, coupled with concerns of environmental sustainability such as rapid population growth, high levels of consumption, and exploitation of natural resources, has provoked the claim that “it would be difficult to identify an issue of greater importance for humankind than its relationship with its environment” (Liefländer et al., 2013: 371). These circumstances have forced professionals to take a critical look at environmental education programs and research indicates that programs with a strong cognitive focus appear to have little impact in promotion of pro-environmental behaviours (Zelezny, 1999). With the realization that a more effective approach needs to be taken for environmental education, research has been conducted to study the impact an affective approach could have in increasing ecological consciousness with the suggestion that “the type of concerns a person develops about
environmental issues is associated with the extent to which the individual believes that s/he is part of nature” (Schultz et al., 2004: 31). Much empirical research has since been conducted that further validates a strong positive relationship between nature connectedness and eco-friendly actions (Kals et al., 1999; Mayer and Frantz, 2004; Bragg et al., 2013). Schultz (2002: 64-5) provides an excellent description explaining this positive relationship:

*If humans are part of nature, if they are connected symbiotically with nature, then perhaps they have a responsibility to protect nature. In contrast, if humans are not part of nature, if they are above or separate form nature, then they do not have a moral responsibility. Ethics in which people are seen as connected to nature will lead to values of stewardship and caring. In contrast, separateness from nature will lead to ethics in which nature is valued only to the extent that it benefits humans.*

Furthermore, it has even been suggested that when individuals include nature as part of their identity then harming the environment “would be perceived as a sort of self-destruction” and would thus be avoided (Müller et al., 2009: 63).

Schultz (2000: 391) provides further insight into this relationship between nature connectedness and environmental sensitivity as he begins to develop “a broad social-cognitive theory for environmental concern” that consists of egoistic, altruistic, and biospheric attitudes. Each level of concern displays the degree to which each individual “includes other people and nature within his or her cognitive representation of self” (Schultz, 2000: 393). Egoistic attitudes reflect a low connectedness as individuals are concerned about how environmental issues impact them personally. At the opposite spectrum, biospheric attitudes reflect a higher level of connectedness as individuals show concern towards the impact of environmental issues to all living things. Altruistic attitudes reflect a sense of connectedness to other people as individuals are concerned about the impact of environmental issues to other humans or society. Although all three types of attitudes may result in environmental concern and action, biospheric attitudes encompass a broader range of concern. Schultz (2000: 394) explains that egoistic concerns are “positively predictive of attitudes about specific local issues that directly impact self. In contrast […] biospheric concerns would be positively related to attitudes about global, more abstract environmental issues, as well as to more specific issues.”
If increasing environmental awareness and encouraging pro-environmental behaviors are important objectives for this generation then it seems that understanding the human-nature relationship and its mediating mechanisms is of paramount importance.

**Chapter 3: Methodology**

**Research Design & Rationale**

To adequately address my research questions an explanatory mixed methods design was employed so that I was able to first collect quantitative data to determine the impact winter camping had on nature connectedness and then conduct qualitative research to gain deeper insight as to what specific factors are viewed as influencing nature connectedness. The following illustration highlights a combination of quantitative and qualitative approaches used in this study.

Although there is some controversy surrounding a mixed methods approach due to suggested incompatibilities within the quantitative and qualitative paradigms, it is also recognized that “mixed methods research has become an increasingly used and accepted approach to conducting social research” (Bryman, 2012, p. 628) and that blending the strengths of each research method
while simultaneously minimizing their weaknesses could potentially “lead to superior findings” (Bryman, 2012, p. 630). It was the nature of my research questions that necessitated a mixed methods approach. In a quantitative approach I addressed my first research question, “does winter camping influence nature connectedness?”, through the administration of a Nature Relatedness pre- and post-test. In a qualitative approach I addressed the second research question, “what specific aspects of winter camping influence nature connectedness?” by conducting semi-structured interviews. This project fits an explanatory design because in a mixed methods approach I hope to “explain in more detail through qualitative research the initial quantitative statistical results” (Creswell, 2008: 562). The motivation for this research can be found in the consensus that “there is a lack of understanding of what qualities of nature experiences actually influence…connectedness to nature” (Theimer & Ernst, 2012, p. 79). In exploring my results I hope to add content to this discussion.

**Program Structure**

Nineteen boys aged twelve to thirteen participated on a three day scout winter camp at Manning Provincial Park from February 27 to March 1. Manning Park, is located 225 kilometres east of Vancouver, British Columbia, and is a popular destination for hiking in the summer and snowshoeing and skiing in the winter. Completion of this winter camp would earn each scout their winter camp badge. Due to the remote location of the camp, the scouts spent all of their time outdoors, thus providing an excellent opportunity to interact with nature. Activities during the winter camp included using sleds to transport personal gear a distance of two kilometres on snowshoes, working in teams of three and four to build quinzees, and snowshoeing around Lightning Lakes and through the forest. In cooking teams the scouts were also responsible for organising the supplies necessary for cooking outdoors and constructing a kitchen area out of snow where they could sit together and share their meals. The scouts spent much of their free time sledding, building forts, and having snowball fights. For a more detailed description of the winter camp program refer to the field notes in Appendix D.
Sampling

With purposive sampling the context and participants of the study are strategically selected because of their relevance to the research questions. (Bryman, 2012: 419). Typical case sampling, the purposive sampling approach used in this study, was selected to ensure that the case sampled actually exemplified nature connectedness (Bryman, 2012: 419). Studies suggest that programs influencing nature connectedness should be longer than one day and take place outdoors (Ernst & Theimer, 2011). These two factors then became the guidelines in selecting the scout winter camp as the context of my study and the scouts as the participants.

Another important consideration is the sample size of a study. Eleven interviews were conducted in this study which coincides with Creswell’s (2013: 61) recommendation “that researchers interview from 5 to 25 individuals who have all experienced the phenomenon,” being the winter camp in this circumstance. Furthermore, Creswell (2008: 217) points out that “the overall ability of a researcher to provide an in-depth picture diminishes with the addition of each new individual or site” and because obtaining a rich description of the winter camp experience was central to the aims of this study, eleven interviews seemed appropriate. The participants were also selected based on a willingness to be interviewed and parental consent (Appendix A).

It should be noted, however, that the external validity of results is comprised with purposive sampling (Bryman, 2012), especially when considering the homogeneity of the participants in this study. The participants are all male, attend the same school, live in rural areas, and have similar socio-economic backgrounds. Although it would be difficult to generalize these results to a larger population, the aim of this research was not to generalize but to add content to the discussion of what influences nature connectedness.

Quantitative Data Collection

In a quantitative approach I will address the first research question, does winter camping influence nature connectedness, through a pre- and post- test design. The pretest- posttest comparison can be used to measure attitudes before and after a ‘treatment’ and to determine if
the treatment had an effect on attitudes (Creswell, 2008: 301). In this case I will determine if winter camping influenced Nature Connectedness.

The Nature Relatedness (NR-Scale) pre-test was administered to the Grade 7 and 8 classes on February 18 and 20 by their classroom teacher, about 1 week prior to the Scout Winter Camp. The post-test was personally administered to the Scouts two days after the winter camp on March 3. As instructed on the test, it was emphasised that students answer each question according to how they truly feel. Creswell (2008: 301) identifies that one disadvantage of using a pre-test is that they can “raise the participants’ expectations about an outcome” thus influencing post-test results if students decide to exaggerate their responses so that the researcher can achieve a desirable result. To offset this disadvantage it was decided to administer the pre-tests to the entire class of both scout groups by their classroom teacher. Because the scouts were made aware of my position as researcher shortly after the pre-tests, the same format could not be followed for the post-tests which were administered only to the scouts a few days after the winter camp. Again it was stressed that the answers provided were honest and accurately reflective of their opinions.

Instrumentation

The Nature Relatedness Scale (Appendix B) was selected to assess nature connectedness because of its correlation to the multidimensional nature of the human-nature relationship and clear language that was appropriate for a younger audience\(^2\). This scale was developed as the researchers noticed other measures failed to assess at least one of the dimensions of nature connectedness. This 21 item questionnaire was “designed to assess the affective, cognitive, and physical relationship individuals have with the nature world” (Nisbet et al., 2009, p. 34) which is shown in the sub categories of NR-Self, NR-Perspective, and NR-Experience. This test corresponds well to Schultz’s (2002) definition of nature connectedness as having cognitive, affective, and behavioural components. The affective component (NR-self), representing “an internalized identification with nature,” includes questions such as “I feel very connected to all living things and the earth” and “My relationship to nature is an important part of who I am”

\(^2\) Permission to use this scale was granted by Elizabeth Nisbet via email on January 24, 2014.
The cognitive component (NR-Perspective), representing “an external, nature-related world-view,” includes questions such as “humans have the right to use natural resources any way we want” and “conservation is unnecessary because nature is strong enough to recover from any human impact”\(^3\) (Nisbet et al., 2009:725). The physical component (NR-Experience), reflecting “a physical familiarity with the natural world,” includes questions such as “I enjoy being outdoors, even in unpleasant weather” and “I take notice of wildlife wherever I am” (Nisbet et al., 2009:725). The scale uses a 5 point Likert Scale that ranges from Strongly Agree to Strongly Disagree. In a test with 831 undergraduate students the authors have demonstrated that this scale has “good internal consistency” and good test-retest reliability (Nisbet et al., 2009: 725). The language used in this test also seemed age appropriate for this study. The Connectedness to Nature Scale developed by Mayer & Frantz (2004) is also popular for pretest-posttest comparisons, however, some questions use abstract terms that might be difficult for a younger audience. Examples include, “when I think of my life, I imagine myself to be part of a larger cyclical process of living” and “I feel that all inhabitants of Earth, human, and nonhuman, share a common ‘life force’ ” (Mayer & Frantz, 2004: 513). Furthermore, a study that compared seven different measures assessing connectedness to nature concluded that the multidimensional concepts such as the Nature Relatedness Scale “consistently performed better”, reconfirming that nature connectedness as a construct should be viewed as multidimensional (Tam, 2013:74).

**Qualitative Data Collection**

**Participant Observation**

In the first place, qualitative data was collected in the form of field notes and observations while participating on the three day scout winter camp. Joining this winter camp as a researcher a criminal record check and scout camp participation form had to be completed to gain clearance for attendance. I was an “active and known” participant meaning that I was fully involved with all of the activities during the winter camp and my role as researcher was known to the participants (Newby, 2010: 365). The primary purpose of participating on the scout winter camp

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\(^3\) These statements are negatively worded and were thus reverse coded when analysing the data.
was not to generate data for analysis, but rather to augment the interviewing process. By participating on the winter camp I could obtain valuable first-hand information of the program’s structure and include a detailed description in the report. This allowed me to spend more time focused on addressing my second research question during the interviews without having to ask unnecessary questions about the schedule and structure of the winter camp. Also, participating on the winter camp gave me a frame of reference and a deeper understanding of the answers provided during the interviews because I have shared the experience with the participants. Finally, through participant observation I was able to take photographs during the winter camp to use for photo-elicitation where the images could be used to facilitate discussion during the interviews (Bryman, 2012: 455). One concern of participant observation is that with the realization they are being studied, participants might alter their behaviour (Bryman, 2012: 496). Although I assumed an overt role, the potential of ‘reactivity’ influencing behaviour was minimal because I was fully engaged in all activity so that the scouts would sooner identify me as a participant rather than a researcher. In addition, I tried to minimize my role as researcher by waiting for natural breaks in the schedule to write down field notes in my tent.

**Semi-Structured Interviews**

In an inductive approach through semi-structured interviews I addressed my second research question, “what specific aspects of winter camping influence nature connectedness”. Semi-structured interviews were conducted from March 3 to March 7, the week following the winter camp and after the post test data was collected. This was the most appropriate method of collecting data because flexibility was necessary to allow opportunity for unanticipated themes to emerge during discussion (Bryman, 2012: 470). The interviews took place in a conference room located in the school library, a location familiar to all of the participants. The duration of the interviews was between 33 and 48 minutes. Before commencing the interviews I showed a series of 20 photographs summarizing the winter camp. The participants were informed that the interviews would be taped and I allowed them to press the start and stop buttons on the recording device in an attempt to diminish an interviewer/interviewee hierarchy. Although an interview guide (Appendix C) was used, I would often allow the content of the participants’ answers to dictate the ordering of the questions so that the conversation could maintain a natural flow.
Participating on the winter camp also allowed me to use specific examples to frame the interview questions and I felt confident prompting for elaboration to gain deeper insight of their experiences.

**Quantitative Data Analysis**

The quantitative data was analysed from a deductive approach as I hypothesised that winter camping would positively influence nature connectedness. I first entered the data from the pre- and post- tests into Excel to generate the average nature relatedness score for each student. I then entered the averages into a standard program used for analyzing quantitative data called SPSS (Statistical Package for the Social Sciences) and conducted a paired sample one-tailed T-test. The data from the pre- and post- tests were then analysed in SPSS using a paired sample one-tailed T-test. A paired sample T-test is used when you are comparing two results but with the same participants. This “test indicates whether there is a difference in sample means and whether this difference is greater than would be expected based on chance” (Jackson, 2013: 78). It is considered a one-tailed test because my hypothesis specifies that the second data set (post-test results) will be larger than the first data set (pre-test results) due to the intervention of winter camping. A two-tailed test simply suggests that there will be a difference between the two data sets but does not specify which data set will be larger (Newby, 2010: 574). It is important to decipher between the two tests because it influences the interpretation of results in accepting or rejecting the null hypothesis.

**Qualitative Data Analysis**

A thematic analysis was employed with analyzing the data generated from the semi-structured interviews. Thematic analysis is a popular approach to qualitative data analysis, especially in regards to its theoretical flexibility and ability to address a wide range of research questions (Braun & Clark, 2006). I will also use the six phases outlined by Braun and Clark (2006) to guide my data analysis. In the first phase data immersion was achieved through the transcription process. The program Transcribe allowed me to slow the speech to half its regular speed so that
the interviews could be transcribed verbatim. Upon completion, I listened to each interview a second time while simultaneously checking my transcription to ensure accuracy. In the second phase I coded the responses of each question. Because working systematically is important for credibility, I was sure to give “full and equal attention to each data item” and to attribute codes or even multiple codes to each data extract (Braun & Clark, 2006, p. 89). It was important to code for as many different themes as possible allowing opportunity for the emergence of unanticipated codes. An example of the coding process can be seen in the following interview excerpt.

**Interviewer:** You mentioned quinzee making. What was it like to spend 2 nights in a quinzee? Tell me about that.

**Interviewee:** It was cold. If you look up you see nature all around, like the snow and it was just crisp air. And then ya, you feel nature all around you. It makes you look at a place different.

**Codes:**
- **Green:** Cold = Challenge
- **Yellow:** Nature Immersion
- **Blue:** Crisp Air (This was coded due to frequency in data set)
- **Purple:** Different Perspective

In phase three codes were grouped to form overarching themes. At this stage, outlier codes that did not seem to fit any theme were placed in a miscellaneous category. In phase four the themes were refined with close attention to “internal homogeneity and external heterogeneity” meaning that the codes within a theme share similar qualities while simultaneously displaying distinct differences to codes grouped in other themes. At this stage themes were combined due to similar codes or abandoned due to a lack of supporting codes or data. Once the themes were identified, I cut and paste all supporting data extracts and made a separate word document for each theme.
An example of the supporting data extracts from one interview for the theme of *Empathy towards Wildlife* can be seen below.

**Empathy Towards Wildlife**  
**Supporting Data Extracts from one interview:**

- “If you keep a forest it stays nice and beautiful and it helps protect the animals.”
- When we go across the lake and sledding you experience how cold it is and then animals that’s all that they can do to stay warm.”
- “There’s probably fish living under there (ice) in the cold water. That’s hard, but fish are probably used to it.”
- “It’s so cold and we’re freezing and if you think how animals are it’s amazing how they are created to live in this environment and hibernate and have the brains to even have like enough storage just to store for the winter. “
- “You experience the cold for two days and that experience shows you what animals feel like for about the whole winter.”
- “I just see snow and you like think how that’s created and like survival of animals, like plants even and trees can survive in this cold weather. They’re covered. Ya, it’s amazing.”
- “We are kind of mean to animals. Like we put them in zoos, giving them pollution, they didn’t do anything to deserve that.”
- “Because if we would have gone sledding by trees it could have been interrupting like a squirrel in a tree.

I also generated a thematic map that accurately and holistically represented the data. In the fifth phase I determined the relevance and importance of the information within each theme. I considered the story told within each theme, how that story relates to the information given in other themes, and its relevance and contribution to the overall research. The final phase, the sharing of results, can be found in the discussion chapter of this paper.

**Ethical Considerations**

It is important to consider ethical principles in research, especially when the study involves youth as they are considered to be a vulnerable group (Bryman, 2012; Silverman, 2010). Ethical issues often considered when conducting research include harm to participants, lack of informed consent, invasion of privacy, deception (Bryman, 2012: 135), and reporting research fully and honestly (Cohen et al., 2008: 12).
Although my role as researcher would not cause physical, emotional, or social harm to the participants, confidentiality needs to be addressed when considering ‘harm to participants’. I did acquire parental consent that photographs could be used in the final report, however, I did assure each participant that names would not be used in any writing. I have used codes rather than names for identification purposes in all files associated with this study.

Because my research involved youth, the consideration of informed consent was more sensitive as I needed to obtain parental consent (Appendix A) before participating in this study. First consent was granted by the principal, via email, that I could use the facilities at the school attended by the scouts to conduct my interviews. Then a permission form outlining the nature of my research and requesting parental consent was delivered electronically to the parents of each scout on February 21 and were received on February 27. In addition, I verbally acquired consent from each participant before conducting interviews.

The next consideration, invasion of privacy, was not an issue in this research as the nature of the interview questions did not require disclosure of private or sensitive issues. In fact, I found the participants very willing to share their winter camp experiences with me.

Again, deception was not an ethical consideration in this study because of my overt role as researcher. On several occasions the participants were interested in learning more about the nature of my research and their role in this study. Furthermore, I will share the results of this study with each participant by emailing each family an electronic form of the final report.

Finally, in considering the ethical principal of reporting research fully and honestly, I will be sure that the information provided in the final report is an accurate representation of the data collected and will keep all original, unaltered documents so that my results can be verified if necessary. In addition I will be sure to avoid plagiarism through proper referencing of all resources used in this study.
Chapter 4: Results

Introduction

This section will include the quantitative results from the pre- and post- tests that were administered to address the first research question in determining if winter camping did indeed influence nature connectedness. The qualitative results generated from the semi-structured interviews will provide information about the specific factors that are responsible for influencing a sense of nature connectedness, thus addressing the second research question.

Quantitative Results

The Nature Relatedness Scale was administered a week before and two days after the winter camp to address the first research question, “Does winter camping positively influence nature connectedness?” A paired sample T-test was conducted on the results to determine if the impact winter camping had on nature connectedness for the scouts could be considered statistically significant. The results of the average scores for each question of the Nature Relatedness Scale before and after the winter camp can be viewed in the following tables. These values are based on a 5 point Likert Scale ranging from 1 representing strongly disagree to 5 representing strongly agree. The scores for each question show the average value after the data was collected from all nineteen scouts. The questions here are divided into three subscales so that the results for each could be viewed, however the questions on the pre- and post- tests had the questions arranged in a random order (Appendix B). Some questions are negatively worded, such as “I don’t often go out in nature”, and were thus reverse coded when computing average NR scores for each scout.

<table>
<thead>
<tr>
<th>Nature Relatedness Scale: NR-Self Questions</th>
<th>Pre-Test Averages</th>
<th>Post-Test Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td>My relationship with nature is an important part of who I am.</td>
<td>3.38</td>
<td>3.63</td>
</tr>
<tr>
<td>I feel very connected to all living things and the earth.</td>
<td>3.68</td>
<td>3.84</td>
</tr>
<tr>
<td>Statement</td>
<td>Pre-Test Averages</td>
<td>Post-Test Averages</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>I am not separate from nature, but a part of nature.</td>
<td>3.89</td>
<td>4.18</td>
</tr>
<tr>
<td>I always think about how my actions affect the environment.</td>
<td>2.88</td>
<td>3.26</td>
</tr>
<tr>
<td>I am very aware of environmental issues.</td>
<td>3.11</td>
<td>3.55</td>
</tr>
<tr>
<td>I think a lot about the suffering of animals.</td>
<td>3.37</td>
<td>3.47</td>
</tr>
<tr>
<td>Even in the middle of the city, I notice nature around me.</td>
<td>3.67</td>
<td>3.47</td>
</tr>
<tr>
<td>My feelings about nature do not affect how I live my life.</td>
<td>3.42</td>
<td>3.58</td>
</tr>
<tr>
<td><strong>Average NR-Self Score:</strong></td>
<td>3.47</td>
<td>3.65</td>
</tr>
</tbody>
</table>

**Nature Relatedness Scale:**

**NR-Perspective Questions**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Pre-Test Averages</th>
<th>Post-Test Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humans have the right to use natural resources any way we want.</td>
<td>4.00</td>
<td>4.05</td>
</tr>
<tr>
<td>Conservation is unnecessary because nature is strong enough to recover from any human impact.</td>
<td>4.58</td>
<td>4.45</td>
</tr>
<tr>
<td>Some species are just meant to die out or become extinct.</td>
<td>4.42</td>
<td>4.47</td>
</tr>
<tr>
<td>Animals, birds, and plants should have fewer rights than humans.</td>
<td>3.00</td>
<td>3.03</td>
</tr>
<tr>
<td>Nothing I do will change problems in other places on the planet.</td>
<td>3.79</td>
<td>4.08</td>
</tr>
<tr>
<td>The condition of non-human species (plants &amp; animals) is an indicator of the future for humans.</td>
<td>3.32</td>
<td>3.37</td>
</tr>
<tr>
<td><strong>Average NR-Perspective Score:</strong></td>
<td>3.78</td>
<td>3.85</td>
</tr>
<tr>
<td>Nature Relatedness Scale: NR-Experience Questions</td>
<td>Pre-Test Averages</td>
<td>Post-Test Averages</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>I enjoy being outdoors, even in unpleasant weather.</td>
<td>4.05</td>
<td>4.37</td>
</tr>
<tr>
<td>My ideal vacation spot would be a remote, wilderness area.</td>
<td>3.68</td>
<td>3.84</td>
</tr>
<tr>
<td>I enjoy digging in the earth and getting dirt on my hands.</td>
<td>3.68</td>
<td>4.16</td>
</tr>
<tr>
<td>I take notice of wildlife wherever I am.</td>
<td>4.11</td>
<td>4.16</td>
</tr>
<tr>
<td>I don’t often go out in nature.</td>
<td>4.53</td>
<td>4.58</td>
</tr>
<tr>
<td>The thought of being deep in the woods, away from civilization, is frightening.</td>
<td>4.32</td>
<td>4.47</td>
</tr>
<tr>
<td><strong>Average NR-Experience Score</strong></td>
<td><strong>4.06</strong></td>
<td><strong>4.26</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nature Relatedness Scale</th>
<th>Pre-Test Average</th>
<th>Post-Test Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Average Score for the Nature Relatedness Scale:</strong></td>
<td><strong>3.75</strong></td>
<td><strong>3.90</strong></td>
</tr>
</tbody>
</table>

Comparing the pre- and post-test results, an increase in averages occurred for eighteen questions while two questions had a lower post-test average. Although it would appear, looking at this table, that winter camping did positively influence nature connectedness with an overall increase of 0.15 when comparing pre- and post-test averages, a paired sample T-test was conducted in SPSS to confirm that this difference was statistically significant. A statistically significant difference shows that the difference in averages from the pre- and post-tests “is greater than would be expected based on chance” (Jackson, 2013: 78). The null hypothesis is that winter camping did not influence nature connectedness. In other words, that there is no difference in scores. The alternative hypothesis is that the winter camping did positive influence nature
connectedness, so the post-test scores would be higher than the pre-test scores. The null hypothesis can only be rejected if the p-value is less than 0.05 so that the confidence interval of the difference is 95%. This means we are 95% sure that the results were not due to chance. SPSS produced the following results.

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>N</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR pre</td>
<td>3.7505</td>
<td>19</td>
<td>.43794</td>
</tr>
<tr>
<td>NR post</td>
<td>3.9016</td>
<td>19</td>
<td>.40544</td>
</tr>
</tbody>
</table>

This table shows us the mean scores for the pre and post Nature Relatedness tests, the number of participants, and the standard deviation of the scores. With nineteen scouts participating, the average score on the pre-test was 3.75 ± 0.44 and the average score of the post-test was 3.90 ± 0.41. The next table, also generated in SPSS will confirm if this difference is statistically significant.

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>.15105</td>
<td>.28775</td>
<td>.06601</td>
</tr>
</tbody>
</table>

The mean difference in scores is 0.15 ± 0.29. The p-value, located in the last column, determines the significance of the difference in mean scores. The two-tailed significance is 0.034 which is less than the accepted level of 0.05 so the null hypothesis can be rejected. However, because we are not only suggesting that there is a difference in mean scores, but that it can be specified that the post-test results are higher than the pre-test results as suggested by the alternate hypothesis, this becomes a one-tailed test, so the p-value needs to be divided by two. The p-value for a one-tailed test then become 0.017, which is less than 0.005, increasing our confidence to 99% that the results were not due to chance. To summarize, there was a statistically significant difference in the scores for the Nature Relatedness Scale before the winter camp (M=3.75, SD=0.44) and after
the winter camp (M=3.90, SD= 0.41); t (18) =2.288, p = 0.017. Therefore we can reject the null hypothesis and accept the alternate hypothesis that winter camping does positively influence nature connectedness.

Because the Nature Relatedness scale is actually comprised of three sub-scales the results were also further divided to determine if there was also a statistically significant difference for each sub-scale. The first sub-scale, titled NR-Self, reflects the extent to which individuals include nature as part of their identity. Results in SPSS show that there was a statistically significant difference in the NR-Self scores before the winter camp with an average of 3.47 ± 0.71 and after the winter camp with an average of 3.65 ± 0.62. The mean difference in scores was 0.17 ± 0.38 with a p-value of 0.031. The second sub-scale, titled NR-Perspective, reflects an environmental awareness including human impact and responsibilities concerning the environment. Results in SPSS show that there was not a statistically significant difference in the NR-Perspective scores before the winter camp with an average of 3.78 ± 0.43 and after the winter camp with an average of 3.85 ± 0.40. The mean difference in scores was 0.06 ± 0.41 with a p-value of 0.26. Because the p-value was greater than 0.05 a significant difference in data sets cannot be assumed. Finally, the third sub-scale, titled NR-Experience, reflects a sense of feeling comfortable in nature and a desire to spend time outdoors. Results in SPSS show that there is also a statistically significant difference in the NR-Experience scores before the winter camp with an average of 4.06 ± 0.71 and after the winter camp with an average of 4.26 ± 0.57. The mean difference in scores was 0.20 ± 0.43 with a p-value of 0.02.

**Summary**

When conducting a paired samples T-test on the data from the Nature Relatedness Scales before and after the winter camp, it was determined that the post-test scores were significantly higher for the sub-scales of NR-Self and NR-Experience, while a significant difference was not found in the scores for questions relating to NR-Perspective. When combining the sub-scales and analyzing the data holistically, it was determined that the Nature Relatedness post-test scores were significantly higher than the pre-test scores with a p-value less than 0.005. As a result the null hypothesis was rejected. Based on these results it can be concluded that winter camping did
positively influence nature connectedness for the scouts, thus addressing the first research question of this study. It is important to clarify that a sample size of nineteen does not enable these results to be generalized to a larger population, however, for the purposes of this study, it was important to first confirm that a connectedness to nature for the scouts was influenced with the winter camp experience before exploring the second research question in determining specific aspects of winter camping that were responsible for impacting nature connectedness.

Qualitative Results

During the interviews, the focus was to gain insight as to how the winter camp changed the scouts’ perspective of nature in an attempt to explore my second research question, “What specific aspects of winter camping influence nature connectedness?” After conducting a thematic analysis of the data derived from the semi-structured interviews the following themes emerged: Nature Connectedness in relation to 1) Location, 2) Nature Immersion, 3) Wildlife Interactions, 4) Challenges, 5) Risk, 6) Technology, and 7) Environmental Awareness. Each theme contains multiple sub-themes that will be discussed in further detail. In this chapter it is my intent to simply present the information and provide an accurate representation of the scouts’ experiences on the winter camp. A description of how each theme relates to nature connectedness and connects to the literature will be provided in the Discussion Chapter. To maintain accuracy in representing the results, all data extracts used to describe each theme will be written verbatim, which may include grammatical errors and slang language. In addition, to maintain anonymity, each data extract will be labeled P.01 – P.11, which represents the eleven individuals that participated in the interviews.

Nature Connectedness & Location

The setting of the winter camp was at E.C. Manning Provincial Park which is located about 120 kilometres east of where the scouts live in Chilliwack. Manning Park is a popular summer destination for hiking and winter destination for skiing and snowshoeing. The park is nestled between the Cascade Mountains and is over seven hundred square kilometres of rugged
mountains, mature forests, alpine meadows, valleys, rivers, and lakes. The specific location for
our camp was along the frozen shores of Lightning Lakes and near the base of Frosty Mountain
which is the park’s highest peak. For the scouts it was important that the camp take place at a
remote location away from home and civilization to achieve that sense of being out in the
wilderness where they could enjoy a landscape untouched and unspoiled by human activity.

Although there was a ski hill ten kilometres away, the location of the winter camp seemed
remote in that the scouts encountered few people, it was quiet with the absence of traffic noise,
they did not see any buildings, and at night there was no light pollution. A few scouts share why
they enjoyed this aspect of the winter camp:

*It’s just not touched by humans really. It’s just you’re out on the lake with your
snowshoes, it’s just something that you can’t feel out here (home). Like it has to be kind
of a remote area or something like that.* [P. 01]

*It was different from here (home) and it was more like you’re away from everybody and
everything like civilization and to just be out in the middle of nowhere.* [P. 05]

*You’re just in like a different place. It’s like you’re not at home. You’re kind of like in
the wilderness somewhere else.* [P. 06]

*I like going somewhere remote. I would rather spend three days at Manning than three
days at a fun hotel.* [P. 07]

For the scouts, it almost seemed as though they were camping in the middle of the wilderness
with a remote location such as Manning Park, which allowed them to experience nature to a
different capacity had they been closer to a city or civilization as they were completely immersed
in nature for three days.

**Nature Connectedness & Nature Immersion**

For three days the scouts were completely immersed in nature as all of the camp’s activities took
place outdoors. The scouts slept outdoors in self-constructed, snow cave-type structures called
quinzees, for two nights. The scouts ate their meals outside in kitchen areas with benches and
tables carved out of snow. The scouts explored Lightning Lakes and the surrounding Pine forests on snowshoes. Even during leisure time the scouts had snowball fights and went sledding down the slopes. With such exposure, this camp provided a unique opportunity to authentically experience nature resulting in a new perspective of nature and a desire to spend more time in nature.

When discussing their winter camp experiences many scouts shared an enthusiasm about spending all of their time in nature as they ate, slept, explored, and played in the outdoors, giving a sense of being immersed in nature as shown by the following quotes:

*When you look up and you’re just lying there it’s like I’m surrounded by snow. It’s definitely way cooler. It’s like an experience like no other. Like in a tent it’s like okay, manmade, whatever. But this is all natural, this is snow.* [P. 04]

*I thought it was pretty cool waking up in the morning and going to our snow kitchen with having cinnamon buns and oatmeal for breakfast. It was really cool. It was just living outdoors you know. Like you never went inside, you’re always outside the whole time. The whole time that trip. It was so cool. It was like we could say we’re just going to go to our kitchens for lunch and dinner, it’s like in snow (laughs). So ya, we could dig out little spots for our fridge and put our stuff in there and ya we just had to make sure we ate it fast before it froze (laughs). So ya, it was definitely cool that we could do all that in the snow in the nature.* [P. 04]

*And like snowshoeing was lots of fun cause you got to go out in like almost the middle of nowhere cause we didn’t even know where we were and like just going will all of us and just like walking along in the woods.* [P. 10]
*And like exploring out in the woods when you’re like all by yourself and it like seems like you’re the only person in the world.* [P. 10]

This exposure to nature for an extended period of time encouraged the scouts to look at nature from a new perspective. For example, the scouts were surprised that snow could have so many functions. Snow was piled up to form quinzees and carved out to form eating areas, snow was melted for drinking water and cooking food, and snow was compacted to make tracks for snowshoeing and sledding. These scouts share what it was like to use nature’s resources while winter camping.
Because you have to use the resources around you kind of in order to cook and then that kind of makes it fun, using the stuff around you and using snow to make water and that kind of stuff, which made it cool. [P. 02]

It surprised me how beautiful it could be, like the snow, and how many ways you can use it, like build a quinzee, have a snowball fight, go sledding. [P. 05]

Just taking a jug of snow and putting it in the pot, just melting it down, to have hot chocolate. Just make sure it’s clean snow and then it’s all good. It was so cool to survive off of snow for our drink and stuff. [P. 04]

I think how I used nature because like you can use your resources, you can use those trees, you can use the snow, you can use basically everything. Like you can use everything to help you survive. And that definitely makes an impact on how you look at nature. Like you see the trees, but that’s not just a tree that is there to use. Ya, also it gives air to you and it can help you survive in some situations. [P.04]

In addition to expressing surprise at the many functions of nature’s resources, being immersed in nature for three days provided the scouts with an opportunity to take the time to thoroughly enjoy nature and perhaps notice details they wouldn’t normally acknowledge, which coalesced to a new perspective of nature. A few scouts share what they noticed while engaged in various activities such as sledding and snowshoeing.

Well when we went sledding we went up the hill, like me, P.11 and P. 06, we went up […] really high up and […] if you look just straight, you couldn’t see all the tracks below, you couldn’t see anybody, and you couldn't really hear anything. And you just look and there's like the mountain in front of you and it was just like half was just snow and the rest was shadow and it was just like crazy how beautiful it was and like you realize that the world is so big and that you think that mountain is huge but that one isn’t even like, not even like a millionth of the world. Just unbelievable. [P. 10]

The shadows from the sun and stuff and from the trees on the big spot that’s open. It looks really cool, all the shadows. I love that. [P. 01]

I noticed the beautiful scenery. The trees, like you look at them a different way now. Like the trees, seeing them piled up with snow, that’s pretty cool. [P. 04]

Trekking up to the top of the sledding slopes and snowshoeing through the forest gave the scouts the opportunity to marvel at nature and appreciate the beauty of their surroundings. After spending three days on winter camp, sleeping in quinzees, cooking outdoors, snowshoeing
through the forest, having snowball fights, and just enjoying the nature experience, many scouts expressed a desire to spend more time outdoors.

*Uhm, well, seeing how beautiful the trees are, it makes me want to go outside into our field and just walk around and stuff.* [P. 02]

*It’s kind of fun out in the snow cause you have like a snowball fight and you go sledding and you kinda want to do more stuff out in the snow or be outside more.* [P. 11]

*You’re like well ya, if I can do this, I wonder what I can do at home. Like can I make, let’s say, another quinzees at home that I made here. Can I make it better? Can I improve? And then you just try and live out in the wild and kind of have more fun where you actually live because you think more about it. And when you’re gone, you’re further away than home, it’s like your forest and you’re trying to, uh, to like play around, making shelters and then when you go home you can make your own shelters and what you have learned at scouts you can do wherever.* [P. 06]

Winter camp provided the scouts with a unique opportunity to be completely immersed in nature for three days which inspired a new perspective of nature and desire to spend more time outdoors. This exposure to nature also provided a unique opportunity for the scouts to interact with wildlife.

**Nature Connectedness & Wildlife Interactions**

On the winter camp the scouts had the experience of Gray Jays, a common mid-sized bird found in boreal forests across North America, eating out of their hand. For many, this experience resulted in a new perspective and respect for wildlife. In addition, experiencing the cold winter climate and dealing with the challenge of staying warm caused many scouts to empathise with wildlife as they consider these animals enduring such conditions for the entire winter season.

After snowshoeing for two kilometres and pulling sleds filled with gear, the scouts arrived at Lightning Lakes, the final destination for winter camp. Upon arrival the scouts took a lunch break before setting to the task of building quinzees. The food quickly attracted the attention of Gray Jays, also known as ‘Whiskey Jacks’. A flock was flittering from tree to tree watching
closely for discarded food scraps. Surprised at how close the bold birds would come to snatch parcels of food prompted the scouts to hold food in the palm of their upraised hand. It was an amazing experience as the birds gracefully swooped from the trees landing on the scouts’ palms and calmly eating food right out of their hand. The scouts were surprised at how tame the birds seemed and this experience provided a new perspective of wildlife, resulting for some, in an increased sense of being connected to nature. Here are some examples of how the scouts described their experience of interacting with wildlife.

“It was like amazing. I never touched a bird before and now like the bird knows you are safe. [P.07]

“That was so cool. I really enjoyed it. Actually I was doing it for quite a bit of time. They completely trust you. Like it just comes up, lands in your hand, eat a little bit, and go away. And then another one comes and then comes back. It was pretty cool. [P.04]

“We always look at nature like we can’t catch something or we can’t pet it because it’s too shy or we’re too scary or something, but when these things happen it kind of adds to your knowledge of nature and it makes an impact. It’s like we are in connection with nature. [P. 04]

“It was different because usually the birds are not so tame, and it’s just you experience how close you are to nature and how like part of nature we are. [P.05]

“Like at home or anything birds will just fly away instantly when they see you, but there they seem to be really tame and nice. And I think when people are away from civilisation; I think they’re a lot more kind to nature. [P. 02]

Overall, the scouts seemed to have more respect for wildlife with the experience of Gray Jays eating out of their hands. Similarly, experiencing the cold weather conditions on winter camp and engaging in the perpetual battle of staying warm also resulted in an increased respect and empathy for wildlife as the scouts realize that wildlife encounter these winter conditions every year for an entire season.

“Well, uhm, because like some animals have to live in snow and it’s like you already have a problem living in snow because it’s so cold and then you think they have to live in snow for their whole life, well every winter, so it’s like do they actually have to live in that, it’s so cold. [P. 07]
You can see what happens in the cold weather and see how great animals are and how they can survive in the wet and snow. [P. 07]

Because I was sleeping and when I woke up it was like so cold. How would the animals feel because they don’t have really anything to sleep in besides maybe a burrow. [P. 06]

They’re pretty cool animals because they can survive in it (the cold) and they have to find food which is really hard. [P. 06]

Besides a few squirrels and birds, the scouts did not experience much in terms of viewing wildlife. However, a simple interaction with the Gray Jays and experiencing the challenges of staying warm in winter like conditions seemed to make an impression on the scouts which is quite evident in their reflections as they express a sense of amazement and increased respect towards animals.

**Nature Connectedness & Challenges**

The scouts encountered many challenges on the three day winter camp, both physical and psychological. The physical challenges included activities such as snowshoeing and learning new skills such as building quinzees. The psychological challenges included maintaining a positive attitude and mental preparation for dealing with difficult conditions such as the interacting with a wet and cold environment. The scouts had a very positive reaction to these challenges and they realized the importance of being challenged for increasing their confidence, achieving a sense of accomplishment, and personal development.

For most of the scouts the winter camp was their first exposure to snowshoeing which many found to be a difficult task. Challenges were presented immediately upon arrival at Manning Park as the scouts were dropped off at the Lone Duck Parking Lot and had to snowshoe a distance of two kilometres while pulling sleds loaded with all of their camp gear to reach the final destination at Lightning Lakes. The next day, the scouts received more snowshoeing experience as they went trekking through the forest for three hours. This challenge was compounded for those at the front of the group as they were forging a trail through deep,
powdery snow and had the added difficulty of packing down a trail. The following quotations illustrate the challenges of snowshoeing:

*Snowshoeing was kind of a challenge because we didn’t really go on a trail. It was more just powder so it was more of a challenge.* [P. 03]

*Well later to the end it (snowshoeing) was a bit harder because you’re all tired out. You’re muscles are like sore.* [P. 06]

*You’re like right behind the leader and you gotta like, uhm, press down all the snow for all the other guys so it’s a bit easier for them so you’re kind of doing all the hard work and they’re just walking along.* [P. 11]

Also challenging was learning new outdoor skills such as constructing quinzees. Working in groups of three and four, the scouts started the process by digging a circular trench. The snow from the trench was piled up into the middle of the circle resulting in a large mound. When the mound was of sufficient size, the scouts then placed twelve inch wooden pegs all over the outside of the mound. The pegs served as markers so that when the scouts started digging an entrance hole and hollowing out a cavern they knew to stop digging if they encountered the end of a wooden peg to prevent breaking through the walls and compromising the strength of the structure. A breathing hole was also punctured into the top of the dome using the wooden handle of a shovel. It took each group about four to five hours to construct their quinzee. The dome structure is extremely stable and when the scouts tried to destroy their quinzees at the end of the camp by stomping on the roof, they did not cave. The following quotes provide insight to the skills used in building a quinzee, the challenges faced in the construction process, and the experience of spending the night in a quinzee.

*But I think with the quinzee you had to make sure the right size and the right angle from the wind and make sure you had your sleeping area higher than the entrance so that the wind wouldn’t come in and you had to make that air hole at the top.* [P. 04]

*What was challenging about building the quinzee* [Interviewer] *Uh, mostly piling the snow because we didn’t really have that good of shovels and we didn’t know exactly what size to make it so we didn’t know when to stop and when to keep on going or whatever.* [P. 03]
Scary maybe on the first night but after that it was fine and it was nice and warm and you know that if you build it the right way then you’re safe. You know that there’s like fresh air coming in. It’s not like you’re going to suffocate or anything like that. You know because you built it the right way that you’re going to be safe. [P. 01]

Perhaps most significant was the psychological challenge of staying warm. The temperature was well below freezing and reached a low of minus eleven degrees on the last day. The challenge of staying warm and dry became even more difficult when engaged in activities such as building quinzees, snowshoeing, and sledding because the scouts would start sweating from physical exertion and their clothes would get wet from the snow. Staying warm at night was also challenging. Although the temperature inside the quinzees was warmer than outside, the scouts were not moving so they felt quite chilled with lower body temperatures. The challenge of winter camping in cold conditions is illustrated by the following comments:

*It was cold so that was my biggest challenge, to stay warm and staying moving and active so that I could keep my body heat up.* [P. 04]

*The cold weather was pretty harsh.* [P. 10]

*When I woke up it would be freezing cold.* [P. 06]

*Well I slept okay, it was just kind of cold.* [P. 03]

These physical and psychological challenges might seem quite unpleasant, yet the scouts expressed that being challenged was an important part of the camp experience. When discussing the various challenges of winter camping, the scouts reacted very positively as they shared that being challenged adds fun and excitement to the camp and it just wouldn’t be the same without.

*I think it’s pretty cool having challenges [...] because it’s not fun if you don’t have any challenges to go through to get there.* [P. 02]

*I think challenges definitely add to the excitement.* [P. 04]

*Well to me it wouldn’t be a camp you know. Like you have to have challenges to make it fun and make it worthwhile really.* [P. 04]
Every camp has challenges and without it, [...] that’s like life without challenges, it’d be kind of boring. [P. 09]

To further elaborate, the conditions of an increased confidence, sense of accomplishment, and personal development all contributed to achieving this positive response to being challenged. Learning new skills such as building quinzees was challenging but it also gave the scouts an increased sense of confidence. With this greater self-assurance the scouts felt more comfortable exploring and engaging in outdoor activities. The following excerpts clearly illustrate a positive response to learning a new but challenging skill.

Like that taught me that now if I ever get lost in that much snow and I had a shovel, I’d just use that and then dig it out and then I could sleep in there for a night. [P. 02]

Well now I know that I can go out into nature and I can be safe like with all of the snow and I can be safe because I can build a shelter and like I know lots of things. Like I know a lot more things about nature like in the snow. [P. 03]

So if it happens that I don’t like have anything or something like not good happens then I can know a little bit of what to do and how to do stuff. That’s a good feeling to have. [P. 05]

And they (outdoor skills) help you if you’re ever trapped in the wild or something and you’re like lost or anything, you know how to build stuff and like get your food and shelter and you know how to like hike and how to navigate, all [...] of the main things that you use for survival, which is pretty good to have out in the wild. [P. 10]

Learning outdoor skills is important because it teaches the scouts how to survive in the outdoors which increases their confidence and allows them to comfortably explore and spend time in nature. In addition to achieving greater confidence, completing various challenges also contributed to a sense of accomplishment. The following quotes clearly illustrate this sense of accomplishment as contributing to the establishment of a positive experience.

You work on it for like four hours and then now you can see it actually kinda makes you feel kinda good, that you can make your own structure in a few hours that you can actually sleep in. [P. 01]

It makes you feel really good. Like you feel proud that you’ve done it and stuff. Like when I got home I was like, ya, that was awesome, I wanna do that again. [P. 02]
It feels good. You can kind of stand up a little taller and say I did that. Ya, and you can say it was hard but we did it. [P. 04]

Kind of a sense of accomplishment that you lived out in the cold for three days. [P. 06]

Finally, the scouts seemed to recognize the importance of being challenged for personal development. They realize that challenges are a part of life and learning how to deal with challenges on the winter camp can prepare them for more significant challenges later on in life.

Well I think it’s good to have challenges. Try to get through them. Because there’s challenges in life and we should practice those. [P. 04]

They’re good for me so I’ll learn how to deal with some like later on. [P. 05]

Ya, I think challenges are good to keep you like energetic and like strong and they help you prepare for like the future. [P. 11]

The scouts had positive and constructive reactions to the physical and psychological challenges of the winter camp. This positive reaction to experiencing challenges was established as confidence levels increased with the attainment of new skills, a sense of accomplishment developed with the successful completion of challenges, and personal development was encouraged with the learning and growth associated with such experiences. The scouts had a similar positive reaction to potential dangers that will be discussed in the next theme.

Nature Connectedness & Risk

The Scout motto is “Be Prepared” because there will always be certain risks associated with camping and outdoor activities. Winter camping is no exception which was demonstrated by two incidents. On the first night the scouts went snowshoeing on Lightning Lakes to get warm before going to sleep in the quinzees. As we were walking one father that was joining us for the evening suddenly punctured through the ice and sunk through to both knees in the water. It was discovered later that someone had earlier been ice fishing in that exact location. A second
incident occurred the next day when the scouts went snowshoeing through the forest for three hours. One of the scout leaders decided to take a short cut and fell into a tree well, sinking up to his neck in snow. It required the aid of two other leaders to help him get out of the hole. In addition to these incidents, the scouts discussed the risks associated with camping in a remote area and in cold temperatures. We were camping in an area with no cell phone reception and there were not any medical facilities nearby so it could be quite dangerous if a scout got hypothermia, for example, because he wasn’t taking care to stay warm. These incidents and potential risks were discussed during the interviews. The scouts recognized that many potential dangers are associated with winter camping and yet this knowledge would not discourage them from spending time outdoors. Their response to these incidents was an increased respect for nature and an increased awareness of their surroundings. For a few scouts the presence of potential danger was actually exhilarating and added an element of excitement to the camp.

It can be sobering discussing the potential risks of winter camping and the following responses illustrate the respect scouts had for nature.

*It just shows you how strong it (nature) is, how it can actually take your life away.* [P. 04]

*Because nature can be very like, uhm, aggressive and like fierce. You have to be ready for all kinds of things that might happen.* [P. 05]

*Well like when those tree wells, when like somebody fell in them, I never really expected them to be that deep, to sink, like the tree almost swallowed you up. Like now you kind of have more respect to like trees that they could really actually hurt you and like almost kill you if you get buried. To know that was pretty crazy.* [P. 10]

The scouts realized that even though the surrounding environment was so beautiful to look at, nature still demands respect to avoid getting hurt. In addition to an increased respect for nature, the scouts were also acutely aware of their surroundings while continuously making assessments so that exposure to potential dangers could be avoided.

*Like when you go across the lake, we knew it was strong, but if it was warmer out, we’d probably test it out first right. And when you go on like steep slopes, we had mostly trees surrounding it so we were safe from avalanches, but if there wouldn’t have been trees then we wouldn’t have gone sledding there, right.* [P. 01]
It sets a challenge for me and it like puts a caution in for me, like I have to be aware of whatever I do that if it’s a good idea or not. [P. 05]

I think it makes you more aware of your surroundings and less like in lala land. [P. 10]

Despite personally experiencing the dangers of winter camping and understanding that being aware and alert to your surroundings is vitally important, the scouts suggest that even this experience can be thrilling and adds an element of excitement to the camp as shown by the following quotes:

But it’s also pretty cool to think that there’s some dangers and stuff in doing it. That you have to be careful for it. [P. 02]

I think it was a good thing to keep us aware of that we could be in danger. We just have to, ya, look at what we’re doing. Ya, I think it added to the excitement in a way. It’s just like we had to get this thing done otherwise, […] but ya, it was still fun though because of those dangers. [P. 04]

There is, of course, an increased sense of safety, false as it may be, when engaged in outdoor activities with a large group of people. However, even though the scouts provided an interested perspective that exposure to risk can be exciting and add to the experience, they also showed an increased respect towards nature and awareness of their surroundings as preventative measures for avoiding dangerous situations.

**Nature Connectedness & Technology**

Due to its remote location there was not any cell reception at Manning Park. Furthermore, it is a policy for this particular scout group that video games or other electronic devices are not allowed on camping trips. When discussing what it was like to be on a three day winter camp without any computers or video games, three distinct themes emerged; a break from technology is good, technology can be distracting, and technology can prevent participation in camp activities.

Most of the scouts expressed, almost adult-like, that it was good to get away from technology for a few days. Although none of the scouts owned cell phones, they have significant exposure to
other forms of technology at home such as video games, television, and computers. The winter camp seemed to provide a welcomed relief to technology for a while as illustrated by the following quotes:

Well it was actually kind of nice because quite often at home I’m just on the computer or whatever. Just to get away from everything. [P. 03]

It was good to be away from it for a couple days because sometimes it feels good to get away from all that technology stuff and be alone in nature and experience nature. [P. 05]

You’re just away from all electronics and playing on it. It’s like you’re out there, you don’t have any contact. I don’t know, it’s just good. [P. 06]

I like to get away from everything and just do my own thing. [P. 09]

And once in a while you need to get out and refresh your brain, learn other things besides sitting behind a computer and DS and all the other stuff. [P. 10]

It seems that technology can be quite overwhelming for these scouts at times and they recognize the importance of taking a break from it every once in a while. In addition to asking them what it was like to spend three days away from technology, the scouts were also asked if electronic devices should be allowed on camp and how winter camp would be different if electronic devices were allowed. Their response was that electronic devices should not be allowed because it would be distracting and it would prevent participation in camp activities.

The scouts expressed that if electronic devices were allowed your attention would be focused on video games rather than enjoying the nature around you. With the distraction of electronics you might not notice the finer details of your surroundings which can be a memorable component of the winter camp experience. Here the scouts describe how electronics can be distracting:

Because you would just be sitting there and you wouldn’t be looking up really and you wouldn’t notice all nice trees and all the snow and stuff. [P. 02]

It just takes away from nature I think. [P. 03]

If you have all the technology you don’t really pay attention that much to nature […] because sometimes it just captures your attention and just draws you away from everything else. [P. 05]
Because we’re away from all like technology […] and just all things to keep you normally busy at home, those are not there, so you begin to notice more things. [P. 05]

It seems the scouts are suggesting that the camp experience is actually enhanced without technology because you are not distracted and you become more aware of your surroundings. The scouts also mentioned that winter camp would be much different if electronics were allowed because it could prevent participation in certain activities such as sledding and having snowball fights or it could affect the level of energy and enthusiasm exerted when involved with other activities such as building quinzees.

I think people would just keep playing their stuff and not going outside and everyone would be a lot more lazy and stuff there. And you would just be sitting by the fire playing your DS or something and meanwhile you could be outside going sledding or working more on your quinzee, fixing it and stuff. [P. 02]

I think people would stay if we didn’t have to get out of our quinzees for supper or for breakfast. I think people would stay in there a bit longer just playing their electronics. But ya, I think it would definitely take some time away from snowshoeing and doing all outdoor activities. [P. 04]

I think a lot of people wouldn’t be doing activities outside. Like I think they’d just be sitting around playing their games almost the whole time unless the leaders like forced them to go. [P. 10]

Based on my observations I agree with the scouts that allowing electronics would definitely impact the winter camp because it would affect the group moral. The scouts worked well together in teams building quinzees and cooking their meals because there was equal participation in sharing the work load. Having electronics, however, could cause discord if the scouts are not contributing fairly and playing games while their team mates are working.

The scouts gave convincing arguments that technology is not necessary for winter camping because it is healthy to spend some time away from electronics, it could distract you from enjoying the full experience of being out in nature, and it could prevent participation in activities such as building quinzees or sledding with your friends.
Nature Connectedness & Environmental Awareness

Several experiences on the winter camp such as experiencing the beauty of nature and observing wildlife in their natural habitat encouraged the scouts to reflect on environmental issues and their responsibility towards caring for the environment.

As the scouts spent three days at Lightning Lakes and explored the surrounding areas while engaging in activities such as sledding and snowshoeing, they were exposed to a beautiful landscape that seemed even more pristine with a fresh layer of sparkling snow.

*When we were hiking on the lake to the bunny hill, and then there were those like huge areas of just powder, untouched and all that, then you actually really see how beautiful it is.* [P. 01]

*Nature kind of looks a bit more like beautiful in the snow cause the sun glitters off the snow, it kinda lights up everything.* [P. 11]

This exposure to a pristine, untouched, snow covered landscape provoked many scouts to think about how pollution and other environmental issues would impact the beauty of their surroundings and compromise their outdoor experience.

*And it just doesn’t look nice when you go in nature and you see all garbage.* [P. 03]

*It was perfectly crisp air and like when you’re in the city you can see kind of like a haze and that’s what industrial plants do and if we stop it, it’ll look beautiful everywhere.* [P. 07]

*If you don’t care of the environmental then no one else can have that experience anymore. [...] Or like you go there and it’s all polluted and gross. It doesn’t make it fun if it’s disgusting right.* [P. 09]

In addition to experiencing a beautiful landscape with snow sparkling in the sun, the scouts also had excellent views of the night sky as the remote location of the camp was void of any light pollution from nearby buildings. Even the Milky Way was easily visible on a clear night. For one scout it was the stars shining brightly on the second night that provoked a discussion concerning environmental issues.
When we first started our snowball fight and we saw the, uhm, stars, like that was just like unbelievable, like how many there were up in the sky. And like if we don’t care for the environment and we keep just using cars and just everyone got pollution then after a while you’re not going to be able to see those stars anymore. [P. 10]

It seems the scouts have had previous exposure to pollution and understand the impact that it can have on a landscape. Mental pictures of pollution and smog provided such a contrast to the landscape they experience on winter camp that they expressed how horrible it would be if pollution reared its ugly head in this landscape as well. I think the scouts would avoid actions that could inflict damage on such a landscape.

Besides the preservation of a beautiful landscape, many scouts also expressed the desire to protect animals and their habitat when discussing the impact winter camping had on environmental awareness. Some scouts expressed concern about how their actions, such as littering, or pollution, could potentially affect wildlife.

Well if we just leave like uhm wrappers and everything then it could harm like animals and stuff. [P. 03]

That we shouldn’t release pollution on the air because it will like kill the environment and the animals in it. [P. 08]

Similarly, the scouts contemplated the impact environmental issues such as deforestation could have to animals as it destroys their habitat.

Eventually it’s (trees) going to run out and then there’s lots of animals are going to lose their habitats. And like those tree wells, like animals can like go in them and use them for dens, so like if we take out a tree then animals are going to lose lots of their places, nests, and like habitats. [P. 10]

It makes me more cautious because if you think of all this habitat that can be ruined it makes me more cautious about that. [P. 07]

When you’re at home and people are talking about deforestation you’re like ahh, whatever, who cares. But when you’re actually there you’re like it would suck if this was all gone. And then you think of all the animals that would lose their homes or whatever. Like usually you wouldn’t care about that until you’re actually there. [P. 09]
It’s hard to say if these experiences will translate to environmentally friendly behaviour at home, but it is obvious that these experiences did leave an impression on the scouts and developing an environmental awareness is certainly an important step in developing eco-friendly attitudes. I think it became more personal for the scouts to think that their actions could directly impact the beauty of nature or be responsible for the destruction of animal habitat. To conclude with a last quote, one scouts reflects,

*Now I look at myself differently and I think how I can change to be nicer to the environment and ya, like it feels good.* [P. 07]

**Summary**

When discussing the winter camp experience with the scouts, seven distinct themes emerged. The scouts enjoyed the remote location of Manning Park where they could explore a remote, wilderness type environment. Being immersed in nature for three days was a unique experience for many scouts that resulted in a new perspective of nature and a desire to spend more time outdoors. Although faced with both physical and psychological challenges, the scouts felt a sense of accomplishment and competence in dealing with the challenges and recognized that they are important for personal growth. The scouts felt an increased respect for nature and awareness to their surroundings as they encountered potential dangers and considered the risks associated with winter camping. The absence of technology from camping was appreciated because the scouts felt it was important to escape that every once in a while and electronic devices could be distracting from nature or prevent participation in camp activities. Finally, developing an environmental awareness seemed to be the culminating outcome of their experiences as the scouts realized that environmental issues such as deforestation, global warming, and pollution, could comprise subsequent outdoor activities due to the decreased possibilities of interacting with wildlife, enjoying the multiple uses of snow, or exploring a pristine environment.
Chapter 5: Discussion

The quantitative results in this explanatory mixed methods study show that winter camping did positively influence nature connectedness which will be further discussed in this chapter. The aim of the qualitative research was to examine this positive relationship and determine the specific conditions of winter camping that influenced nature connectedness. Because nature connectedness is an abstract concept and can be difficult to express verbally, the interview questions focused on how the scouts view nature differently as a result of winter camp to gain insight and understanding of specific conditions that influenced nature connectedness. The results indicate that the location of the camp, the condition of being immersed in nature, interacting with wildlife, the positive experience of challenges, the presence of risk, and freedom from technology are all contributing factors that influenced a sense of nature connectedness. An increased environmental awareness is considered a result, rather than an influencing factor, of nature connectedness, but was yet included as it provides further support to the quantitative results that winter camping did significantly increase nature connectedness. Each of these themes will also be further explored in this chapter.

Nature Connectedness & Winter Camping

As indicated in the literature review, various assessment tools aimed at measuring nature connectedness have been developed in the last 15 years. A study conducted by Tam in 2013 examined the similarities and differences among seven different scales and concluded that although these measures are similar and “can be considered as markers of a common construct”, the two multi-dimensional scales, Environmental Identity and Nature Relatedness, “consistently performed better” in terms of predicting the criterion variable of nature connectedness (Tam, 2013: 74). The Nature Relatedness Scale was recently developed in 2009 (Nisbet et al., 2009) and was selected based on its similarity to Schultz’s (2000) multi-dimensional definition of nature connectedness and its clear, precise language that would be easy for adolescents to understand.
Before conducting this research I was a bit concerned that the pre-test data could possible result in a ‘ceiling’ effect with high nature connectedness scores because the scouts would most likely have an innate interest in nature with participation of such a program. High initial results could be compromising because achieving a statistically significant improvement in nature connectedness after the camp would be far less likely. The overall pre-test average, however, was 3.75, thus evading a ceiling effect. It is interesting to consider the possibility of a certain amount of peer pressure for students to join scouts because every boy in grade 7 and all but 2 boys in grade 8 were participating in the program. This provides a possible explanation for the lower than expected pre-test averages if the scouts joined partly from peer pressure rather than from an interest in nature. I also considered the possibility of results not showing a statistically significant difference, and under those circumstances, I would have slightly altered the research design and used the pre and post-test data to determine which scouts would be the best candidates for interviewing. Fortunately the null hypothesis was rejected and the research design did not require alteration.

The original Nature Relatedness Scale consists of 21 statements however, the statement “my connection to nature and the environment is a part of my spirituality” was removed in consideration of the religious background of the scouts in this study, for a total of 20 statements in the administered pre and post-tests. As previously mentioned, the scale is divided into three subscales so that the statements can address the multiple dimensions of the construct of nature connectedness. NR-Perspective was the only subscale that did not achieve a significant difference when comparing pre and post-test averages which is not surprising when considering the spiritual and agricultural background of the scouts. For example, winter camping did not influence the results of the NR-Perspective statement “animals, birds, and plants should have fewer rights than humans” because the scouts attend a Christian school where they are taught that humans have a soul destined for eternity whereas animals and plants do not. Similarly, the NR-Perspective statement “humans have the right to use natural resources any way we want,” also was not impacted by winter camping possibly because many of the scouts have agricultural roots with familial farm and greenhouse operations where environments are manipulated for capital gain. The other subscales of NR-Self and NR-Experience both show statistically significant improvements after the winter camp. The three subscales combined contribute to an
overall Nature Relatedness score which is an assessment of nature connectedness. As shown in the results, there was an overall increase in scores after the winter camp that proved to be statistically significant for this population (i.e. scout group). The heart of this research is to discover the specific aspects of winter camping that influenced nature connectedness.

**Nature Connectedness & Location**

The utilisation of local versus remote landscapes was a topic receiving considerable attention in regards to nature connectedness and location. Research has presented the concern that exploring pristine, wilderness type environments can create a dichotomous view of nature. During the interviews, the scouts shared emotions of awe and wonder when discussing the beauty of Manning Park with the sparkling snow, towering trees, and majestic mountains. The location of Manning Park definitely played a role in influencing nature connectedness, and yet there is evidence in this research that supports the concern of wilderness escapes contributing to a dichotomous view of nature (Hill, 2013; Haluza-Delay, 2001). Only two statements from the Nature Relatedness Scale resulted in declining scores. The statement “even in the middle of the city, I notice nature around me” showed a decrease of 0.20. This result suggests that due to the winter camp experience, the scouts were less likely to notice nature around them in the city, possible because they now view nature as being out there in wilderness and not in urban areas. Contrasting to Haluza-Delay’s (2001) research, however, was that many scouts made the connection that their actions at home could potentially destroy the pristine environment of these remote landscapes and expressed that they deserve our protection, whereas the participants in Haluza-Delay’s study indicated that this belief of nature not existing at home actually diminished their motivation of caring for the environment. Perhaps a combination of experiencing local and remote environments would be most ideal in terms of nature connectedness and developing environmental consciousness, however, the results in this study maintain that the opportunity to explore a pristine, wilderness like landscape was an important aspect of the scouts’ winter camp experience, resulting in emotions of awe and wonder and stimulating thoughts of environmental responsibility so that such beauty can be maintained.
Nature Connectedness & Nature Immersion

The conditions of spending three days and two nights on a winter camp at Manning Park fulfilled two important conditions of contributing factors influencing nature connectedness; that programs should be of a sufficient duration but in a condensed time frame (Ernst & Theimer, 2011) and that the overnight component may be more effective in promoting nature connectedness in comparison to day camps (Collado et al., 2013). Ernst and Theimer (2011) concluded that one day experiences in nature, separated by lengthy periods of time, are not effective in promoting nature connectedness. For example, some students participated in several one day environmental education programs throughout the school year but this does not give participants the opportunity to fully experience nature. One day experiences might even enhance feelings of being separate from nature because the opportunities to interact, bond, and connect with nature are restricted by time constraints. However, when individuals spend three consecutive days in nature, it provides opportunity for engaging in various activities that can strengthen and consolidate a relationship with nature.

Even more important, in my opinion, was the overnight aspect of this winter camp. Nature can be experienced to a different capacity when spending the night as the feeling of being completely immersed in nature is enhanced. Participants begin to notice attributes of their surroundings they might not notice on a one day camp such as shifting shadows with the rising and setting sun, the chirping of birds more active in morning than day, the evidence of animals scurrying during the night with the presence of footprints in the morning, subtle weather changes, etc. This sense of intimacy with nature was further enhanced when the scouts slept in shelters made of snow, encouraging them to reflect on the importance of nature and our heavy reliance on natural resources for survival.

Based on this research it is recommended that camps seeking to promote nature connectedness should be overnight and if possible in self-made structures, rather than tents, to increase this sense of intimacy and connection with nature.
Nature Connectedness & Wildlife Interactions

Although I was not aware of this study when conducting research, the results of this study seem to support Tam’s (2013) proposition that a dispositional empathy with nature (DEN) can be considered a factor influencing nature connectedness. Interestingly, Tam, along with Schultz (2000) consider perspective taking as an effective method of facilitating DEN, whereas the results in this study suggest that it is not necessary. The scouts were not involved in any perspective taking exercises where they were encouraged to emphasize with the wildlife or nature, however, empathy towards nature continued to be a dominant theme in the interviews. A combination of wildlife interactions, with the Whiskey Jacks eating out of the scouts’ hands, and nature immersion, spending two nights in winter like conditions, caused the scouts to emphasize with the wildlife. Experiencing first-hand the challenges and difficulties of spending three days in the snow with cold temperatures encouraged the scouts to consider that wildlife must persist in these conditions for an entire season each year, resulting in an increased sense of respect and awe towards nature when considering the resilience of wildlife. Perspective taking exercises, although perhaps effective, seems quite artificial in eliciting empathy towards nature. Perhaps more authentic experiences, such as viewing or interacting with wildlife in an outdoor setting, also resulting in empathy towards nature and wildlife, would have a much stronger impact on nature connectedness. Although the conditions of this winter camp may be difficult to replicate, and the experience of interacting with wildlife occurs spontaneously and cannot be planned, being immersed in nature for several consecutive days does increase the possibilities of such occurrences and is recommended when increasing nature connectedness is an intended outcome.

Nature Connectedness & Challenges

As indicated in the literature review, positive experiences in nature are essential for the development of nature connectedness, however, there is a serious deficiency in research indicating what specifically constitutes a positive experience. Positive experiences in nature might conjure images such as pristine natural beauty, pleasant sunny weather, and leisurely outdoor activities, however, the results from this study show that being challenged is a very important constituent in establishing positive experiences. Despite the difficulty of some
challenges experienced on the winter camp such as snowshoeing, building quinzees, and attempting to stay warm, the scouts realized the importance of such experiences for developing important life skills such as perseverance, self-efficacy, competence, and even preparation for future challenges. Also, the sense of accomplishment that accompanies the successful completion of such challenges is important for promoting positive emotions. Having challenges on the winter camp gives participants a sense of purpose to the experience.

There was some sunny weather on the three day camp, but there was also snow, ice rain, and wind. These challenging conditions might not seem congruous to positive experiences, yet the scouts maintain that this also was an important experience that increased their confidence to spend time outdoors at any time of the year now that they’ve endured the ‘worst’ conditions of winter. This is a very important consideration because having the confidence and desire to spend more time outdoors provides a foundation for building on the human-nature relationship. In summary, including challenges is important for facilitation of nature connectedness as it contributes to achieving positive experiences in nature and it provides a foundation for future nature experiences as participants, with an increased sense of confidence, show a desire to spend more time outdoors.

Nature Connectedness & Risk

As mentioned in the literature review, there is much debate on the role risk plays in adventure programming, however, the role risk plays in nature connectedness has not yet been considered. Just as the scouts appreciated having challenges on the camp, they also enjoyed the element of risk, again contributing to the establishment of positive experiences in nature which has already been identified as an important condition for nature connectedness. I would assume that the presence of risk could be more alluring for adolescents than adults, yet remains important as it increases an awareness of natural surroundings. It is this increased awareness that can play an important role in nature connectedness. For example, when sledding down the hills, one scout took notice of the slope of the hill, density of trees, and conditions of snow, as he considered the possibility of an avalanche and assessed the safety of sledding in this particular area. Similarly, the scouts were very aware of their surroundings when snowshoeing to prevent falling in a tree.
well or getting snow bombed, when branches in a tree suddenly give way to the weight and drop a load of snow. The scouts are more alert and aware as they continually assess their surroundings for potential danger. This increased awareness may be important in terms of nature connectedness because the scouts might notice aspects of nature they wouldn’t acknowledge had they been passively wandering through the woods. It is the presence of risk that necessitates a stronger awareness and this could evoke curiosity and awe as the scouts experience nature with senses more alert. For example, the scouts might take more notice of the density of snow beneath their feet, the different species of trees, animals tracks, and so on, which can increase a familiarity and sense of connection with nature. As other researchers have indicated, it could be that risk causes increased anxiety which would be counterproductive for personal development, however, it should not be dismissed so easily as the presence of potential risk also has benefits and could be considered an influencing factor of nature connectedness.

**Nature Connectedness & Technology**

The scouts unanimously agreed that allowing electronics on camp would be distracting from nature and could prevent participation in voluntary activities. In this context it may be important to bring attention to the socio-background of the scouts. The scouts attend a conservative Protestant school where many families oppose video games and television due to moral and religious reasons. Many scouts have limited exposure to cable television or video games and have time restrictions with the use of other electronics such as the computer. This perhaps provides a reason why spending three days on a winter camp without technology was not a challenge for the scouts. Even so, many scouts implied that it was good to get away from it all for a while, suggesting that even with more limited exposure to technology, these scouts yet feel overwhelmed or over-stimulated at times and appreciated the opportunity to be in nature without such distractions. It would be interesting to determine if the results would be similar for adolescents that spend much more time with electronics or if a camping experience void of technology would simply be unenjoyable for them. The important consideration is the facilitation of nature connectedness. Based on literature and the results from this study it would seem that experiencing nature without technology is productive in terms of nature connectedness, however, the socio-economic background of the scouts is not typical for most peers their age, and most
literature that concerns nature connectedness has anti-technology sentiment. As mentioned in the literature review, it is possible to combine technology and outdoor experiences with nature apps and devices such as GPS. If this would make the camping experience more enjoyable for those adolescents that spend more time with technology, then it is an important consideration, especially when recalling that positive experiences in nature are important for nature connectedness. In summary, the lack of technology on this camp encouraged nature connectedness, however, it is possible that technology can also facilitate bonding experiences with nature. Therefore, it cannot be concluded that the presence or absence of technology is a vital component of a program seeking to promote nature connectedness.

**Nature Connectedness & Environmental Awareness**

It is a culmination of location, nature immersion, wildlife interactions, challenges, and risk that increased a sense of environmental awareness for the scouts. During the interviews there was evidence of all three levels of environmental concern although the development of biospheric attitudes was most predominant as the scouts considered the impact environmental issues such as global warming and deforestation would have on the Grey Jays. Compared to egoistic or altruistic attitudes, biospheric attitudes are indicative of a stronger nature connectedness. An increased environmental awareness was also reflected in the nature relatedness scale as the statements “I always think about how my actions affect the environment” and “I am very aware of environmental issues” were of the top three statements showing the greatest improvement in post-test scores. An interesting contrast, however, is that the following statement “conservation is unnecessary because nature is strong enough to recover from any human impact” was one of only two statements that showed a decrease in post-test scores. A possible explanation is that many scouts expressed a sense of awe at how resilient nature was to endure severe winter conditions and perhaps they had this resilience in mind when rating this particular statement. Also, the scouts experienced such an abundance of nature with dense forests and mature trees that it may seem impossible to them that so many trees could be wiped out due to logging or deforestation. Whatever the reason may be for the negative results with that particular question, there was clear evidence in the post-test results overall and in the responses during the interviews that an increased environmental awareness developed from this winter camp experience.
Furthermore, it has already been established that a positive relationship exists between nature connectedness and pro-environmental behaviour, so this increased environmental awareness also gives further support that a connectedness to nature was also positively influenced as a result of winter camping.

Summary

Most studies in this field have only quantitatively assessed the success or failure of different programs to facilitate nature connectedness but cannot confirm specific conditions that influence nature connectedness and thus recommend a more thorough research design. Based on the results from this study, it is suggested that programs aimed at promoting nature connectedness should be several days in length, preferably including an overnight component; should allow participants the opportunity to be immersed in nature for a more intimate encounter; should include challenges and the practice of outdoor skills to establish a positive experience and to increase confidence for spending more time outdoors; and include exposure to risk as it may increase an awareness of natural surroundings. The absence of technology was an important component for the camp experience in this study, however, there remains a possibility that technology can also promote nature connectedness and therefore should not be dismissed. Although environmental awareness is not considered an influencing factor of nature connectedness, its presence supports the quantitative results of this study that there was a significant improvement in nature connectedness and is considered relevant as nature connectedness is almost always examined within environmental education programs.

Chapter 6: Conclusion

Significant Contributions

Considering that there is a positive relationship between nature connectedness and pro-environmental behavior, “investigating factors that either promote or inhibit this sense of feeling connected to nature is critical” (Frantz et al, 2005: 428) as “better understanding of the human-nature relationship is essential to form constructive and appropriate environmental management
and policy (Vining et al., 2008: 10). Researchers (Ernst & Theimer, 2011; Liefländer et al., 2013) have indicated that previous studies have focused mostly on the ability of programs to impact environmental behaviours rather than affective connections. Although research examining influencing factors of nature connectedness is relatively new, it has been established that positive experiences in nature and direct exposure to nature of sufficient duration are essential for the development of a positive human-nature relationship. Even these considerations, however, are lacking in detail as specific constituents remain unclear. The results of this study give further support to findings in previous research, which is much needed as most research in this field is relatively new and requires additional findings to substantiate these conclusions, and presents some new considerations for nature connectedness. The results from this study support previous findings suggesting that programs seeking to strengthen nature connectedness should include direct and authentic experiences in natural environments (Chawla & Cushing, 2007; Liefländer et al., 2013), be of sufficient duration in a condensed time frame (Ernest & Theimer, 2011) and include overnight experiences (Collado et al., 2013), and encourage the opportunity to empathise with nature and wildlife (Tam, 2013). In the context of nature connectedness, the results of this study present several new considerations as well. The successful completion of challenges contributes significantly to the establishment of positive experiences in nature thus providing specification to the parameters of ‘positive experiences’. Also, the acquisition of important skills that accompany most challenges provide increased confidence and incentive for future outdoor experiences. Another consideration was the presence of risk increasing awareness as the scouts became more alert to their surroundings while participating in activities. This heightened awareness encourages the discovery of different aspects and perspectives of nature that can influence nature connectedness as the scouts show greater respect and awe towards their environment.

Limitations

As with any research, it is important to clarify the inherent limitations of this study. First, the results from the post-tests could reflect a ‘halo’ effect associated with measuring nature connectedness immediately after the winter camp. In other words, the participants could feel a heightened sense of nature connectedness immediately following the winter camp experience.
which could positively skew the data thus producing results that are not quite representative. This could be avoided with the administration of a post-retention test a few weeks or even months after the winter camp to ensure that an increased sense of nature connectedness was sustained over time, however, it was not possible for this particular study due to time constraints. In addition, the homogeneity of the scout group illustrates another limitation. The participants in this study were all male, attend the same school, live in rural areas, and have similar socio-economic backgrounds and therefore the external validity is comprised with the unlikelihood that these results can be generalized beyond this specific research context. It was previously mentioned, however, that the purpose of this study was not to generalize to a larger population, but to study in depth one program so that contributions to the discussion of nature connectedness and influencing factors can be made.

The difficulty to conceptualize nature connectedness as it is a complex, multi-dimensional construct, presents an additional limitation. It may be difficult, especially for adolescents, to express changes in nature connectedness, especially when considering “that a person’s sense of connectedness is not a conscious one, or at least not a belief that is thought about on a regular basis or readily available for retrieval” (Schultz et al., 2004:33). The interview questions were specifically phrased with this consideration in mind. I could not simply ask the scouts how winter camping affected their sense of nature connectedness. Rather, the focus of the interview questions was to understand how the scouts viewed nature differently and what specific aspects of winter camping were responsible for developing this new perspective of nature. Despite the several limitations of this study, the results contribute to the identification of specific factors that influence nature connectedness.

**Future Research**

A deeper understanding of the human-nature relationship and factors that influence nature connectedness is essential when considering environmentalism. Further research can be conducted to identify additional variables that influence nature connectedness and provide empirical support to the findings of other research such as those found in this study. Furthermore, studies need to be conducted on a larger scale with heterogeneous groups as
different cultural factors may also play a role in nature connectedness. This knowledge is essential for the development of future environmental education programs and promotion of pro-environmental behavior.

**Dissemination**

It is very important that the results of such studies are shared to generate awareness and bring attention to the importance of nature connectedness, especially when considering the severity of environmental issues presently encountered. The results of this study will be shared with the participants’ families. A copy of this thesis will also be submitted to Scouts Canada where it will be published on their webpage for others to read. Also, as a teacher, these results will be used professionally in the development of an outdoor program with the aim of facilitating nature connectedness while simultaneously covering government curriculum.

**Personal Note**

The significant benefit of nature connectedness as described in this research is in relation to environmental education programming with the achievement of an increased environmental awareness. There are however, additional significant benefits of nature connectedness supported by research and acknowledged through personal experience. For example, Louv argues that a stable human-nature relationship is “fundamental to human health, well-being, spirit, and survival” (2011:3) and that “a growing body of research links our mental, physical, and spiritual health directly to our association with nature” (2008: iii). In a society experiencing increasing rates of divorce, depression, and substance abuse, it is my hope that many will discover the powerful, restoring benefits of nature connectedness. John Muir emphasises the value of nature with this famous quote of which I conclude: “Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the leaves of Autumn.”
**Bibliography**


Appendix A: Permission Notice for Interviewing Scouts

Dear Parents,

I will be participating in this year’s Scout Winter Camp as part of the research I am conducting to fulfill the requirements for a Master’s in Outdoor Environmental Education at Linköping University in Sweden. My credentials with Linköping University can be confirmed by contacting my supervisor, Asa Nilsson Dahlstrom. Her information follows:

Asa Nilsson Dahlstrom  
PhD, Senior Lecturer  
Department of Culture and Communication  
Linköping University, Sweden  
Email: asa.nilsson.dahlstrom@liu.se  
Phone: +46 13 28 1860

The objective of my research project is to explore how spending time in nature can affect a sense of ‘nature-connectedness’. Environmental education is an important component of today’s curriculum, especially when considering the severity of global issues resulting from human impact on our environment. Unfortunately, environment education (EE) programs have not been very effective due to a fact-based, cognitive approach. Researchers are beginning to realize that educators should be developing programs that encourage and facilitate a strong connection to nature, especially in a time when many children suffer from nature-deficit disorder as they spend increasing amounts of time wired to technology. Although there is much research confirming that a strong human-nature bond is a strong indicator of pro-environmental attitudes, there is little research that indicates the specific qualities of outdoor experiences that influence a sense of connectedness to nature. In my research I hope to provide insight to specific aspects of outdoor experiences that influence nature-connectedness either positively or negatively.

I will be conducting 8-10 interviews with the Scouts at Timothy Christian School from March 3-March 7, the week after Winter Camp. Each interview will be between 30-45 minutes and will take place in the library. Anonymity is assured as names will not be used in any formal writing. The interviews will be taped and transcribed, but I will be the only person accessing this information. All documentation will be kept strictly confidential.

If you have any additional questions about this research and its outcomes please feel free to contact me via email: johnvroegop@live.ca. Please sign and return with the winter camp permission notice.

I, ________________________, (parent’s name) give permission for my son (if selected) to be interviewed about his experiences on the Scout Winter Camp.

Signature of parent or guardian: __________________________

Date: __________________________
## Appendix B: Nature Relatedness Scale

**Instructions:** Please check the box that best describes how you feel about each statement. Be sure to respond as you really feel, rather than how you think “most people” feel.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1 Disagree Strongly</th>
<th>2 Disagree a little</th>
<th>3 Neither Agree or Disagree</th>
<th>4 Agree a little</th>
<th>5 Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy being outdoors, even in unpleasant weather.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some species are just meant to die out or become extinct.</td>
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</tr>
<tr>
<td>Humans have the right to use natural resources any way we want.</td>
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<td>My ideal vacation spot would be a remote, wilderness area.</td>
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<td>I always think about how my actions affect the environment.</td>
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<tr>
<td>I enjoy digging in the earth and getting dirt on my hands.</td>
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<td>I am very aware of environmental issues.</td>
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<td>I take notice of wildlife wherever I am.</td>
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<td>I don’t often go out in nature.</td>
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<td>Nothing I do will change problems in other places on the planet.</td>
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<td>I am not separate from nature, but a part of nature.</td>
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<td>The thought of being deep in the woods, away from civilization, is frightening.</td>
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<td>My feelings about nature do not affect how I live my life.</td>
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<tr>
<td>Statement</td>
<td>1 Disagree Strongly</td>
<td>2 Disagree a little</td>
<td>3 Neither Agree or Disagree</td>
<td>4 Agree a little</td>
<td>5 Strongly Agree</td>
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<td>Animals, birds, and plants should have fewer rights than humans.</td>
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<td>Even in the middle of the city, I notice nature around me.</td>
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<td>My relationship to nature is an important part of who I am.</td>
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<td>Conservation is unnecessary because nature is strong enough to recover from any human impact.</td>
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<tr>
<td>The condition of non-human species (such as plants &amp; animals) is an indicator of the future for humans.</td>
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<td>I think a lot about the suffering of animals.</td>
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<td>I feel very connected to all living things and the earth.</td>
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Appendix C: Interview Guide

1) a) Why did you join Scouts?
   b) What do you enjoy most about the Scout program?

2) Last weekend you went on the Scout’s Winter Camp.
   a) What were the highlights for you on this camp?
   b) What did you learn on this camp? Any new skills? Anything new about yourself?
   c) What was challenging about this camp? Would these challenges discourage you from
      going on another winter camp?
   e) Was there anything you didn’t enjoy during the camp?

3a) Tell me what it was like to spend 3 days on a scout winter camp in the mountains with no
    cell phone reception or technology like ipods and computers. Do you think video games
    should be allowed on camps? Why or why not.
3b) We spent a lot of time sledding, snowshoeing, and having snowball fights which are all
    activities that could all be done at home as well. Tell me how it was different doing these
    activities at Manning Park.
3c) Tell me what it was like to spend two nights in a quinzee that you made yourself?
    (Show picture here)
3d) What was it like to have birds eating out of your hand? (Show picture here)

4a) I am really interested in understanding how the winter camp has changed the way
    you think about nature. Tell me how your relationship with nature
    has changed now that you’ve done a three day winter camp. How is this different
    than the way you viewed nature before the camp?
4b) In what ways did you take care of the environment while camping at Lightning
    Lakes? Tell me how you feel differently about caring for the environment now
    that you’ve been on the winter camp.

4c) Sometimes spending time outdoors in nature can be dangerous. For example, on
    the winter camp, a scout leader fell into a tree well and was buried up to his neck
    in snow and one dad fell through the ice on Thursday night when
    snowshoeing Lightning Lakes.
    Has spending time on this winter camp changed how comfortable you feel when
    out in nature? In what ways?
    Would you like to spend more time in nature? Why?

5) Was there anything in particular that happened on this camp that has caused a change in
   how connected you feel with nature?

6) Is there anything else you want me to know about your experience on this winter camp
   that we haven’t talked about yet?
Appendix D: Winter Camp Field Notes

Friday
10:00 a.m.
The scouts were dropped off at school and we packed up 6 trucks and a trailer with all the gear for the winter camp. Then the scouts had opening horse shoe where the rules and structure of the camp were explained by the leaders. Driving out of Chilliwack the weather was sunny and cloudy. While we were driving the scouts in my vehicle were discussing the snow conditions on the Coquihalla Highway where the camp was originally supposed to be. A last minute decision was made to move the camp to Manning Park instead because the Coquihalla Highway had received 3 metres of snow and the avalanche conditions were risky. The highway had seen several closures in the past few days due to avalanche blasting. Manning Park also received a lot of snow but the conditions were much more stable. The scouts were also discussing T.V. shows about wilderness survival such as Ultimate Survival Alaska and White Wolf. The kids were very excited for winter camp. This will be their first time sleeping in a quinzee (snow cave).

11:30 a.m.
We arrived at the Lone Duck Parking Lot in Manning Park. Here the kids put on their snowshoes and strapped all their gear onto sleds because they had to trek a distance of 2 kilometres to get to the camp in order to fulfill the scout requirements for a winter camp badge. The kids used plastic and wooden sleds and then secured plastic totes filled with their camp gear using bungee cords. They followed an established snow shoe trail and were able to pull their sleds behind them with ropes quite easily.
12:30 p.m.
The scouts started to trickle into camp with their sleds and immediately started constructing their snow quinzees. Some scouts said they went online and watched some YouTube videos on how to build a good structure. Working in groups of 3-4 the scouts started by digging a circular trench. The snow from the trench gets piled up into the middle of the circle resulting in a large mound. When the mound is of sufficient size, the scouts then place 12” wooden pegs all over the outside of the mound. The purpose of this is that when the scouts start digging an entrance into the mound and hallowing out a spacious cavern for sleeping, if they reach the end of a wooden peg, they know not to dig any further because then they will break through the wall and compromise the strength of the structure. A breathing hole was also punctured into the top of the dome using the wooden handle of a shovel. Seven quinzees were constructed in total. They all appeared very similar on the outside but there were noticeable differences on the inside. One quinzee had raised platforms for sleeping and then a large rectangular section was dug out about 3 feet deeper. This served two purposes. One was so that the scouts could sit on their bed platform and dangle their feet into the hallowed out section for a more comfortable position. Secondly, the cold air would settle in this dug out section keeping the scouts warming on their raised bed platforms. Another quinzee had separate tunnels for each scout to sleep in so that their heads were all facing into the centre of the cavern and their torso and legs were in the tunnel. Other groups dug out boxes to store food and gear. As a final step the students burned candles inside the quinzee to melt a layer of snow on the inside. The scouts then use their gloves to smooth this melting layer so that if the quinzee gets too warm with 3-4 scouts sleeping and breathing during the night water will not drip on their face but slide along the icy surface to the sides of the dome.
1:30 p.m.
The scouts took a break from building quinzees and had a packed lunch from home. The food quickly attracted the attention of whiskey jacks also known as grey jays. A flock was flitting from tree to tree watching closely for dropped food. Some boys held out their hands with food in the palm and the birds would gracefully swoop from the trees, land on the palm, and calmly eat the food right out of their hand. The scouts were very excited about this experience, although some scouts unexpectedly lost some of their lunch as the bold birds flew away with half a sandwich!

2:00 p.m.
Lunch break is over and the scouts continue working on their structures. At the same time the scout leaders are digging out a large rectangular space for the main kitchen tent. An area of 8x2 metres needed to be cleared to accommodate the kitchen tent frame. The kitchen tent also has a stove with a pipe for warmth when the scouts get cold and is also used to dry out wet gear. The leaders also cleared a large sleeping platform at the far end of the tent. All of the propane bottles, stoves, wood, and cooking utensils is stored in this area.

3:25 p.m.
Muffin break 😊 A treat from one of the scout’s mom. After a 15 minute break the kids keep working. The setting is very peaceful. Our camp is situated in a large meadow along a chain of several lakes known as Lightning Lakes. About 400 metres away, on the other side of the lake, looms Frosty Mountain which is the highest peak in the park. All around are beautiful pine and hemlock trees with long moss draped on the branches in light and dark shades of green. This moss is nicknamed “Grandfather’s Beard”. There is some precipitation in the form of ice rain but the scouts hardly notice as they continue to perfect and engineer their structures. You can hear the occasional cawing of crows flying overhead. The cool mountain air smells fresh and crisp. Although we are less than 10 km from a ski hill we don’t hear any traffic or see any lights.
4:00 p.m.
It gets cloudier and the ice rain is causing the snow to turn hard and crusty, making it more difficult to dig and build structures.

4:30 p.m.
As dusk approaches it gets colder and the ice rain turns into large snowflakes. The kids are very excited and start yelling, “It’s snowing guys!”

5:15 p.m.
The kids are still constructing quinzees and clearing out a kitchen area. Some of the scouts started complaining of a sore back from “all that digging” but they were still in good spirit and there was a lot of joking as they were working. Most kitchens are constructed by digging out a square trench. The centre platform is used as a table. The scouts then dig a seat all around the trench so they can sit facing each other while eating. The scouts are arranged into 3 cooking groups so they only had to build 3 eating areas. One group started digging and were quite excited to find a park picnic table that could be used as a kitchen area. One scouts said he was here in the summer and knew there were picnic tables so when they saw a mound in the snow they kind of figured there might be a table underneath.

6:00 p.m.
By this time all groups are cooking. One scout said, “I sure hope you guys made a lot of grilled cheese because I’m hungry man!” The third year group made tomato soup and grilled cheese. This group was very organised and had a good system going. One scout was stirring the tomato soup, one was buttering bread, and another was frying the grilled cheese. There were some issues with the connection freezing from the propane bottle to the stove, but shaking the propane bottle seemed to add more fuel to the stove and keep a good flame going. The second group made macaroni & cheese but they were not at all impressed that whole wheat noodles were used instead of regular noodles. “Ewww, gross P. 09, why didn’t you get the regular kind?” The third group was making smokies and hot chocolate. Too much chocolate powder was dumped into the pot so it looked more like syrup than a hot beverage. The leaders enjoyed a typical Dutch meal called Nazi prepared by one of the moms.

7:30 p.m.
Each group had to clean up their kitchen areas and wash the dishes.
8:15-9:00 p.m.
To keep the kids warm we went on a quick snowshoe trek around one of the frozen lakes. We stopped at a hole in the lake where people were ice fishing earlier. A dad that joined us for trek fell through the ice near the hole and sunk to his knee. He took a large step forward and again broke the ice getting the other foot wet as well.

9:00-9:50 p.m.
Back at camp we made a large pot of hot chocolate to warm up the kids and played trivia games in the kitchen tent. At this point the kids were asking when they could go to bed. We were planning to cook up some hot soup for something warm right before bed but none of the scouts wanted to wait. Within 15 minutes everyone cleared out of the kitchen tent and headed to their quinzees for bed.

Friday

7:00 a.m.
There was light snow overnight. The temperature was mild with no breeze, it was sunny and cloudy. Before breakfast some scouts found a good slope for sledding. The slope is quite steep and they would use the edge of a tree well at the bottom of the slope as a landing pad. There was so much powder that every time a scout went down the slope he’d be completely covered with a dusting of snow. The scouts point out a spot on the other side of the lake where there is a nice treeless slope where they want to toboggan after breakfast.

8:30 a.m.
The tobogganers go back to the kitchen tent and a leader tells P. 05 to shake off the snow from his toque and jacket before he gets too cold. The third year group is making French toast for breakfast and offer me a slice © One second year group is toasting chocolate chip waffles and the other group is making porridge. The kitchen areas are beginning to look messy with dishes everywhere with some garbage lying around. The kids are reminded of the leave no trace behind philosophy and each group is given a garbage bag to clean up their area. I noticed that there was slight friction in P.09’s cooking group over the amount of syrup P. 08 was using for his waffles. “Dude, we only have 1 bottle of syrup for the camp. Stop wasting it!” When the scouts are finished eating they start ‘washing the dishes’. It takes a long time to boil a pot of water, so most of the scouts just use snow to scrub their dishes clean.
9:00 - 11:30 a.m.
After breakfast the scouts head over to the new slope and start making tracks for sledding. Three scouts that were cold stayed behind in the kitchen tent to keep warm. The scouts spent a lot of time making jumps and doing different stunts. Sledding down the hill, scouts would hit the jump and clear about 6 feet of air and a length of about 20 feet. As the scouts got bolder, so did the stunts. At first 1 scout would lay at the jump so the sled would fly over them. Then 3 scouts would lie at the base of the jump. When that was cleared, they added 2 more bodies so that the scout sledding would clear 5 scouts lying on the ground. There was a lot of laughter and awe from the spectating scouts as each new feat was achieved. Even the leaders gave it a shot on their snowboards.

11:45 a.m.
The scouts start heading back to the main camp to prepare lunch. The clouds have cleared up and it is a gorgeous sunny day. The sledding slope is still in the shade of the mountain so most of the scouts were starting to get cold because snow was started to penetrate to their base layer. There is a deep layer of powder that sends snow spraying everywhere with each run. P. 03: “I’m gonna go back because I’m just drenched.” [P.05]: “Ahhh, you get instant brain freeze when you wipe out in powder.”

NOON
All the kids are making lunch. The whiskey jacks have come back. P. 04 caught five birds by luring them to his hand with food and then grabbing their foot. He would gently place the bird near his chest, give it a few strokes, and then release the bird. Other scouts thought it would be funny to throw snowballs at the birds that were congregating around the scouts that were still offering food.

1:30 – 4:30 p.m.
We loaded the scouts up in the trucks and drove to the trail head of a popular snowshoe trail. Although you could see a faint track, a lot of fresh snow had fallen in the past few days so the first few trekkers worked hard in breaking trail. The scouts at the end of the group had a much easier time as the trail was already well established and trodden. The views were stunning with bright blue skies, untouched sparkling snow, and sunlight streaming between trees. About half a kilometer into the trail, one scout leader
80

fell into a tree well and was buried up to his neck in snow. He would have sunk lower had he not grabbed onto a branch. It took the help of two adults to get him out of the hole. Again the scouts were in a very good mood. There was lots of laughing, throwing of snowballs, and shaking trees in an attempt to ‘snow bomb’ an innocent victim. At the halfway point, one leader divided two pounds of jerky for an energizer snack. The kids were starting to get tired and looking forward to heading back to camp. We had to stop a few times as kids were losing their snowshoes because they didn’t take the time to strap them on properly. Although snowshoes can be clumsy at times, the scouts seemed to adjust quickly and kept up a good pace.

4:30 p.m.
As soon as we got back to camp the scouts started preparing dinner. They were all very hungry from sledding and snowshoeing. Just as they started cooking the sun fell behind the mountain and it instantly felt like the temperature dropped a few degrees.
**5:00 – 6:00 p.m.**
For dinner the third year scouts had pork chops and Lipton sidekicks. The second year scouts had hot dogs and hot chocolate.

**6:00 - 8:00 p.m.**
The scouts got into their cooking groups and constructed three forts in preparation of a serious snowball fight. The forts had secret chambers, tunnels, and booby traps. The forts took an hour and a half to build and then they enjoyed a snowball fight for half an hour. The scouts got soaked with snow.

**8:00 – 10:00 p.m.**
The scouts went back to the kitchen tent to warm up and dry their clothes by the camp stove. The leaders served them warm soup and hot chocolate so they could warm up before bed. One leader passed out duo tangs and the scouts sang several songs. The scouts were absolutely exhausted with some drifting off to sleep while we were singing. They were starting to ask, “Can we go to bed yet?” Within 5 minutes of singing our last song the kitchen tent was completely cleared and the scouts rushed to their quinzees for bed.

**Saturday**

**7:00 a.m.**
I woke up during the night to stormy/windy weather and I could hear the snow pelting against my tent. I woke up at 7 a.m. and it was -12 degrees and snowing quite heavily. We had a strict time limit for cleaning up our camp area because Manning Park was hosting a cross country ski racing event and they wanted to set up the registration booths right where our camp was located. We promised to vacate the area by 10 a.m.

I went to all the quinzees and informed the scouts of our plan for the morning: cook breakfast, wash dishes, pack all belongings, and then head to the main kitchen tent with your sled and start transporting all gear to the trucks.

The scouts said they slept most of the night, that their quinzee was warm, and that they couldn’t hear anything outside.

**8:00 – 10:00 a.m.**
By 8:00 a.m. all the scouts had finished breakfast and were ready to help with moving the gear. This required packing gear and plastic totes onto sleds and then pulling the sleds a distance of about 200 metres to unload by the trucks. The ground at this point was fairly lumpy and frozen so it was difficult to clear a smooth path for the sleds. Most trips required a dual effort with one scout pulling the sled and another pushing from behind while keeping the load stabilized. Some sleds did tip over so the scouts would quickly have to re-organize the gear and try again. Most of the scouts at this point were quite cold as their clothing hadn’t completely dried from the snowball fights and sledding the previous night. The damp clothing even began to freeze to the point that it became quite awkward trying to work with stiff, uncooperative gloves. The gear that needed to be transported back to the trucks included tarps, ropes, a kitchen stove, coolers with food, plastic totes filled with pots and pans and cooking utensils, wood, poles from the main kitchen tent, folding tables, lanterns, cooking stoves, and propane bottles. Each scout did an
average of 4 trips with sleds. The work was evenly distributed and the cleanup went quickly with all hands on deck. After all the gear was brought to the trucks, the scouts went around with garbage bags and picked up any trash lying around. We then all worked together to fill in the various holes with a layer of fresh snow so that everything looked nice and clean for the cross country ski race. The leaders personally checked the inside of each quinzee to make sure there was no garbage left lying around to enforce the “leave no trace behind” scout philosophy.

10:00 – 11:00 a.m.
We now were faced with the task of loading all the gear into 6 trucks and one trailer. At this point several scouts were getting quite cold and decided to wait inside the trucks with the heat blasting to try and get warm. The leaders with the help of 6 scouts were able to get all the gear packed up. One of the scouts came to me crying, holding his stomach, and complaining that he was quite ill. When questioned, he indicated that he hadn’t had any water yet today so we put him in a heated truck and gave him a bottle of water. His legs were shaking noticeably and he looked quite pale. I did notice that the scouts had a lot of sugary juice and candy while on this camp which could explain why he wasn’t feeling well.

11:00 a.m.
We drove to the lodge, paid our camping fees, and heading towards the city of Hope about 80 km west. At Hope we stopped at McDonald’s for lunch. Some scouts said that their toes were still freezing and numb even though we had driven for an hour in heated vehicles. We were done eating at 12:20 which gave us just enough time to get back to school where the parents would be waiting to pick up their kids at 1:00. On the drive to school the scouts in my truck said the first thing they were going to do when they got home was take a nice long hot shower. The weather forecast for Chilliwack was -2 degrees with a snowfall warning of 10-25 cm. The kids in my truck said that they could build another quinzee tonight and sleep outside in the snow for a third night! The scouts were tired but they said it was an awesome camp.

1:20 p.m.
On my way home to also take a long hot shower 😊