NOT JUST SOMETHING YOU PUT IN A FRYING PAN AND GIVE TO YOUR FAMILY: CHILDREN’S MEANING MAKING AND SALMON RESTORATION

By

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B.Sc., University of Victoria, 2006

A thesis submitted in partial fulfillment of
the requirements for the degree of

MASTER OF ARTS
in
ENVIRONMENTAL EDUCATION AND COMMUNICATION
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November 2012

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Acknowledgements

My thesis story would not have come together without many elements from my strong support systems. Thank you to my friends, family, and partner for listening to me, believing in me, and allowing me to go on this journey. I would also like to thank my MAEEC cohort, the teachers, and my supervisor for teaching me, mentoring me, and allowing me to be me. I graciously thank the Kamloops School District, and the Salmonid Program for opening up their experiences to my research. Thank you to the teachers for your co-operation, flexibility and support, and, thank you to all the children who eagerly shared their experiences and stories with me. Finally, I would like to acknowledge the greater system, the natural world, and the salmon that allowed all of us to be a part of their journey.
Abstract

Research for this study built on the experience of salmon restoration by exploring the lived experience of children ages eight to 12 who participated in an eight-month salmon restoration education program, the Salmonid Enhancement Program (SEP), through the Kamloops School District and the Department of Fisheries and Oceans (DFO). The study used a qualitative multimodal phenomenological approach that is theoretically framed through deep ecology and systems theory to answer: What meanings and impacts do children experience when participating in restoration projects? Data was gathered through: children’s reflections from the experience, observations from the field experience, researcher reflections, photographs, children’s drawings, and six follow-up semi-structured interviews collected from five participating classes in the Kamloops School District. The research will support the Kamloops School District and participating teachers better understand the meaning and experiences of youth participating in Salmonid Enhancement Program in order to create more inclusive program design in the future.
Chapter One: Setting the Stage for the Story

“Ideally, restoration brings people and ecosystems into an ongoing, constructive relationship”
(Edgar, 2007, p. 27).

The Weavings of a Story Told Through Children, Scholars, and Researchers

In presenting this thesis I tell a story about the lived experience of participating in a salmon restoration program. This story, just like any other story has a beginning, middle, and an end. Where this story differs from a traditional story is instead of having one voice, it is told through multiple lenses focusing on a restoration experience: the lens of my personal connection and experiences in restoration, the lens of children participating in an eight-month salmon restoration program, and the supporting views that came from scholars. Through the story, the storytellers will illustrate meaningful experiences that have the potential to instigate, or restore relationships between Earth and human.

I chose to present this story with multiple storytellers, because a lived experience can only be felt truly through the embodiment of the individual in the moments; however, glimpses of a moment can be revealed through the lenses of participants almost as if we can see for a moment through the focused world of another individual: looking through the looking glass of another (van Manen, 2002). Since this story involved the lived experience of children, glimpses are revealed through multimodal portrayals of story through: reflections, photographs, written accounts of experience, drawings or art form, and conversations. Multimodal forms of expression will help to get a better essence of the lived experience of a child (Clark, 2011). The experience of restoration will be presented through multimodal forms of expression from the storytellers: myself, and the voices of the children who created, participated, and attached
meanings and relationships to their experiences. I chose to use different fonts to represent the different voices that weave throughout this story; my reflections, and questions will be represented by *times new roman italic* font and the children’s reflections and voices will be represented by *Cosmic Sans MS*.

**Introduction Through my Lens**

*It was October, although even at a young age I did not need a calendar to tell me the time of year, because multiple environmental cues revealed these secrets. I looked up to see the leaves were changing colour, the sunny deep yellows and oranges blanketed the playground of our school, the days were much shorter than the endless summer nights we had grown accustomed to, and with the shorter nights, the frost and chill were starting to sink in. The change in weather, trees, and daylight were not the only natural indicators that summer had ended and fall had begun. The salmon also taught us about the natural patterns, and seasons that encompassed our community.*

*I hopped onto the bus and off we went to Adam’s River to see the biological wonders of the sockeye salmon run. Our class was joined by every class in the school for a forty-five minute bus ride out to Adam’s River. Urch, the bus stops quickly, I peered out the window, and the golden leaved trees were more prevalent and beautiful than the ones back at the schoolyard. The front door opens, and the fresh, crisp, fall air fills the bus: I remember discussing with others, the distinct smell of fall, this was the distinct smell of fall. Off we went for a quick walk down to the river. On the peaceful walk down, my mind was distracted by the excitement and anticipation of seeing the river. The forest clears, and the most beautiful sea of red took over the river. There were so many salmon in the river that it appeared as if the river consisted of ribbons of red silk billowing through the forest* (Personal Journal, 2012).

*Growing up in British Columbia, salmon have always played an integral role in my formal and informal education. Knowing the salmon lifecycle and the important role salmon played in the ecological, economical, and social systems of the Province was common knowledge by age 12. It was no secret to me at a young age that the majestic keystone species*
that tied into so much of British Columbia’s identity, was declining in population due to human interaction with the natural world. Even at a young age, care and concern for the species had developed. It was not until I was twelve that I was introduced to helping the salmon species through a salmonid enhancement restoration program. Our class was chosen to help raise Coho salmon and to help restore the salmon population.

_A large truck rolls up to the school, excited energy electrifies the Grade Seven classroom. Today is the day we observe the collection of eggs and milt from adult salmon, and the mixture of the eggs and milt to create the new salmon. In moments the responsibility would be handed over to the classroom, the responsibility to care for and raise a living species. For eight months the salmon would be our responsibility and their survival depended on us_ (Personal Journal, 2012).

My excitement for helping to do something for the salmon started to fill a void and started to satisfy my concerns that emerged from knowing that humans were starting to affect the natural cycles and survival of the pacific salmon. My experience helping raise the Coho salmon in my classroom acted as a springboard for interest and participation in many other restoration activities throughout my life. In a sense I feel the experience of raising salmon was formative and offered me opportunities to find more meaningful experiences and interactions with the Earth. The following is another story of restoration that helped to form my ecologically concerned identity.

_Clad in dark clothes that camouflaged me into the dark blanket of the night, my feet softly supported by the loose sand beneath, I stared up at the electric sky speckled with stars and eruptions of lightning. I felt comfortable in that moment, and a strong sense of belonging surged through me. I shifted my gaze to try to focus on the ocean; the dark mysterious abyss left me curious and mystified. I began to concentrate on the sounds of the night: gentle crashing waves, distant howler monkeys emulating the sounds of large creaking doors, and soft gusts of wind whispering messages through the air. Something new emerged into the soundscape: splashing._
scraping of the sand, and a flapping. I excitedly pointed my red light at the direction of the ocean.

“Tortuga, Tortuga” The guide remarked emphatically.

A leatherback sea turtle began to come into focus; I felt complete awe in this moment. We waited patiently at the top of the beach as the turtle slowly lurched towards us. Once at the top of the beach the Tortuga began to shovel the sand methodically, creating a narrow hole. Next, the eggs started to fall from the turtle into the perfectly formed hole.

“uno, veinte, cincuenta, ochenta cinco, eighty-five eggs!” I whispered under my breath.

After counting the eggs I placed them into a bag and carried them a grueling eleven kilometers down the beach to a hatchery. Once the eggs were carefully buried in the hatchery, they were safe from poachers. The sea turtles were free to hatch and return to the sea. I was helping the sea turtles, but what I did not realize in the moment is that through this experience I was helping myself as well. A symbiotic relationship had formed between the turtles and myself—a reciprocal healing or re-storying was starting to take place (Personal Journal, 2011).

The previous story and the experiences that I had with salmon at a young age illustrate moments in my life that I have identified as a formative life experience, a life experience that has helped to define what is important to me; where I create meaning. Childhood life experiences in nature, or helping nature can help to paint a picture of a person’s involvement with the Earth (Palmer, 1993). As an educator I have reflected on what has made me the person I am and what has shaped me into an environmental educator. I have identified a handful of other formative life experiences, and an emerging common thread between many of them appears to be restoration experiences. The act of ecological restoration is the process of healing the Earth by restoring or returning it to a present form (Higgs, 1997). These acts can range from habitat restoration to watershed restoration, and to species restoration. “Good ecological restoration achieves ecological fidelity and harmonious human relationship within ecosystems” (Higgs, 1997, p. 338).
Restoration experiences have helped me to create a harmonious relationship within ecosystems and allowed me to see myself as part of a greater system (the natural world), not separate from it. I am fascinated by this symbiotic relationship that can potentially form between human and the natural world, where both the Earth, and humans benefit. Specifically I am interested in exploring symbiotic relationships that form when participating in restoration projects. Taking time out of my life to immerse myself in an Earth healing project has given me great meaning and has provided the roots for my love of the natural world to flourish.

**Putting my Assumptions on a Metaphorical Shelf**

My experiences in restoration have been formative life experiences, thus, influenced how I design and create experiences for youth, both formally and informally. In the past, I have created restoration experiences for children assuming that the participants will experience the same meaning and love of nature that I created. Upon reflection, I wondered if I needed to deconstruct my assumptions pertaining to ecological restoration experiences. As an educator I feel it is important to deconstruct myself, in order to enrich my understanding of what societal, cultural, and life experiences frame my teaching (Loughran & Russell, 2002). Through my lived experience, restoration activities have fostered great meaning. However, reflection has made me realize that it is easy to assume if something is important to me, it would be important for students as well. This could be a disservice to students, as I could be teaching effectively and designing experiences only for students who share similar worldviews. Instead of prescribing lessons and creating ecological restoration experiences for youth, I would like to find out what reactions children have when engaging in restoration experiences, to help to design more inclusive experiences for youth.
Situating Myself by Standing on the Shoulders of Theoretical Perspectives

Deep ecology and systems theory theoretically frame this work. Deep ecology is a philosophy that considers humans to be a part of the natural world not separate from it (Naess, 1973). Abrams (2005) defines deep ecology as “a new assumption that we two-leggeds are entirely a part of the intricate web of life -- and by a new wish to reflect and to act without violating our responsibility as plain citizens of the biotic community” (para. 2). In stating this, Abrams claims that recognizing that we, as humans, are only one of many living things on Earth that have coevolved together, allows us to shift from mere observers of nature to participants immersed in the natural world (Abrams, 2005). The realization of our roles as citizens of the biotic community illustrates that we are part of a greater interrelated system.

Systems theory identifies the relationships between behaviours and structures and the interconnectedness of the web of life (Meadows, 2008). According to Capra (1996) human abstract thinking has created fragmentation of the natural world and the human world and, therefore, separated humans from nature. In order to overcome the separation of humans to the natural world “we need to think systematically, shifting our conceptual focus from object to relationships” (Capra, 1996, p. 295). Humans are part of a bigger system, and that system is part of the natural world, not separate from it. The implications of human actions are felt not just within human systems, but also ripple through the natural systems (Meadows, 2008).

Through my experience and relationship with the Earth I feel a responsibility to restore, and repair the harmful impact caused by my species on the Earth. These experiences are strongly rooted in deep ecology and systems theory. My research, my questions, and therefore, my methodology are influenced deeply by my own lived experience as well as the theoretical perspectives of deep ecology and systems theory.
Research Questions

The questions constructed to explore beyond the deconstruction of the meaning I place on formative life experiences in restoration projects to the experience of children has lead me to my central research question: What meanings and impacts do children experience when participating in restoration projects? I also explore the sub question: Do restoration experiences have the potential to form a reciprocal relationship of healing form between Earth and child?
A review of literature relating to my central questions is focused into three themes: ecological restoration, fostering meaningful relationships between Earth and human, and the story of salmon restoration in British Columbia.

Ecological Restoration

The story of human interaction with the natural world.

On my journey to understand human experiences and interactions with restoration, I found the need to delve into human interactions with the natural world and the history of human existence and dependency on nature. Historically, for most of human existence on Earth, our species has lived simple and low ecologically impactful lives that respected the natural balance of the Earth (McKibben, 2006; Suzuki, Mason, & McConnell, 2007). Suzuki et al. (2007) further assert that over the past century our species has altered the biological, physiological, and chemical factors of the Earth due to exponential population growth and dependencies on technology. Karr (2011) advances the discussion by arguing that a gamete of technology-based factors has developed the notion that humans are independent self-sufficient entities. The separating factors are: “the agricultural revolution, scientific and cultural specializations, rapid industrialization, and free market economics” (Karr, 2011, p. 2).

A dependency on technology has allowed us to create our current artificial system that is embedded within the greater natural system (Capra, 1996; Higgs, 2006). Although our human systems are embedded in the natural system, we are apt to focus on the artificialities of our lives derived from our technology, economy, and government. The shift from understanding our dependencies on artificial systems, rather than the natural system, refers to an anthropocentric perspective that “views humans as above or outside of nature” (Capra, 1996), rather than a deep
ecological way of viewing humans as a part of nature not separate from it (Naess, 1973; 1984, 1988). An anthropocentric worldview can be detrimental for humans; in a sense it puts blinders on humans and blanks out our dependence on nature, and furthermore, discredits the notion that humans need to develop a reciprocal relationship with the Earth (Karr, 2011).

**The story of humans and resources.**

When questioning the interactions of humans and the natural world, I found myself questioning humans’ relationship with the natural world and utilization of resources. In order to get a better idea of salmon restoration, I needed to gain a better understanding of human relationship with resources. From an anthropocentric worldview, where humans see themselves as separate from nature, elements of the natural world are seen as resources that can become commodities for humans and the basic human needs that come from the Earth can be overlooked (Gagnon Thompson & Barton, 1994). According to Leopold (1950), “we will abuse the natural world if we do not see ourselves as part of the interconnected system” (p. ix). Turner, Ignace, and Ignace (2000) builds on the insight from Leopold (1950) with a look at first nations relationship with the land and resources gives insight into management of resources from a deep ecology perspective. This quotation from Turner et al. (2000) illustrates the traditional relationship with resources.

For traditionally schooled aboriginal people in many regions, the environment is seen as a whole, all the parts are interconnected in a seamless web of cause and effects, actions and outcomes, behaviours and consequences. People, animals, plants, natural objects, and supernatural entities are not separate and distinct, Rather they are all linked to each other and to the places where they reside through cultural traditions and interactive reciprocal relationships. (pp. 1279)
After reflecting on anthropocentric worldviews with its incumbent utilization of nature, I wondered if it is possible to have restoration activities and a relationship with natural resources that reflect a deep ecological perspective. Our worldview will affect how we define resources, resource management, conservation, and restoration actions will differ immensely (Turner et al., 2000). When exploring relationships with salmon, and the Earth through restoration and salmon restoration I found importance in considering intentions of restoration as derived from worldviews.

**The story of ecological restoration.**

**The history.**

During the process of constructing my understanding about restoration I engaged in literary works, which addressed the history and original purpose for human participation in restoration activities. The concept of restoring land, species population, and ecosystems that had been altered due to interactions from human activity derived from Aldo Leopold and his efforts to fix the ramifications from the exploitive nature of the agricultural system in 1939 (Jordan, Gilpin, & Aber, 1990). From this inception grew the science and art of restoration in modern times.

**The definition.**

Before further understanding experiences in ecological restoration I must first define ecological restoration and how I believe restoration to be important. According to the Society for Ecological Restoration (SER) as defined by Clewell, Aronson, and Winterhalder (2004) “Ecological restoration is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability” (p. 4).
To broaden the definition outlined by SER, Jordan (2003) concludes “ecological restoration is the attempt to guide damaged ecosystems back to a previous, usually healthier or more natural condition” (p. 14). An ecological restoration project can encompass: removal of invasive species, introduction of species that are threatened or have been eliminated, to ensure survival of threatened or endangered species, cleansing or removal of toxins to the ecosystems, and care for habitat conditions for growth (Allison, 2004; Jordan, 2003). For the purpose of this research I am focused on restoring populations of Coho salmon in British Columbia.

**The categories of ecological restoration.**

According to Higgs (1991) ecological restoration can fall under two different categories: scientific technological based restoration, or restoration that in itself is an art form that creates a reciprocal relationship. These categories highlight the science and the arts elements of environmental work. The technologically based form of ecological restoration is a derivative from an anthropocentric worldview, whereas the art based relationship forming branch of restoration defined by Higgs (1991) is encompassed by a deep ecology worldview. Higgs (1991) further claims, “restoration could be the key to escape from consumerism and the commodification of nature, but only if we regard it as a creative act as well as an environmental technology” (p. 97). The meaning placed on the human experience and relationships that form between human and natural world, is what I have focused my curiosity on throughout this thesis. I see restoration as both a science driven environmental technology, and a creative, reciprocal act that can foster relationships between the human and natural world.

Before further exploring works that delve into the meaningful and artistic elements of restoration I found importance in investigating science and technology driven restoration. Higgs (1991) states, ecological restoration can fall into both the technological trap of the modern world
and an anthropocentric trap. A technological trap is a trap where humans rely on technological solutions to solve problems, as oppose to searching for answers from the natural world or through experiences. An example of a technological trap pertaining to restoration is applying hard systems models to determine fisheries management strategies: putting faith into computer programming and models, instead of learning from the past, and the experience of the current state of the ecosystem and species. Applying technological solutions to ‘fix’ ecological problems may separate humans from the natural world (Higgs, 1991; Katz, 2009; Light, 2009).

In addition to technological concerns, Higgs (1991) expresses concern with humans’ capacity to differentiate between the ‘fake’ and ‘natural’ to make decisions about how and what to restore. Edgar (2007) claims that our values are so heavily focused on our artificial systems that our livelihood is defined through our artificialities instead of through the natural Earth systems. Other scholars raised concern with restoring nature, when a definition of what nature is, and what it means for humans is unclear (Gobster & Hull, 1999; Schroeder, 2006). Human interaction with natural ecosystem processes can lead to deeper environmental ethics concerns (Higgs, 1991). Higgs (1991) continues to challenge the moral ethics of intervening with nature, and whether we are propagating the technological trap by creating artificial landscapes. For example, humans may be more connected to a botanical garden that showcases a higher level of diversity, than the natural flora and fauna. The connection, in this case, is with an artificial landscape instead of a natural setting.

Katz (2009) asserts that relying on science-based solutions to solve complex ecosystem problems can lead to oversimplification and further problems. There is concern that ecosystem life surpasses the average human life, and the outcomes of restoration “fixes” applied have uncertainties. Further concerns are raised that restored nature cannot reproduce the true value of
nature (Katz, 2009; Light, 2009). Schroeder (2006) builds on this concern by stating that the act of restoration can be seen as an “external agent acting upon the environment, and the changes brought about by restorationists’ work as an unnatural modification to the environment” (p. 198). On the other hand, he acknowledges the opposing debate that restorationists place value on the natural ecosystem state from pre-human settlement. The concern for the value of nature, and debates over what state of an ecosystem is valued as natural is derived from uncertainty of the definition of nature (Schroeder, 2006).

Higgs (1997) and Light (2009) recognizes that there is potential to fall into traps in contemporary ecological restoration; however, they argue that restoration from a deep ecology perspective can aid in reconnecting humans with their place in the natural world and “[r]ather than applying various 'band-aid' solutions to environmental problems, adherents of deep ecology ostensibly ask ‘deeper’ questions, and aim at deeper, more long-range solutions” (Abrams, 2005, para 1). Ecological restoration has the potential to look beyond ‘band-aid’ solutions and to aim for deeper solutions and relationships. New research focuses not on the technological (earth fixing), anthropocentric aspects of restoration but on the potential of restoration to foster reciprocal relationships between humans and nature (Edgar, 2007; Geist & Galatowitsch, 1999; Higgs, 1991; Jordan, 2003; Schaefer, 2006).

**Fostering Meaningful Relationships Between Earth and Human**

My curiosity about meaning-making and the development of relationships between Earth and human when partaking in restoration experiences was deepened by engaging with the works of Kellert (2007, 1996), Nisbet, Zelenski, and Murphy (2009, 2011), Wilson (1993), and Louv (2008). Kellert (2007) asserts that there is “an underlying order, a pattern in nature that [gives] shape and meaning to our lives” (p. 31). Furthermore, he suggests that humans’ need to connect
with the natural world is innate. Kellert’s intellectual predecessor on these thoughts was Wilson (1993) who coined the term *biophilia*, defined as “the human tendency to relate with life and natural process...as a biological need” (p. 20). The biological need for nature extends past our dependence on air, soil, and water for survival to social, cognitive, and emotional well being (Kellert, 2002, 2007; Kellert & Farnham, 2002; Wilson, 1993).

Using the research outlined by Wilson (1993), and Kellert (1996), Nisbet et al. (2009) created a ‘Nature Relatedness’ scale to help illustrate benefits of exposure to nature. Studies using the nature relatedness scale showed positive affect, cognitive, and an experiential connection to the natural world that contributes to human psychological health, and in turn provides motivation to protect and preserve the environment (Nisbet et al., 2009; Nisbet et al., 2011).

**Fostering meaningful relationships between Earth and child.**

To build on my curiosity regarding human’s relationship to the natural world, I began to explore applications of *biophilia* and deep ecology to children’s relationship with the natural world. Louv (2008) claims that it is detrimental for children to not experience the natural world on a day-to-day basis, and children gain emotional, and cognitive benefits from experiences in the natural world. “For many of us, intuition emphatically asserts that nature is good for children…beyond these intuitions there are also well-reasoned theoretical arguments as to why humans, in general, and therefore children, might have an inborn need for contact with nature” (Louv, 2008, p. 110). Examples of well-reasoned theoretical arguments are Kellert’s (2007) aforementioned argument that human connection to nature is innate, and Taylor, Kuo, and Sullivan’s (2002) argument that not only is connection to nature innate, but optimal for child and therefore human development.
Kellert (1996) built on the definition of biophilia to be inclusive of all feelings that arise when humans affiliate with nature. When questioning and considering child connections to nature, I explored Kellert’s (1996) nine values of biophilia that offer a deeper distinction of potential human relationships. The nine values of biophilia:

1. The utilitarian value: the material benefit that humans derive from exploiting nature to satisfy various human needs and desires.
2. The negativistic value: feelings of aversion, fear, and dislike that humans have for nature.
3. The dominionistic value: the desire to subdue and control nature.
4. The naturalistic value: the many satisfactions people obtain from the direct experience of nature and wildlife.
5. The ecologistic-scientific value: systematic study of the biophysical patterns, structures, and function of nature.
6. The aesthetic value: a primarily emotional response of intense pleasure at the physical beauty of nature.
7. The symbolic value: the tendency for humans to use nature for communication and thought.
8. The humanistic value: the capacity for humans to care for and become intimate with animals.
9. The moralistic value: the right and wrong conduct toward the nonhuman world.

(Kellert, 1996, pp. 59)

I found that values four through nine hold importance for my work with children creating meaningful experiences and relationships with the natural world. With Kellert’s (1996) values in mind, I broadened my interest in child benefits and budding relationships from experiencing the natural world. Echoing the works of Louv (2008), Kahn and Kellert (2002) argue that child physical, emotional, intellectual and moral development is dependent on experience of the natural world. Kahn and Kellert (2002) further develop the ideas of biophilia and apply them to children’s relationships with nature and developmental psychology. Children have different stages of development that offer opportunities to experience and affiliate with the natural world.
From ages six through eight children start to see themselves reflected in nature, from ages nine through 12 children increase their factual understanding of animals in the natural world and begin to have a sense of morality that encompasses the natural world, and from ages 13-17 the morality which encompasses all living things develops (Kahn & Kellert, 2002). Similar to Kahn and Kellert (2002), Sobel (1995), suggests there are stages of child development during the formative earth connecting years: ages four through seven early childhood, ages eight through 11 elementary years, and ages 12 through 15 early adolescent years. Sobel (1995) further states that the elementary years have a tendency to explore and take care of the natural world, and as children move into the early adolescence stages they begin to focus on action and “saving” the natural world.

Children have the capacity to form compassionate connections with non-human organisms and develop a foundation for morality that encompasses non-human species. Melson (2003) used theory from Kellert (1996) and Wilson (1993) as a starting point to research child development and children’s connections to the non-human world through care of non-human species. He concluded that children gain physiological, social, and emotional benefits from engaging in raising non-human species (Melson, 2003). Furthermore, Melson (2003) raises an argument that children experience and learn about the act of nurturing “…because pets are dependent on human care for survival and optimal development, companion animals provide children the opportunity to learn about, practice, and become motivated to appropriately nurture other beings” (p. 35).

**Creating meaningful experiences for children.**

When considering researching the lived experience of students participating in a school based restoration project, I began to explore research that focused on creating meaningful
environmental experiences for youth. Meaningful experiences in nature are encompassed by positive experiences and experiences that offer opportunities for humans to connect, and restore their place in the natural world (Kahn, 1997; Kahn & Kellert, 2002; Kellert, 1996, 2002). In addition to creating positive experiences and opportunities to restore relationships, Sobel (1995) emphasizes the importance of teaching and designing environmental education programs, and lessons that create personal connections, and can be found within children’s community, and direct ecosystem surroundings. According to Moser and Diling (2007), “educational research shows, for example, that students tend to search for causes that are spatially, local and temporally close to their effects” (p. 268). Not only do experiences need to have a connection to students’ immediate system, they should allow for opportunities for the students to vision for the future, and instigate future involvement (Moser & Dilling, 2007).

Using restoration to create meaningful experiences and relationships with the natural world.

According to Higgs (1991) ecological restoration acts have the capacity to restore humans’ place in the natural world; therein, their relationship to it. Furthermore, Toblin (2009) suggests, “ecological restoration is about restoring people’s sense of place, sense of awe, and sense of worth—through direct participation… Ecological restoration is the reframed environmental movement” (p. 187).

Higgs (1991) suggests that “…a relationship can form through a practice that is engaging, sympathetic, nurturing, that sparks enthusiasm, and focuses on aspects of the greater system that are ‘real’” (p. 98). In short, creating a mutually beneficial relationship with nature that can trickle through the individual into culture: a reciprocity that transcends from anthropocentric to ecocentric—where nature is valued for its own sake (Gagnon Thompson & Barton, 1994). Gagnon
Thompson and Barton (1994) further define that “to ecocentrics nature has a spiritual dimension and intrinsic value that is reflected in their experiences in nature and feelings about natural settings” (p. 150).

In a reciprocal relationship between humans and the natural world, stemming from ecological restoration experiences, humans may gain psychological, spiritual, and physiological benefits, and the natural world gains structures, degradation prevention, and biodiversity. In both cases a sense of healing takes place (Edgar, 2007). Jordan (2003) furthers the discussion revolving around the need for humans to participate in ecological restoration by stating that humans have a level of shame that originates from living with evidence of environmental degradation from human interference. Restoration can help humans work through their shame through healing the Earth (Higgs, 2006, 1997).

According to Nabhan (1991) and Miles, Sulivan and Kuo (1998) restoration activities have the capacity to help cultures reconnect with the natural land and not only restore the land, but restore, and re-story their cultural relationships. Nabhan (1991) states, “to truly restore…landscapes we must also begin to re-story them, to make them the lessons of our legends, festivals, and seasonal rites” (p. 3). The term ‘re-story’ can be defined as connecting humans with the land through events and stories that can be told and passed on (Nabhan, 1991). Restored sense of community and relationship to nature comes from a level of satisfaction not only helping the environment, but from being part of a community activity, and part of the stories that we connect to the land (Clewell et al., 2004; Miles et al., 1998, 2000; Tomblin, 2009).

In addition to restored sense of community, and physiological and psychological benefits Geist and Galatowitsch (1999) argue that the reciprocal relationship that forms between human
and natural world makes the projects more resilient. Humans may become more motivated to continue to care for the Earth, and continue to engage with restoration projects if some of their spiritual, and emotional needs are being met (Geist & Galatowitsch, 1999).

The Story of Salmon in British Columbia and How it Relates to Relationships and Restoration

Salmon and human relationship in British Columbia.

According to Garibaldi and Turner (2004) the five salmon species (Coho, Chum, Pink, Sockeye, and Spring) are considered a cultural keystone species in British Columbia. A cultural keystone species is a species that is closely affiliated with the indigenous people, and local people’s lives (Garibaldi & Turner, 2004). Salmon in British Columbia goes beyond a cultural keystone species, it is also an ecological keystone species: a species that holds a key role in the functioning of an ecosystem (Garibaldi & Turner, 2004).

Although the salmon in British Columbia hold pivotal roles in both ecosystem and cultural systems, the “population of many pacific salmon (oncorhynchis spp.) has declined to critical levels… due to a combination of overfishing, decreased survival of young salmon in ocean, and degraded fish water habitat” (Bradford & Irvine, 2000, p. 13). Bradford and Irvine (2000), theorized from their studies on Coho salmon that there is a significant decline in Coho salmon species due to ocean characteristic changes derived from climate change.

Restoration projects in British Columbia.

As salmon population decreases were documented, the province created programs for restoration of salmon species. The Department of Fisheries and Oceans (DFO) created the Salmonid Enhancement Program (SEP) in 1977. The program consisted of creating fish ways,
hatcheries, spawning channels, habitat improvements, fertilization of lakes, and predator control (Hilborn & Winton, 1993). Within the SEP, DFO created ‘Salmonid in the Classroom’ to include children with restoration and enhancement of the pacific salmon. The classroom involvement has the potential to teach children about the importance of salmon in British Columbia (Nicklas, n.d.). Turner, Ignace, and Ignace (2000) argue the importance for children involvement in natural resources and ecosystem: “children participation in harvest and management of traditional food and materials is crucial; children gain practical knowledge and experience through observation and assisting their elders, parents, and grandparents” (p. 1281). Turner et al. (2000) claims that children need to be involved with natural resources, to care, and to help illustrate humans place in the natural world.

**Potential for restoration projects to create meaningful experiences that foster relationships between Earth and child.**

Throughout my survey of the literature, I have found many references indicating potential for restoration projects to create meaningful experiences and relationships between Earth and Human, and the developmental capacity and benefits to participating in Earth healing events with children. However, I perceive a gap in the literature that explores children’s experience when participating in ecological restoration activities. In order to fill this gap, I will explore the meanings, and stories that children connect to ecological restoration experiences, specifically salmon restoration experiences.
Chapter 3: The Story of the Research Methodology

Methodological Grounding through Phenomenology

By framing with phenomenology, I am striving to find deeper meaning and understanding of the human experience of participating in restoration. The research I have designed is built on the foundation of my personal life experiences with ecological restoration. “In drawing up personal descriptions of lived experiences the phenomenologist knows that one’s own experiences are also the possible experiences of others” (van Manen, 1990, p. 54). I have constructed meaning through my own lived experience in ecological restoration; however, my research questions are not about my own meaning, but the meaning and impacts experienced by children when participating in an eight-month restoration experience.

Phenomenology undergirds this research as I am trying to find meaning from life experiences. “From a phenomenological point of view, to do research is always to question the way we experience the world, to want to know the world in which we live as human beings” (van Manen, 1990, p. 5). I wish to get a greater understanding of the experiences of the child, as the lifeworld of the child differs from the lifeworld of the adult (van Manen, 2002). The lifeworld refers to the living experience and perceptions of the individual (van Manen, 1990).

Phenomenological research strives to understand what is going on within the life of a person; therefore, deep meaningful data is needed to aid in analysis and understanding. In order to collect data that helped to understand experiences of others I used qualitative methods such as: personal reflections, field notes, participant reflections, participant drawings, photographs, close observations, and interviews. To ensure that my methods addressed the lifeworld of the participants I designed my guided reflections, and interviews to focus on the experience of the
phenomenon. For example when prompting participants I focused on active senses in the moments, as well as vivid elements of the experience.

**The Lived Experience**

The lived restoration experience explored in this research was an eight-month salmon restoration project that took place in Kamloops, British Columbia through the Kamloops School District, Salmonid Enhancement Program (SEP). Over the past 40 years thousands of students have taken part in the program which consists of: collecting eggs and milt from adult salmons, taking care of salmon in the classroom through the egg, eyed-egg, and fry stages of the salmon lifecycle, and releasing the fry in a nearby stream, and a field day designed to celebrate and explore the salmon’s habitat (Nicklas, n.d.). In Kamloops the program is supported by the school district, and DFO.

During the program students watched the fertilization of the eggs in early October, cared for the species from egg to fry stages by monitoring the temperature and cleanliness of the tank, and feeding the salmon, and finally, they released the fry in the month of May in the Tranquille River, north west of Kamloops. Simultaneous activities in the classroom supplement their learning about salmon during the eight-month time frame including: dissections, choice based research projects, and cross-curricular lessons focused on salmon and the environment.

**Reasoning for Selection of Program**

I chose the SEP because it echoes restoration experiences that were memorable to me, and I had personal connections to the program because I had participated in the program when I was 12 years old. The opportunity to work with SEP allowed me to revisit one of the experiences that helped shaped my environmental identity, and to explore the feelings and meanings that
were created by the students currently enrolled in the program. According to van Manen (1990), exploring the essence of experience often starts with personal experience. Not only did I have a personal connection to the program from my childhood, but I have also worked with, volunteered for, and grown up with the main organizers of the program, and many of the participating teachers. My personal connections nurtured a sense of trust and collaboration with all of the participating stakeholders in my research.

In addition to the personal connection that I had with the program, it offered an age range that was pertinent to this study: ages eight to 12. The age range of this research allowed me to focus on the elementary years, with a little bit of early adolescences. These ages have the capacity for care and concern of non-human species, and the ability to think critically about what actions are right and wrong. The SEP allowed for tendencies in the elementary, and early adolescence years to flourish.

The Participants

The SEP is designed for students from Kindergarten to grade 12. For the purpose of my study, I used students who were grades 3 through 7 as participants. Five classes were selected to participate in this research based on the following two criteria: teacher participation in the SEP within the Kamloops School District and interest in participating in this research. Invitations were initially sent out to teachers that I had personal connections with. Seven teachers were sent an invitation to research (see appendix 1) and were asked to contact me if they were interested in participating. All seven teachers were interested in participating in the study and five teachers were chosen based on their salmon release dates.
Since, the classes were chosen based on interest in the program and timing, the sample was, therefore, purposive and convenient (Barbour, 2001). Each student was given a consent form for their parents to sign (see appendix 2) and one for them to sign (see appendix 3) prior to the program. In the five classes 83 students participated in the research. Each student was involved in the SEP program from October to May, wrote a secret spot reflection, participated in the release day field trip, and wrote a reflection on their experiences in the program. From the 83 participants one student was used for a pilot interview and six students were selected for a semi-structured interview after the release of the salmon. The interviewees were selected from the 83 student participants based on the following criteria: students who seemed comfortable talking to me in both the pre-experience and the day trip to the Pine Park on the Tranquille river, students whose teachers believed they would be articulate enough to interview, and students whose reflections demonstrated a deep level of ability to articulate their feelings, impacts, and experiences on the day.

**Understanding the Lived Experience through Child Communications**

The methods employed in this research reflected my research questions as well as the nature of the participants. By participating in the research, students expressed their emotions and feelings about the impact and meaning of their own lived experiences. In order to gain understanding about the meanings children attached to the experience the researcher needs to be able to listen to the children’s voices and gain insight from searching everywhere for evidence of the experience from the child perspective (van Manen, 1990). “Researching the ‘insider’ perspectives of children requires a readiness to not only tune into different modes of communication but also to create opportunities for this knowledge to be communicated to others” (Clark, 2011, p. 311).
The child participants in this study may not be able to articulate meaning making and impact from experience through interviews exclusively. Therefore, I adapted my methods to more of a multimodal approach that allows children to express themselves using different methods of communication: drawings, photography, poems, visual diaries, and journal reflections (Clark, 2011). Reflections, interviews, and analysis of written work help to derive the essence of experience (Ryba, 2007). For this study, I focused on journal reflections, child pictures, researcher field observations and reflections, photographs and interviews using photographs, reflections, and drawings from the experience as prompts for questions for my data.

**Children’s reflections.**

A child’s reflection on an experience can offer insight into their feelings, emotions, and the overall impact of the experience. According to van Manen (1990) asking a research participant to recount and write about their experiences is a straight forward method for obtaining data; however, he cautions that there may be difficulties in gaining insight from written responses because it may be difficult for participants to put their experiences into words, and it requires a reflective attitude. To remedy this, participants were asked to practice the reflective process, and encouraged to use pictures to support their words.

The reflective process was a learned procedure that required some practice. Participants in the five classes did not have the same level of familiarity with reflecting on their daily experiences or activities at school. To familiarize the participants with the reflective process, I conducted a pre-experience reflective activity. The activity is adapted from an Earth Education activity that encourages students to find a special place and sit quietly for a given amount of time (“Magic Spot”, Earth Walk™). Children between the ages of seven and 12 have an instinctive urge to find and create their own private places (Sobel, 2008). The combination of the
opportunity for the students to stop, reflect, and focus on their thoughts and feelings and students’ urge to find a secret spot, allowed for an optimal experience for developing reflective skills.

The pre-experience “secret spot” reflective activity was piloted with one of the participating classes in October of 2010. For this research, each participant was asked to find a secret spot within a given area around the school, and sit for 10-15 minutes. Students were instructed to find a place that was their own, where they would not interact with other students, and where they could focus on the sounds, sights, smells, feelings, and their thoughts. For safety reasons, boundaries were set, so that the students were in sight of the teacher or myself. Once the participants had sat in their secret spots, they completed a 15-25 minute guided journal reflection exercise.

The journal reflection exercise focused on writing or drawing about each child’s experience and emotions felt or remembered while at their secret spot. The younger students were asked to draw a picture from their secret spot in addition to the following four questions asked of all participating students: Why did you pick this place for your “secret spot”? What were your thoughts and observations (smell, sight, sound, touch) at your “secret spot”? How did you feel while sitting in your “secret spot”, and why did this experience make you feel this way? Do you have any other comments that you would like to share about your “secret spot”? (see appendix 4 and 5). Questions asked in the “secret spot” activity were designed to reflect the nature of the lived experience research and were edited by a participating teacher.

After the initial “secret spot” lesson the classes practiced the reflective activity lesson with their teacher prior to the research field experience (release of the salmon). The purpose of
the pre-reflective exercise was to both familiarize the students with the reflective process, and to introduce myself as the researcher working to become more familiar.

Each child participated in the release of the salmon at Pine Park in Kamloops. The morning after the release, students did another 10-15 minute “secret spot” activity that mirrored the pre-experience reflective activity, yet asked students to remember the previous day’s experiences. Following the individual silent time, students participated in a guided reflective response about their experience in the SEP from the day that they watched the mixing of the milt and eggs, to the previous day release at Pine Park. The guided questions for the reflections were: What about your experience raising and releasing the salmon was memorable for you and why? How does participating in the Salmonid Enhancement Program all year make you feel? Why does this experience make you feel this way? How did you feel when you released the salmon at Pine Park? Why did you feel this way? Do you have any other comments about your experience with the Salmonid Enhancement Program? Grades 3 through 4 students answered these questions in addition to drawing a picture (see appendix 6). Grades 5 through 7 students were given the choice of writing a free form reflection about their experience or the guided reflection (see appendix 7). Each student’s reflection was collected as data and transcribed. Reading through the reflections highlighted some students that would be able to articulate their thoughts and feelings about their experiences in semi-structured interviews.

**Researcher reflections.**

In order to interpret the phenomenological data, I needed to consider that “not only is a participant trying to make sense of their own lifeworld, but the researcher is trying to make sense of the lifeworld from the perspective of the research participant” (Smith & Osborn, 2003, p. 53). According to Smith and Osborn (2003) to explore an individual’s lifeworld can be defined
exploring the individual’s “personal experience and…personal perception or account of an object or event” (p. 53). Researcher reflections helped to make sense of the lifeworld of the student participants. As the researcher I included myself as part of the research, and my reflections allowed for another layer of interpretation of data. According to van Manen (1990) phenomenological research and writing requires constant reflection. Therefore, in addition to student reflection I wrote reflections after each day, and after each stage of research.

Reflections were conducted after each of the five classes field day at Pine Park, after the initial read through of all of the data, after each individual read through of student interviews, after tagging the data, after the sub-themes formed, and finally after writing the discussion section of the research. The method for my reflections emulated the methods for reflective practice that I designed for the students: I also did a “secret spot” reflections. I would sit down somewhere outside and think back on the activities, the feelings I had, and the overall tone of the day, reflections, or photographs. After some thinking time, I would hand write a reflection. I did not confine my writing by placing structure into the writing, I simply free wrote for approximately 15 minutes.

**Field observations.**

Field observations were an integral part of the data that helped to weave together the student’s reflections and reveal the overall tone and feelings that come up during the experience. Observations allowed me to become a part of the lifeworld of the child, and gain deeper insights about the experience from the child’s perspective (van Manen, 1990). To deepen my data on the experiences on the day of the program I took observational field notes, pictures of the experiences, and recordings of quotations from both students, and teachers. Field and
observational notes from the day had two purposes: help to reveal participants that would prove most insightful for interviewing, and supplemental data from reflections and interviews.

**Semi-Structured interviews.**

Phenomenology exposes lived experiences that are taken for granted through descriptive interviews and close analysis (Starks & Trinidad, 2007). According to van Manen (1990) the interview acts “as a vehicle to develop a conversational relation with a partner (interviewee) about the meaning of the experience” (p. 66) and “…is used as means for exploring and gathering experiential narrative material that may serve as a resource for developing…deeper understanding of a human phenomenon” (van Manen, 1990, p. 66).

In order to reveal and gain a deeper understanding of the lifeworld and experiences of the participants, I followed up the special place salmon reflections and field observations with six semi-structured interviews. The interviews took place at the students’ school three to seven days after the field experience. The interviews were done in a break out room in the school to ensure that there would not be many interruptions. Interviewees were asked semi-structured interview questions that are derived from the student reflections and field observations. “This form of interviewing allows the researcher and participant to engage in a dialogue whereby initial questions are modified in the light of the participant’s responses and the investigator is able to probe interesting and important areas which arise” (Smith & Osborn, 2003, p. 57).

Before developing the final interview guide, I conducted a pilot interview with one student selected from the five classes. The pilot interview allowed me to test different ways of asking questions that were age appropriate, determine the amount of time needed for interviews, and offered an opportunity to practice the flow of the interview.
For consistency each interview started with the same open-ended questions: Can you walk me through an experience outdoors in a typical day? Can you tell me about an experience outdoors that is memorable to you? Can you describe your day at Pine Park where you participated in the release of the salmon field trip? What about your experience from participating in the Salmonid Enhancement Program from getting the eggs and milt to releasing the salmon was memorable for you? Further potential questions were outlined in an interview guide but were not followed sequentially, or methodically. These and other questions emerged organically with the conversation (see appendix 8).

After the first few open-ended questions the following questions emerged through dialogue using the student’s reflections and photographs from the day as prompts. Photos from the day were placed in a slideshow using iPhoto. Interviewees were then asked to talk about the events in the photos, and feelings that came up while scrolling through the photos. To accompany the slideshow I asked questions about the experience, and how they felt during certain parts of the photo slideshow.

During the interview students’ reflective responses were used as interview question prompts. I would read the reflective responses to the students and ask them if they wanted to add anything to the responses. Then I would ask them to talk more about certain reflections and asked further questions derived from their responses.

The use of reflective responses and photographs helped the students express themselves through multimodal communication methods (Clark, 2011). The recorded interviews were supplemented with observational notes on body language and tone. Before using the interviews for further data, I made sure that I checked all of the responses with the participants.
Interpretations were checked during the interview by clarification and questioning after responses. The six interviews were transcribed and used for data analysis.

**Data Analysis**

The data for analysis includes: reflections from students, field observations, researcher reflections, and interview transcriptions with field notes. The data was analyzed through thematic reflection - the process of reflecting back on all of the data to reveal overarching themes that reveal meanings of the human experience (van Manen, 2002). The process of analyzing children’s lived experience is complex and required my personal reflection to help unravel the broad scope of data collected and to surface appropriate themes embedded within the data.

According to van Manen (2002) “phenomenological themes are not objects or generalizations; metaphorically speaking, they are more like knots in the webs of our experiences, around which certain lived experiences are spun and thus lived through as meaningful wholes” (para. 2). Once I started to reveal the “knots” or the themes and categories present within my webs of data, I was able to begin to describe the core of the experiences (Starks & Trinidad, 2007). To reveal the knots in my web of data an adapted interpretive phenomenological analysis (IPA) approach was used (Smith & Osborn, 2003, p. 66). In this approach the “meaning is central, and the aim is to try to understand the content and complexity of the meanings, rather than frequencies” (Smith & Osborn, 2003, p. 66). In order to interpret the meaning and global themes of the data, I had to be actively engaged with all of the data: transcriptions, reflections, pictures, photographs, researcher reflection, and field notes. After reading through all of the data I wrote a reflection on the main points, themes, and feelings that came up for me. My first complete read through and subsequent reflections on the data resulted in the emergence of four overarching themes: 1.) nurturing 2.) systemic thinking 3.)
responsibility to help the salmon population because of human interactions. A reciprocal relationships being formed. My preliminary reflections were focused on students’ strong sense of care and concern for the salmon, as well as the salmon’s natural ecosystem.

I placed all interview transcriptions, notes, and reflections into a table in a word processing program (MS Word, 2011) leaving extra columns for tagging raw data. “Tagging refers to the process of selecting from an amorphous body of material, bits and pieces that satisfy the researcher’s curiosity, and help support the purpose of the study” (Baptiste, 2001, p. 10). Data was tagged according to relevance of the research questions and evidence of a holistic view of the phenomenon of child experiences of the SEP.

Identified tags were placed in the extra rows and columns of the word tables. Once I tagged my raw data I then organized tags into labels, and then categories of similar themes. I organized data into labels and categories by printing off all of the tags, cutting them up and organizing them into common areas on a Bristol board (Figure 1).

Figure 1: Organizing tags into sub-themes
By organizing into categories I was able to arrange the data based on repetition and similarities and differences. The process of organizing and analyzing data was a non-linear and circular process where data was tagged, labeled, defined and redefined (Baptiste, 2001). This was done in a word processing program (MS Word, 2011) tables by table sorting, merging and rearranging, and physically by using scissors, sharpies and Bristol boards.

Tagging and manipulation of tags to create sub themes resulted in the definition of the following: 1.) positive feelings from participation in the program 2.) knowledge gained from the program 3.) feelings of disconnect from the program 4.) feelings of loss from letting salmon go 5.) nurturing paternal/maternal feelings 6.) happiness for the salmon, connection to the Earth 7.) memorable experiences 8.) biological wonders 9.) responsibility to help salmon because of human interactions 10.) seeing the bigger ecological pictures and systems 11.) influence for further actions.

The following photos illustrate the process of deriving sub-themes from the tags. Figure 2, 3, and 4 show happiness for helping the Earth, nurturing, and a responsibility to help the Earth.

*Figure 2*: Sub theme “Happiness for Helping Salmon and Earth” emerges from tags
Figure 3: Sub theme of "a need to do this because of human actions" emerges

Figure 4: Sub theme "nurturing; paternal/maternal feelings" emerges from tags

From the tags, labels, and categories themes began to emerge (LaPelle, 2004). After engaging and reflecting on the sub-themes, I was then able to group the sub-themes into global themes. Simultaneous manipulation of the data allowed me to highlight quotations that gave the essence and explanations of the lived experience from the students’ perspectives.

Once the global themes were defined, I was able to go back to my data and highlight quotations that corresponded to each theme. I organized the quotations by using the highlighter function in a word processing program (MS Word, 2011). Since this is a phenomenological study
that deals with the essence of the experience, at this point of analysis I simultaneously tagged for direct quotations from the students that described the experience. In phenomenology, data analysis and writing are not separate entities, the analysis continued well into the writing stage (Smith & Osborn, 2003; van Manen 1990). I used the students’ words to write theme-based narratives about their experiences with the program. Finally, I organized photos, student illustrations, and my reflections into theme areas, to support the story.

Validity.

To ensure the validity of my data and analysis techniques I collected data from multiple sources, did long-term observations, had participation checks, and oriented myself as the researcher. I ensured that data came from multiple sources by weaving together student reflections, researcher reflections, researcher field observations, interview notes, and interview transcriptions. To satisfy member checks and participant participation, I made sure that all data that was put into my thesis was checked with participants during interviews. Furthermore, I spent many hours at the research site, collecting field observations that supplemented the study. Finally, because this is a qualitative study I have oriented myself for the entirety of my research. I have oriented myself by outlining my experiences and assumptions on the experience of restoration. Furthermore, I have oriented myself by identifying and defining my theoretical perspective (deep ecology and systems theory).

To increase validity of interviews, a previous SEP participating teacher edited the questions prior to the interview and I conducted a pilot interview on one student. In addition to piloting the questions each semi-structured interview started with the same leading questions, was prompted by the same photographs, and was given approximately the same amount of time for the interview.
For the validity of the reflections each student was given the same prompt questions for the reflective responses. The pre-experience reflective activity helped to prime students and offered an equal starting point amongst the different classes.

**Limitation and Delimitations**

**Delimitations.**

The boundaries formulated in order to narrow the scope of the study were: students who are in grade 3, 4, 5, 6, or 7 that participated in the SEP program within the Kamloops School District. Other factors that narrowed the scope of my research was the choice of the participating classes, all of the classes were from the same district and participating in the release of the fry field trip in the first three weeks of May. These delimitations created the need for multiple ethical permissions, the dates for participation, and the dates available for participation.

By choosing to frame my research theoretically through deep ecology and systems theory and methodologically through phenomenology the scope of my research and possible outcomes is narrowed. Since this research is methodologically grounded in phenomenology the research design was delimited to the meaning and the experience of restoration from the child’s perspective. Delimiting my research to focus on the lived experience was reflected in my data collection methods, and questions asked to students. Framing my research through system theory and deep ecology also set further delimitations to the research. My theoretical framing influenced the design, data collection, and data analysis.

**Limitations.**

Designing a study that works with teachers, students and schools results in some limitations due to ethical permission from school boards and the nature of working within the
confides of classroom schedule, and classrooms such as: timing of classroom days, and working around other subjects, and limiting the amount of research time so that it did not interfere too much with classroom activities. Trying to derive meaning from child participants set limitations as some participants might have felt a need to please the researcher (me), thus creating the potential to skew the true essence of their experiences and reflections. In addition, responses and feelings from an experience were sometimes difficult to articulate for students and in some cases access to the memory of the experience was a limitation in data collection.

The teachers of the participating classes set limitations on the study as participation appealed to teachers who were already interested in salmon restoration and practicing Earth education activities. In addition to students and teachers outside factors such as weather and timing also set limitations on this study. The timing of the field experience was limited by the interpreters and the timing of in-class portions of the research was limited by the scheduled break times and dismissal times. Weather set limitations on the activities on the release day and the amount of time that could be spent on the “secret spot” activities on the school grounds.
Chapter 4: Sharing the Stories and Re-Storying of Experience

The following section is an opportunity to share the experience, its impacts on the students, their thoughts and feelings, and application of their experience and knowledge through stories. “People give meaning and value to their lives, to their selves, to the places they dwell, and ultimately to the choices that they make through stories” (Willis, 2011, p. 93). Throughout the research the students, teachers, program leaders, and myself had an opportunity to ‘re-story’ the Tranquille river, and include us into the story of the salmon, and their environment. Students’ thoughts and interpretations of the experience will be displayed as a story made up of the compilation of reflections, comments, and transcriptions. My reflections, photographs, and student drawings support the stories from the students.

Through data analysis four overarching themes emerged: 1.) expressions on impacts from the program 2.) connection to salmon 3.) connection to the Earth, ecological systems, and biological processes 4.) human responsibility stewardship, and future applications. Simultaneous manipulation of the data allowed me to highlight quotations that gave the essence and explanations of the lived experience from the students’ perspectives. In addition to the four themes, a story describing the experience evolved.

Explanations of the Experience and Initial Impressions

Raising the salmon in the classroom.

Raising the salmon in the classroom consisted of temperature checks, changing of water, and feeding the salmon in their tanks. Students helped the salmon grow from eggs, eyed eggs, alevin, and fry in their classroom tanks. The following drawings and pictures show the process from the students’ perspective.
This is a picture of the tank that was in our classroom this year.

In this picture I drew the eggs when they had just been fertilized.

Here I have drawn the day that our teacher showed us that the eggs had turned into eyed eggs.
In the following picture I have shown how we saw the salmon's lifecycle from egg to fry in the tanks this year.

Raising the salmon was a big responsibility. Some days we would feed them 4 times a day, and on Friday we gave them a little bit extra food just so that they would be full all weekend and then on Monday we would give them a little bit extra too just to make sure they were fine. The salmon would only miss feedings when we had to clean their tank twice a week. Cleaning their tank consisted of siphoning all the water out, so there was just barely enough for them to swim around and then slowly filling it up by putting your hand so the water will just dump in and not disturb all the rocks, so it would fill up slowly instead of going everywhere. Another part of raising the salmon in the classroom is performing ATU, it is where you take the temperature of the eggs, and the water and then you have to do a math equation and record it (Student Reflections, Interview Transcriptions, Field Photos and Observational Notes, 2012).
Supplemental lessons.

Throughout the year the students engaged in many lessons about salmon that were facilitated by their teachers and district specialists. In addition to raising the salmon in the classroom and participating in a field release day, every class participated in a dissection at some point during the year.

The dissection was very informative and we were able to touch and learn about all of the different salmon organs (Student reflection, 2012).

The release day at Pine Park.

The release day consisted of transporting the fry to the Tranquille River, guided nature walks, free nature play time, release of the Coho fry in the Tranquille River, and stream simulation hands-on activity. The following is a reflection from my journal, which gives an interpretation of the experiences of the release day.

The day starts off with the pelicans in the sky, a rare spotting an ecologist once told me. Next, a nature walk, where children were keen and engaged to share the traditional uses of all the plants.

“look at the beautiful leaves”

“is that poison ivy”

“why is there water here?”

“why are the deciduous trees over there? “

Our walk was not only peppered by curious comments but also by visiting wildlife. A hush comes over the exuberant group as two deer gracefully enter the immediate landscape. Mystified we move on to the stream simulator where children interactively fixed ecological problems.

“we need to save the eggs from the excess silt”
“we have to make it so the salmon can survive”

“pollution from our waste water, factories and cars is not good for salmon”

The children furiously work on the stream simulator activity where they were determined to save the watershed-engaged and with purpose, the simulated watershed is protected. Lunch... then the piece de resistance-the release.

Excitement mixed with seriousness described the mood as we listened for instructions.

“Acclimatize the fish”

“talk to the fry warn them of what is to come, name the fry and wish them well” cautions the interpreter.

Children take care and time as they help their fish to go to the river

“Goodbye Steven and Stacey I will miss you!”

I helped to give each child their fish; children were excited. The day finished with two hikes one to a mine and then on to a moonwalk. Children pushed their edge as they bravely walk down steep hills. Pins of thank you worn with great pride.

“I wear my badges on my bag”

“Make sure you get your thank you pin.”

Onto the bus away we go

“This is the perfect day”


The nature walk consists of students, teachers, and guides teaching each other about local species that play an integral role in the fry’s habitat and the First Nations.

We looked at plants and were shown trees and how First Nations used them. We got to learn a little bit about the wildlife there and why one side of the trail was baron and the other side was really full of life, and we learned some cool things about different types of trees (Student Interview Transcriptions, 2012).
During the release of the salmon, students transported the fry using plastic Ziploc bags filled with water from their classroom tanks down to the river. Next, the students placed the bag in facing up into the river and counted for 60 seconds.

In this picture you can see that we went down to the river with the bags to fill it up with half of the river water and half of the bucket water from the tank so that they wouldn’t get in a whole bunch of shock from the bad water (Student Interview Transcriptions, 2012).

This allowed the fry to acclimatize to the new environment’s temperature. Then the students gently poured the fry and the water into the river.

...This is a picture of when we were releasing them we tried not to dump it out so they don’t hurt themselves. Next, we picked out names and gave the fry words of encouragement and then we released them (Student Interview Transcriptions, 2012).
The stream simulator was a hands-on activity where students came up with solutions to change human activities that harmed the Coho salmon’s natural environment.

![Well this is a picture of the miniature ecosystem from Shuswap to Kamloops (Student Interview Transcription, 2012).](image)

The problem-based, hands on activity consisted of coming up with solutions for the following situations: erosion, pollution from car parks, and factories, human waste disposal, water quality, obstacles for salmon swimming upstream, disturbed spawning gravel from cattle farming, trucks crossing through streams, train track vibrations, and boating disturbances.

Finally, students participated in a secret spot reflective activity before and after the field release day.

![The secret spot was when we went to find a spot where we can be calm and it made you think about stuff in a place where you didn’t have any distractions.](image)
In this picture I am sitting happily in my spot. I found that I was so calm and I was able to take the time to think about time in nature and our time with the fish (Student “Secret Spot” Reflections, 2012).

Impressions of the experience.

From my perspective the overall tone of the field experience day and the program was one filled with love, curiosity, pride, enthusiasm, thoughtfulness, and making connections. My following reflection from the end of my research time in Kamloops starts to reveal the global themes found in the data.

My research time in Kamloops has come to a close; I am blown away by the thoughtfulness, connections, and engagement of the students in the five classes that I have visited. Revisiting my home, and, in a sense, my childhood, has given me a renewed sense of hope. I feel that I have revisited a formative time in my life, and it seems as if this is a memorable experience for the students I have been working with. Most of the students showed me a deep connection to the salmon and connections to the salmon’s natural environment. The love and nurture that was shown not only to the salmon but also toward each other, and to their surrounding ecosystems was inspiring and infectious. I leave my hometown with warm feelings, and excitement to continue this work. Not only am I thinking of future applications but the students are using their creativity, and imaginations to in vision future involvement with salmon and British Columbia ecosystems in the future (Personal Journal, 2012).

My initial reflection started to reveal the tone for the global themes of this research: expressions on impacts from the program, connection to salmon, connection to the Earth, ecological systems, and biological processes, and human responsibility stewardship, and future applications.

Expressions on Impacts From the Program
Overall, the impacts of the program and expression of what the students gained were: positive feelings and knowledge. There were only a few children out of the 83 participants who expressed feelings of disengagement from the program, and they described that this was because they had done the program a few times in previous years.

Positive feelings.

The Salmonid Enhancement program made me feel responsible to be able to take care of something that we all know needed our help. I feel like our class was one of the luckiest classes for being selected for this program. It makes me feel like a good person because I worked hard, and because I was part of it. The experience teaches us to think about other things than ourselves. It was really fun to get to be one of those special important people in the salmon’s cycle of life.

It gave me a lot of happiness because I helped them grow up. I helped them survive by taking care of them, feeding them, helping them learn how to swim and helping them to learn how to come up for food. Without me and without other classmates, we would not have been able to do this. We all worked together, and because of that, there are now lots more fishies in the world. I am so happy that I did this experience and that I was helping salmon and the environment. It made me feel more aware about the environment.

I think that in lots of ways this experience has done positive things for me because I feel I was helping to keep species alive for a lot longer than it would have been. I think once you have done the experience and you have done it well it makes you feel good inside when you realize, I did that well and I did it properly and I helped something out. I also think people who do this program might feel better about themselves because maybe they have taken away from nature but
then they can give something back. I feel like I was giving back to nature and making the Coho salmon population bigger.

Finally, the experience made me feel happy and helpful because you get a good feeling knowing you gave something a better chance at life and living. I am really proud of our class and myself because we did a really good job, and we didn’t lose any fish. Going through this program has helped me to discover what I want to do when I grow up. I want to work with animals, be a scientist, or work for fisheries (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).

The story, the compilation of student quotations about the experience, mirrors my feelings of reciprocity that I had experienced during my experiences with restoration and the scholars work pertaining to reciprocal relationships instigated through restoration activities. According to Edgar (2007), Higgs (1991), and Geist and Galotowitch (1999) in restoration experiences humans gain physiological, spiritual, physiological benefits where emotional needs are being met. The students reflected a sense of satisfaction, and emotional benefits from participating in the SEP. The satisfaction felt by the students, and positive feelings show that in this program students are not only helping the salmon and the ecosystems, but they are in turn helping themselves. Jordan (2003) argues that participating in restoration can help individuals work through some of their guilt from human interactions with the natural world. This was identified through the students’ words.

Knowledge.

Not only did the students gain positive feelings, but they also expressed how important and grateful they were for the knowledge that they acquired throughout this journey.

The program has helped me learn a lot, some classes they learn about salmon by books and drawings and making things, but I learned by seeing salmon actually
grow up, which I thought was a better way to learn. The program teaches you the life cycle and facts that not a lot of people know about salmon. During the whole program we learned so much from all of the different people that were a part of the program, and from doing the raising, and the field trip. I think it helped me learn a little more about how they are really endangered and how you can help. I also think it is good for us to learn about this so we can teach our parents. Going to Pine Park also taught me more about trees, plants, animals, etc. I learned a lot about all of the different plants that are in the ecosystem like the prickly pear, and coniferous, and deciduous trees. I even taught my dad about the different trees.

Another great thing about everything we have learned is that I was able to use my knowledge at home when we were washing the car, which I thought was creating silt and going into the storm drain. I remembered that the silt could get into the salmon’s gills. To fix this I made an aquabags just like the ones we used at Pine Park and put it in front of the storm drain. It made me feel really good that I could do something at home for the salmon. I even want to paint salmon on the storm drains to remind others (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).

At this age children show a natural affinity for factual understanding and applications of knowledge from the natural world (Kahn & Kellert, 2002). I found that through the children’s responses and stories that they were engaged and keen to learn from all participants even from the salmon and through a hands-on discovery approach while engaging in the eight-month program.

The students were like sponges ready to absorb all aspects of information about the salmon and their ecosystems. They were eager to share their knowledge too. With pride and
confidence, a Grade 3 student told me everything there is to know about balsam arrowroot, a plant found in the ecosystem where we released the salmon. I wonder if this affinity to knowledge was a method for the students to get closer to the salmon, and the salmon’s ecosystem? (Personal Journal, 2012).

Through their recollections of knowledge gained and positive feelings the students started to illustrate care, a sense of responsibility, and an urge to protect what they care about. This made me wonder if the children did, in fact, show care and have a connection to the salmon.

Connection to Salmon

Splash, splash, splash scooping of the “babies”, “the pets”, into an industrial bucket that likens the buckets used for pool chemicals. The fish are emerged into a new environment. They are use to regular feeding and monitoring. Children start to appear by the handful, all emitting emotions of concern, excitement, and interest. The careful work and responsibility was on me.... Gulp! Please don’t mess this up, I mutter to myself.

Off I went driving the fry to the river, all responsibility on me and only for an hour. I can’t imagine the responsibility the children had for the whole year. The children’s 8-month adventure was nearing a closure, while the salmon’s were just about to begin. During this trip the older students were paired with the younger. The older buddies showed great care for not only the salmon but also the buddies. Serious, calm energy overcame yet again as the children released the young fry. Excited and worried comments filled the soundscape (Personal Journal, 2012).

The care and concern that was evident in my reflection from the day of the release propagated through all of the data. The students seemed to take on a maternal/paternal-nurturing role towards the salmon, which included: worry, pride, happiness, and feelings of loss.

Raising the salmon made me feel happy because it felt like they were my own kids, pets, or best friends. Seeing them grow was like watching children, they grow so fast. In some ways I felt like I was one of the fish, because we were both
growing at the same time. I was so happy and proud of the fry because lots of them survived. Before I knew it was time to release the fry. When we released the fry in the Tranquille River I was happy, sad, and worried at the same time. I was sad because I have known those fish for a long time, I will miss them so much, and I love them so much. It kind of feels weird because it felt like they were here for a long time and then they just left.

In this picture I am showing that I love the salmon and will miss them very much.

I am a little bit scared because we all weren’t sure what would happen to them and we don’t even know if they are alive right now. I am worried about everything that they are going to face and if we have prepared them enough. I am also a little bit worried that it will be hard for them to adjust to the cold water, and finding their own food.

I am always wondering if they are going to die now because they are actually in the real world now and there are predators, and fishermen. I guess it is up to the salmon now to try and protect themselves. I am pretty sure there has never
been every salmon that was a salmon egg that has been laid come back to the same spot, but I am confident that there will be at least some of them that will definitely come back. It is kind of sad, but not crazy sad, because other things need food. It is part of the food chain, the salmon will need to eat things like maybe bugs, maybe other really small fish and bears and other predators need to eat too so it is just kind of how life goes with them.

Even though I am worried and sad that we have released the fish, I am really happy for them. It makes me feel happy because now they can actually experience what it is like to be living real, instead of getting their food from the sky and swimming around in a tank that has reflective mirrors to make it look real. I am excited for the fry’s new adventure going out into the world to continue their journey to the ocean. The salmon finally get to be where they belong in the wild, and they are free and able to explore. I wish the best for them and I can always remember the fish and how we raised them (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).

The connection to the salmon that the students illustrated corresponds to one of Kellert’s (1996) values of biophilia “… (8) the humanistic value emphasizes the capacity for humans to care for and become intimate with animals” (p. 59). The nurturing that the students showed is reflective of Melson’s (2003) work that concludes that children learn the act of nurturing through responsibility of non-human species. In addition to learning nurturing, Kahn and Kellert (2002), express that children of this age have a tendency to see themselves reflected in nature, this is apparent in the student’s reflection that indicated that she felt like she was one of the fish: growing at the same time. The strong sense of care and concern for the salmon and their
environment shown through the students’ perspective illustrates Sobel’s (1995) argument that children ages eight to 12 have a natural affinity to care for the natural world.

**Interest in Ecological Systems, Biological Processes, and a Connection to the Earth**

The students had a fascination with the biological processes that the salmon were undergoing, as well as components of the salmon’s natural ecosystem. Observing and being part of natural salmon processes, and the act of returning the salmon to their natural ecosystem offered an opportunity for students to make connection about the bigger natural system. For some students this process allowed for connections with the Earth to form.

It was almost as if we could pause in time and observe, usually if you looked at a river you would only see water rushing by. Having the tank in our classroom allowed us to see what goes on with the salmon. One of the most memorable moments of this program was when we saw the eggs squirt out of the female salmon. The most amazing thing is that at first all we had were these orange eggs, that were kind of a mushy gel and then at the end once they were fertilized they some how turn into a fish with a whole body structure that has got eyes and flexibility and is not as fragile anymore. It made me wonder about how that is even possible. We could see first hand the stages of the salmon, as we watched them begin their lifecycle. I still remember the day the eggs hatched over night. Once they were fry it was really
cool to watch them because there was a lot of different behaviours, some were really fast, some would move around, and others would bunch in the corners. Even though they were different, everybody, every single fish had a friend kind of.

On the day of the release it felt like we were returning the salmon to their home, and they could finally be free. It seemed to be a good place for the salmon because there are a lot of good nutrients in the trees and soil. On that day it made me feel good because I was bringing back to nature, and nature keeps us living because the trees give us oxygen and plants give us food and stuff. I felt that, I guess it kind of brings everyone closer to nature and makes us understand that there is a balance; that makes me feel happy and glad to learn (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).

In this story the student is making connections between the actions that they are doing and how the experience is helping the students become closer to nature. The students have gained an appreciation and interest in the natural world through engaging, and showing interest with the biological processes of the salmon, and the salmon’s ecosystem. According to Kellert (1996) and Kahn (1997), these students are exhibiting a form of biophilia and connection to the Earth stemming from the ecologistic-scientific value of the biophysical patterns, structures, and functions of nature (Kahn, 1997; Kellert, 1996).
The students have shown in this research that salmon restoration activities have the capacity to restore relationship with the natural world. Not only have they shown the capacity to strengthen their relationships to nature, but they are also giving new stories, meanings, associated with their experiences with species and in nature. This illustrates Higgs’ (1991), and Miles et al. (1998) arguments that restoration activities help to restore humans’ place in the natural world, and re-story the land.

**Human Responsibility Stewardship and Future Applications**

During my experience working with the children it became apparent that some of the students were developing a sense of morality pertaining to human’s involvement with the Earth and its resources. Both Kahn and Kellert (2002) and Sobel (1995) express that as children near their early adolescents stages they begin to gain a sense of morality and a drive to save and protect what they care about. In this program the students showed a deep sense of responsibility to fix some of the ecosystem issues caused by human activities.

I think that if we didn't do anything to salmon in the first place then we wouldn't have to take care of them but since we did then I think it is an important thing for the earth because every time a species goes, then things have to adapt and change, adapt and change, and move to different places so then we would probably lose some birds, and eagles or other predatory birds would probably not be not here anymore. Then that takes away from other things and then other things may get over populated and it just messes up everything. I think it is important that we are helping the salmon so they can kind of be there, even though they are getting eaten by other things, but if they weren’t there then the birds would leave and then mice and those kind of things would be out of control, and if
things get out of control then who knows what will happen really. It kind of opens your eyes a little bit because you realize that you have done some of the actions that harm the salmon.

I really think that if we didn’t step in in the first place I don’t think the salmon thing would have been a big deal, but I think that since we did, we need to come back in to help on the other side, the end of replenishing. We know now that there is overfishing and instead of just taking and taking and taking because eventually if we just keep taking then the salmon are going to start to disappear and then they can’t repopulate as much. We can’t just take, without giving back.

This program has changed my look on salmon I guess, to me salmon aren’t just something you put in a frying pan and feed your family for dinner anymore, I understand that they are an important part of the environment and food chains. It makes me feel angry that salmon don’t have to just deal with bears and other natural predators; there is pollution as well. I think nature has given us a lot and we haven’t really given back to them we have just polluted them, but now we know from the salmon simulator model how to do some things that can help bring back salmon populations (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).

After participating in this program and discussing some of the moral issues about helping the salmon, many students expressed an interest in doing both immediate and distant future activities that would help salmon populations in British Columbia.

In the future maybe even when I get into high school I could learn more about how salmon work and I would really like to do this program over again in other classes, I have heard from some of my friends in high school that they still
remember this program and want to do it again as well. I even want to come back to this school from my high school to help them set up their tank and teach the grade sixes about what to do with the tank and salmon.

I also thought that maybe when I grow up I could do some of the solutions that we came up with in the stream simulation in real life, or maybe I can find out something that I could do at home to help the salmon. I am interested in learning about painting salmon on storm drains. After the field trip my friends and I were talking about how we wanted to return to Pine Park or maybe volunteer for something like this in the future. After meeting some of the people who work for DFO, I have started to consider working with fish as a career in the future (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).

The SEP experience offered an opportunity for the students to connect with a local environmental issue. By engaging with the salmon, the processes, and the experiences so closely the students started to show a sense of morality and urgency to continue work that helps salmon. According to Moser and Diling (2007) people and children engagement in environmental issues is increased when people can see the affects both temporally, and locally. In this case the students were able to make connections to the work they were doing and how they were making a difference. The students also placed great importance in needing to take action to fix some of the problems our species has instigated. Responsibility to fix problems created by humans is congruent with Jordan (2003) argument where restoration activities are ways for humans to work through some of the guilt they may have for degrading actions that our species have done.
Chapter 5: The Ending of this Story (Conclusion)

I have learned that every story goes through the succession of beginning, middle and end. For this story the beginning was the introduction to myself, the research, and was supported by the voices of the scholars, and the middle consisted of the methods, data analysis and discussion. So here we are at the “The End” so to speak, the ending of the story: the conclusion. I have chosen to share this thesis as a story as I see stories as a vehicle to not only share experiences about the natural world but also to include people into the greater ecosystem story. According to Willis (2011) “what was missing from analysis of relationships between experiences in nature and environmental values was the concept of stories” (p. 93). Stories are the missing links that join experience, ethics, and ecological identity (Willis, 2011). The following is the ending from my perspective: how I feel the story of salmon restoration in Kamloops, British Columbia ends for me.

_I sit here back at my home in Victoria, on a jagged rock in amidst a garry oak ecosystem-an ecosystem undergoing many restoration activities itself to continue its ecological importance. Here I find the perfect “secret spot” for me to reflect back on this research experience. As I take time to think about the participation, personal reflections, research, and data analysis I ask myself if I felt as if the children placed meaning on the salmon restoration experience. I questioned and wondered if some of the feelings that I had towards my experience in restoration and the meanings I placed on the experiences had been reflected through the voices of the students. To me this experience was like looking into a calm glassy lake: I saw, through the expressions of the children a reflection of myself, and a reflection of moments in time that I felt to be quite formative._

_I listened and I observed to the voices and actions of the children. The voices of the children were telling me that they felt great care for not only the salmon in their classroom, but also the salmon in the natural world. They expressed sad emotions when recounting the moments they said goodbye to the salmon. They showed care and concern, and nurtured the salmon as if it_
were their own child, pet, or best friend. They told me that through this experience they gained knowledge, positive feelings, and helped them to connect with nature. I observed that not only were they helping the salmon, but, in turn, the experience with the salmon helped them as well. They also told me that they were engaged, and interested and felt a responsibility to help the salmon, and the Earth not only in their immediate future but in their distant future as well.

Who knows if the children will look back on this experience 10 or 15 years later and wonder if this time, this experience, was a formative time for them? Who knows really if these experiences will shape their further life decisions, or the future involvement and relationship with the Earth, but what I do know is that for now, at least, the children found this experience to be an important, engaging, fun, exciting, and memorable one and together we were able to restore a little bit of the salmon population, restore some connections to the Earth, and re-story the river and its ecosystem in Kamloops (Personal Journal, 2012).

The story of this research illustrated experiences that helped to restore and re-story the land. Through re-storying the land the students placed meaning on the ecosystem and included themselves into the bigger natural ecosystem story. Although this is the end of this part of the story, the story of child meaning making and salmon restoration continues on, and further research and stories could evolve in the future. Further research stories could develop through researching impacts from the program as time passes. Research on following up with the students expressions of impacts from the program in the near and distant future, would help to explore if the experiences were formative.

As I have expressed at the beginning of this thesis, this story is not just about my experiences, and my perceptions it is about the experiences of the children participating. Therefore, I will end this thesis through the voices and the lens of the children.

The salmonid program was an amazing experience that I think I will remember for a long time. I may not remember everything to the detail that I do now because it was just a couple of days ago but I will definitely remember
releasing the salmon, going to Pine Park, and taking care of the salmon in our classroom. We had a lot of really great experiences with the salmon, and learned so much from them. I felt so proud of myself, and everyone in my class for helping with the salmon and the environment. It was really memorable to know that we were helping the salmon. It made me feel really good about myself knowing that I could give back to nature, instead of take from it.

I really felt connected to the salmon and it was so amazing having them in our class. When we released the salmon at Pine Park it was really sad to see them go. We were concerned about them, and a little worried, but I think they will be good hunters and you can see at Pine Park there are trees, so I don’t think they will be too warm, or too cold. We are all happy for the salmon and we hope for the best for them.

I felt really glad that this experience was such a success and really thankful for all the people that helped us on our salmon adventure; it was so much fun and I feel really lucky that our class got to be a part of this. I wish we could do it again and I am really sad that it is all over (Student Reflections, Interview Transcriptions, and Observational Notes, 2012).
References


Appendices

Appendix 1: Letter of Invitation

Date April 23, 2012

Dear Teacher,

I would like to formally invite you and your class to be part of a research project that I am conducting. This project is part of the requirement for a Masters Degree in Environmental Education and Communications at Royal Roads University. My name is Kara Fridriksson and my credentials with Royal Roads University can be established by e-mailing the Associate Professor, School of Environment and Sustainability.

The objective of my research project is to explore children’s experiences while participating in a one-day ecological restoration field trip, and preliminary activities with the Salmonid Enhancement Program (SEP). I am fascinated to gain a deeper understanding of child experience when participating in environmental education projects, specifically ecological restoration. I hope that my research will aid teachers, and environmental educators with future design of ecological restoration programs that are more inclusive for children.

Your name was chosen as a prospective participant because of your interest for environmental education through involvement with the salmonid program in your classroom. It was hoped that you might be interested in engaging in this activity with your class. I would be thrilled to work with yourself and your class for my research.

Your class participation in this research will take place over a three-week period in May and June and will include:

- A 30 minute reflective activity at your school one week prior to salmon release day trip
- A short reflective activity at the end of the salmon release field trip (this can be done partially on the bus ride home or the next morning first thing for 20 minutes.)
- Individual students maybe selected for a 20-30 minute semi-structured interview to take place one to two weeks after the field trip and can be done during non-instructional times or silent reading. There will only be 6 total children selected for interviews from all of the 5 classes.

My research project will consist of students’ written reflections, observational notes and photographs (photographs of children will not be published in my thesis) from the day and transcriptions and notes from semi-structured interviews. In addition to submitting my final report to Royal Roads University in partial fulfillment for a Masters in Environmental Education and Communication I will also be sharing my research findings with The Kamloops School District.

Thank you for your time and your interest

Sincerely,

Kara Elyse Fridriksson
Appendix 2: Research Consent Form (Parents)

Dear Parent,

Your child has been selected to participate in a research program. The objective of which is to explore children’s experiences while participating in the Salmonid Enhancement Program with the Kamloops School District.

My name is Kara Fridriksson, and this research project is part of the requirement for a Masters in Environmental Education and Communications at Royal Roads University. My credentials with Royal Roads University can be established by e-mailing the Associate Professor, School of Environment and Sustainability. This document constitutes an agreement for your child to participate in my research project.

Your child’s contribution to this research will include:

- An outdoor lesson and guided reflection at school one week prior to the field trip
- A short guided reflective activity on the day of the salmon release
- If selected a 20-30 minute interview about their experience (to be conducted at school).

Information will be recorded and where appropriate summarized, in anonymous format, in the body of the final report. Photographs of children will only be used as prompts for interviews and will not be published in the final document. At no time will any specific comments be attributed to any individual unless your specific agreement has been obtained beforehand. All documentation will be kept strictly confidential.

All raw data/information will be stored in a locked cabinet for the duration of the study and 2 years after the study, after 2 years the raw data will be destroyed. Data/information will not be retained pertaining to an individual who has withdrawn at any time.

A copy of the final report will be published and archived in the RRU Library, and will be available to participants. In addition to submitting my final report to Royal Roads University in partial fulfillment for a Masters in Environmental Education and Communication I will also be sharing my research findings with The Kamloops School District.

Your child is not compelled to participate in this research project. If your child chooses to participate, they are free to withdraw at any time without prejudice. Similarly, if you choose for your child not to participate in this research project, this information will also be maintained in confidence.

By signing this letter, you and your child give free and informed consent to participate in this project.

Student Name: (Please Print): ______________________________________________________

Student Signature: ________________________________________________________________

Parent’s Name (Please Print): _______________________________________________________

Parent Signature: __________________________________________________________________

Date: _____________________
Appendix 3: Research Consent Form (Student)

RESEARCH CONSENT FORM

Dear Student,

You have been selected to participate in a research program. The goal of the program is to help get feedback from children who participate in the Salmonid Enhancement Program.

Your experience will include:

- An outdoor lesson at school one week prior to the field trip
- A reflection on the day of the salmon release
- If selected a 20-30 minute interview about your experience participating in the salmonid program. (to be conducted at school).

Please read through this letter, and have your parents read through their letter with you.

If you would like to be a part of this project please sign and date below.

Student’s Name (please print):
___________________________________________________

Student’s Signature:
___________________________________________________

Date: _______________________________________________
Appendix 4: Secret Spot Questions (Younger Grades 3-4)

Name: ____________________ Date: ____________________

My Secret Spot

Draw a picture of something from your secret spot:

Why did you pick this place for your “secret spot”?

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What were your thoughts and observations (smell, sight, sound, touch) at your “secret spot”?

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How did you feel while sitting in your “secret spot”, and why did this experience make you feel this way?

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Do you have any other comments that you would like to share about your secret spot?

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Appendix 5: Secret Spot Reflection Guide (Older Grades 5-7)

Name: ___________________ Date: ___________________

My Secret Spot

Why did you pick this location for your “secret spot”?

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Write about your experience in your “secret spot”. What were your thoughts and observations (smell, sight, sound, touch).

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How did you feel while sitting in your “secret spot” and why did this experience make you feel this way?

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Do you have any other comments that you would like to share about your “secret spot”? 

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______________________________________________________________________
Appendix 6: Salmon Reflection (Younger Grades 3-4)

Name: ______________________  Date: ______________________

Salmon Reflection

Draw a picture of a memorable experience from raising and releasing the salmon.

What about your experience raising and releasing the salmon was memorable for you and why?

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How did you feel when you released the salmon? Why did you feel this way?

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How does participating in the Salmonid Enhancement Program all year make you feel? Why does this experience make you feel this way?

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Do you have any other comments about your experience with the Salmonid Enhancement Program?

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Appendix 7: Salmon Reflection (Older Grade 5-7)

Name: _________________________ Date: _________________________

Salmon Reflection

What about your experience raising and releasing the salmon was memorable for you and why?

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How did you feel when you released the salmon? Why did you feel this way?

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How does participating in the Salmonid Enhancement Program all year make you feel? Why does this experience make you feel this way?

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Do you have any other comments about your experience with the Salmonid Enhancement Program?

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Appendix 8: Interview Guide Questions

INTERVIEW PREAMBLE AND QUESTIONS

As you may remember, my name is Kara Fridriksson and this research project is part of the requirement for a Masters in Environmental Education and Communication at Royal Roads University.

This interview will take approximately 30-40 minutes to complete. You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time.

Questions:
This interview will start with the same questions as everyone else interviewed.

Can you describe a typical day for you at school
1. Walk me through your experience outdoors in a typical day
2. Tell me about an experience outdoors that is memorable to you.
3. Can you describe your day at Pine Park where you participated in the Salmon project?
4. What about your experience raising and releasing the salmon at Pine Park was memorable for you?

Now, for this portion of the interview, we are going to have a look at your reflection from your experience at Pine Park and some photographs from the day. The general theme of the questions will be focused around emotions on the experience and how you experienced the day.

Sample questions:
1. Here is your reflection from the day, let’s read through it, and then I am going to ask you if you would like to further explain anything from the reflection or if there is anything you would like to add.
2. I see that you wrote about this activity from the day, could you tell me more about why you wrote about this, and what about this experience interested you or was specifically meaningful for you?
3. From this picture I noticed that everyone seemed particularly interested in this activity. Can you explain what is happening in this picture, and why it might seem interesting or meaningful?
4. Here is a picture of some eggs, and here is a picture of releasing the salmon into the river. What do you think about these photos?

5. Are there any emotions that came up when looking at these pictures?

6. After spending a day restoring the salmon and helping the Earth, do you think that this experience in nature has done anything for you?

1 The picture is from “Welcome to the Salmonid Enhancement Program (SEP),” by J.
7. I noticed in your reflection that you talked a little bit about the way you were feeling on the day, would you mind talking a little bit more about this and talking about why you were feeling that way?
8. What do you think about raising salmon? Do you think it is important for the Earth, for people to participate in? Or helpful for people?
9. Is there anything else from the pictures that I have from the day or from your reflection that you would like to talk about?

Thank you very much for participating with this interview and your contribution to this project. Do you have any questions?