Evolving an Ecological Way of Thinking: Social Interactions and the Construction of Environmentally Sustainable Behaviors in Adolescents During Expeditionary Learning

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Evolving an ecological way of thinking: Social Interactions and the Construction of Environmentally Sustainable Behaviors in Adolescents During Expeditionary Learning

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A Dissertation Submitted to The Graduate School at the University of Missouri-St. Louis in partial fulfillment of the requirements for the degree Doctor of Philosophy in Education Teaching and Learning Processes

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Abstract

The people around us - as well as the methodical progression of education through content - often shape our relationship to the world. Currently, Earth is at a crossroads, which requires humans to act and live more sustainably with an intentional environmental ethos, whether for literal survival or for slowing Earth's resource degradation. Situated within the models of ecological contributors such as Aldo Leopold, transformational experiences, particularly when processed with self-reflection, writing, and social interaction, can change behaviors and priorities in individuals. Additionally, by recognizing the place of social learning components in expeditionary, informal, or adventure-based education settings, the potential for environmental education to meet the transformational goals needed to address a planet being quickly altered by humans can be met. High Mountain Institute, an adventure-based expeditionary semester high school in Leadville, Colorado, is the model I used for observation and basic interpretive qualitative analysis to determine how social interactions work together with experience to change or further develop environmental behaviors and ecological thinking. The participants were 15-17-year-old high school students attending a five-week immersion experience into expeditionary backpacking and place-inspired education topics. As a result of this experience, students created a sense of community and empowerment to plan for a healthier future, increase contact with nature, and inspire others upon return to their homes and traditional schools—indicating potential for behavioral change. These changes were influenced by the peer-driven modeling and relationships with college-age intern staff, teachers who also lived the behaviors, and intentional trust-based community building curriculum design. Observations of these changes over an intensive five weeks gave hope that intentional social and nature planning can authenticate transformational environmental education.
Dedication

My doctoral pathway, research, and dissertation journey has been long pathway through my own consciousness. However, this journey of learning and growth came at various costs to those I love most. My husband, Jon, is a very patient and supportive partner, and never once did he complain or express an ounce of anything except empowerment no matter what schedule I kept through this process. My children grew up with my dissertation as their norm. Their mom always had something to do, but they made up for it with hugs and help in the lab. I dedicate my work and this writing firstly for them: my husband to celebrate the fruits of his continual encouragement and my fierce daughters who know their mama can work through tears to eventually be stronger. Girls, this planet is forever part of you, and you are a beautiful part of it; shepherd it well.

Secondly, my other loves are my students. For over twenty years, you entered and grew within my classes. I watched you grow and love the animals, plants, and all of earth around you. I do what I do because of you.
Acknowledgements

This research and writing process benefitted greatly from the guidance and expertise of my dissertation advisor, Dr. William C. Kyle. His patience, notes, conversations, and questions were an essential part of my learning and development as a research writer and as a professor learning to guide my own students through this process. The entire committee, Dr. Theresa Coble, Dr. Charles Granger, and Dr. James Wilson, offered a balance of support, smiles, and probing questions to get me to understand the core of this research. I cannot believe everyone read it all! Thank you so very much.

Through this process, I had the fortune of many financial supporters. Initially, the Center for Inquiry in Science Teaching and Learning (CISTL) within its Cooperative Approach to Doctoral Research in Education (CADRE) funded my coursework, research assistantship, and teaching assistantships. During my core dissertation semesters, the Des Lee Collaborative Vision provided scholarship funds to assure affordability through graduation with my Ph.D. Finally, I am also very grateful for the John A. Henschcke Scholarship to assist with the expenses accrued whilst collecting dissertation data.

This work is primarily about human relationships—both with each other and with the Earth. I focused on High Mountain Institute, and I am thankful for allowing me access to their community and peace. I need to give a moment of honor to this planet as well for the resources it gave to this dissertation: fossil fuels for electricity, paper production, and transportation, renewables for reused materials and electricity, food, oxygen, water, and sheer inspirational beauty. In a minimal attempt to give back to the Earth, I raise, collect, germinate, and plant more Nebraska Native prairie plants to expand the Concordia University Nebraska campus prairie rehabilitation project. It is a miniscule sequestration payment for the bounty Earth provides.
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Chapter 1: Introduction

THERE was a child went forth every day,
And the first object he look'd upon, that object he became,
And that object became part of him for the day or a certain part of
the day,
Or for many years or stretching cycles of years. (Whitman, 2007)

Environmental educators often enter the field through this romantic view of nature
and bring children into nature for magical experiences and idealized consequent learnings.
Walt Whitman, in this poetic statement, alludes to the crux of environmental education:
identification with nature that sustains throughout a lifetime of decisions and behaviors
(Bogner, 1998; Liefländer & Bogner, 2018).

In recent years, I have spoken with informal educators at the St. Louis Zoo and the St.
Louis Science Center. Unifying questions consequently emerged centered upon the moment
-during a visitor’s or student’s experience - that triggers a personal interest and commitment
to continue learning or sparks a passion for the issue presented. In fact, I was asked directly,
“Why does an experience click with one visitor, but not another?” These questions are not
new to science education, a field that for decades has seen success sparking passion within
some students while pushing away other students.

Being a part of nature and constructing meaningful outdoor experiences has been
acknowledged as essential to enhance multiple facets of environmental education (EE):
enjoyment, empathy, care, conservation and tangible practice with science concepts (Bogner,
1998; Liefländer & Bogner, 2018). Classic founders of ecology and conservation historically
documented this connection: Aldo Leopold, Gifford Pinchot, John Muir and Rachel Carson for
instance. The current national concentration on standardized tests and accountability causes
many schools and researchers to scramble and hold fast to the co-construction of meaningful
learning through diverse experiences with students. Whether in the form for transformative
education, which addresses the needs of the community, or in the adventures of expeditionary school, experiences continue to be a key part of addressing the whole person within the context of science education. This truly illustrates the strength behind the statement that in order to address the critical needs of this world, we must know the workings of the planet and become familiar with our experience on this planet. A cornerstone of environmental education, Aldo Leopold, emphasizes this notion in his beloved essay, “The Good Oak”. “There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace (Leopold, 1966, p. 6).”

Unfortunately, environmental education has suffered greatly from negative emotions and overwhelming hopelessness that students and educators often feel as a result of immersing into issues of EE—a feeling that the earth is doomed regardless of our seemingly insignificant actions. We can even observe this in the political discourse and media-covered hot topics: skepticism of science brews in the negative feelings from science education. Hope and empowerment seem to be drivers for connecting environmental issues with environmental responsibility (Wilks & Harris, 2016). Some organizations and schools opt to address this conundrum by weaving expeditionary learning, field experiences and adventure into the learning process in order to encourage participants to construct a genuine respect for nature and an understanding of their humble place within it, thus hoping for an increased probability of respect for nature coupled with behavior shifts toward sustainability. This involvement, hopefully, then leads to a life-long, positive association with nature (Martin, Bright, Cafaro, Mittelstaedt, & Bruyere, 2009).

The High Mountain Institute is a small, private semester and gap year high school in Leadville, Colorado, specifically focused on using the natural wilderness as a space for
personal growth, leadership development, and community building with the purpose of developing thoughtful and critical thinkers who have a sense of shared responsibility for each other and for the world. It seeks to complement students’ regular school experience by offering an alternative semester or summer of study at the Institute. Students are members of the residential campus and live in close quarters with peers and teachers. They even learn to independently prepare food for each other. The school maintains full accreditation through NAIS (National Association of Independent Schools) and the ACIS (Association of Colorado Independent Schools). While the curriculum meets state and AP expectations, is fully interdisciplinary, and engages at a college-preparatory level, the entire curriculum and breadth of learning experiences depend on environmental engagement and wilderness expeditions. Students may come for one of the two academic year semesters or for a five-week summer term to enhance their experience, supplement their learning, and expand their college resumes.

The program is highly expedition-oriented. Due to the mission of the school and the highly immersive experiences, this school inherently selects students with a pre-existing interest in environmental issues and wilderness experience. Additionally, they look for students who already succeed in the traditional school setting and demonstrate established communication skills. For the purpose of this research, HMI serves as an interesting setting to observe enhanced social learning and social interaction in a very nature-oriented, naturally beautiful location in the Rocky Mountains. It is unknown how students use their extended time of experiences to build upon their existing environmental interest and behaviors or whether the on-site social interactions affect environmental learnings, attitudes, or behaviors. Such understanding could help the program, which focuses heavily on personal growth and adventure, to consider the social interactions which may shape the personal
experiences. Changing behaviors toward empowerment for environmental sustainability requires insight into experiences and interactions which may ultimately influence behavioral changes. This experientially-focused community at High Mountain Institute offers the opportunity to look at some of these observable interactions. To date, the majority of analysis regarding the development of social learning of ecological consciousness derives from either extracurricular outdoor learning; that is, environmental education not embedded or woven into the typical school curricula (Johnson & Manoli, 2011; Robelia, Greenhow, & Burton, 2011; Sibthorp & Jostad, 2014).

Expeditions and adventures are exciting and tend to draw participants into the moment of the experience, but upon an extended timeline viewpoint, engagement and personal connection tends to result in a peak graph. This means the purpose or intended effect of a general experience tends to be low prior to the experience, peaks during and shortly after the experience, but after some time following the experience the effect decreases back to original levels, and occasionally even lower (deBloom, Geurts & Kompier, 2012; Fine, 1979; Martin, Bright, Cafaro, Mittelstaedt & Bruyere, 2009). This then leaves many participants with pleasant memories of the experience and comments such as, “That was fun,” without much other concept-oriented detail, much less lasting behavior changes, which may have been desired through the experience (Bell & Holmes, 2011; Gass, Garvey, & Sugerman, 2003). In terms of environmental education components, these adventures and expeditions are often planned so participants assimilate ecological thinking into earth-aware, more sustainable behaviors after the experience.

**Conceptual Framework**

Expeditionary or environmental education leaders cling to anecdotes of students who connect with the experience, as well as hope the experience plants the seed of environmental
care into nearly everyone. However, it becomes clear there is much unknown regarding why some people connect deeply to the experience, affecting future environmental thinking, while others merely view it as fun and fail to enhance their ecological consciousness and consequent behavior as a result. I will analyze these experiences through the words of adolescent participants to determine how social interactions and informal peer processing of experiences shape or change ecological attitudes and aspects of their ecological consciousness development.

The participant’s learning process and assimilation of ideas or behaviors from expeditionary learning experiences is minimally documented or explained (Leberman & Martin, 2004; Sibthorp, Furman, Paisley, Gookin & Schumann, 2011). Participants in such experiences tend to report social connections and group bonding as the most important parts of expeditionary learning experiences (Bell & Holmes, 2011). This sets the stage for curriculum and implementation in schools using expedition to use this social desire to belong to a group, however explicit on-going social interaction and maintenance of this sense of belonging are rarely planned (Bell, Gass, Nafziger, & Starbuck, 2014), and not directed toward the development of ecological consciousness. Much of the literature (Bell, Gass, Nafziger, & Starbuck, 2014; Mortimer & Mclaughlin, 2014; and Vernon, 2013) in adventure education and social dynamics cite Fine (1979), who uses the structured and fairly homogenous Little League Baseball teams to define the concept of idiocultures and mini-cultures within small groups of people. Thus, more investigation should be a natural next step as to whether the concept of idiocultures indeed holds true in more diverse educational settings that fluctuate repeatedly between formal class-like gatherings and informal outdoor explorations. If this interpretation of social dynamics seems to be accurate, then incorporation of these idioculture influences on learning of environmental education conceptual and behavioral learning should be
purposefully included in the experience planning. In short, planning for multiple mini-cultures within a group of students and adventurers would make limited time for learning during expedition more efficient.

Social learning in various group scenarios has long since been considered a standard by which we expect students to learn in classrooms, even outdoor, experiential learning settings (Dewey, 1900; Vygotsky, 1978). However, the behavior and attitudinal changes expected from environmental education and expeditionary learning are typically focused on the individual making sustainable choices or learning outdoors (Brookes, 2004; D’Amato & Krasny, 2011). While daily life choices are associated with individual decision-making in highly social environments, such as school and expeditions, the context in which people make those decisions matters to fully understand the reach and limitations of experiences and environmental education. That is, we as humans experience learning and interpret our experience using a varied context. Many educators, both formal and informal, analyze the physical learning environment, materials, and curriculum in order to understand the types of connections participants have with the content. Educators, school systems, or informal learning facilities often de-emphasize, whether intentionally or not, social contexts and patterns as a key connection with the desired environmental attitudes and behaviors. With the strength of peer pressure, peer accountability, or even bullying that can be so influential in many populations, particularly among adolescence, it is critical to consider the social context in which students participate in experiences intended to guide them towards living a more environmentally sustainable life. Thus, the purposeful planning for and facilitation of social interactions within natural environments and learning opportunities should be an important component of teacher and program development.
Purpose of the Study

The purpose of this study was to investigate how social interactions with friends, classmates, family, and instructors contribute to adolescents’ development toward ecological consciousness, as observed through reflections, behaviors, and discourse. These observations began during the first week of a five-week summer session for tenth, eleventh, and twelfth grade students. They compared with observations made during their third week and finally during their fifth week. Observations occurred during sessions, meals, down time, and expedition. These observations allowed me to relate social interactions and expeditionary models to developing environmental education programs and instructor development.

I used my observations, field notes, and participant documents to construct a social learning perspective for the otherwise individual-focused expeditionary learning. While adventure is occasionally sought by individuals, even in terms of team building, during some life stages, the application of social learning (Bandura, 1971; Vygotsky, 1934/1987) and situated learning (Lave & Wegner, 1991) would more fully embrace the experience during expeditionary learning—thus bridging a gap and forming a partnership between informal adventure education and formal education groups taking expeditions. These observations established goals both with the educators, as well as the organizations providing expeditionary, environmental learning. Student artifacts and interviews also provided insight into experiences before, during and after the expeditionary learning experience. This allowed me to look for ecological and sustainable thinking and behavior development in secondary level students. By identifying and recognizing where students attribute this development of ecological consciousness, educators may more firmly root desired learning and behavior outcomes into the natural and meaningful social contexts constructed by student
participants. After all, friendships and social interactions are a strong influence into the daily life and routine of adolescent students (Ojanen, Sijtsema, & Rambaran, 2013).

Collectively, these observations allowed me to use High Mountain Institute (HMI) curriculum materials and detailed student interactions and observations. With this, I constructed an understanding of the individual’s personality, attitudes, behaviors, future plans, and social interaction in order to look for patterns regarding environmental actions, thoughts, and plans. Ultimately, this information is useful for teacher and educational system development, particularly for the planning for participation in environmental learning experiences with students and the consequent processing after the experiences. By fostering relationships and social discussions amongst peer social groups, environmentally sustainable daily behaviors and general life choices become more normalized and even expected from interactions with peers. The focus, then, shifts from mere content knowledge to empowerment toward change.

**Delimitations**

While I selected a program already established and populated with students and educators who have an interest, to some degree, in nature and wilderness experiences, the students arrived with considerably different experiences and connections with nature. The facility may not mirror typical school experience or spectrums of varied diversities, but the focus on nature and that pre-existing commonality allowed me to concentrate on the social connections and their relationships with the Earth.

Similarly, I am an educator who has worked to connect students with the Earth for over twenty years. I am currently a biology professor at a small, private university in the Midwest United States (Concordia University Nebraska). I am not employed by HMI, although I do continue to maintain a professional acquaintance with them. Prior to collecting my data,
I visited the school, spoke with administrators and teachers, and made time to get an understanding for the school culture. Prior to conducting this research and throughout my personal teaching career, I organized and led student trips to local field sites as well as expeditions requiring considerable travel to the following locations: northern Wisconsin, southwestern Colorado, Alaska, New Brunswick, Costa Rica, Belize, and northern Manitoba for middle school, upper elementary, and college age students. Expeditionary learning is a key part of my personal educational philosophy. While not an interviewer or facilitator, I am still a participant during my data collection through my informal interactions, smiles, casual conversations, and presence during my time at HMI.

Limitations

Students choose to attend the school, and the school selects students who best match their environmental, experiential focus. This may seem as if it limits interpretation, but rather it helps me look specifically at how students alter their choices and conversations about nature within a context that facilitates those conversations. Additionally, within the environmental movement, there exist different understandings of human relationships with nature. For instance, one may view conservation for utilitarian purposes versus purist preservation. By looking at a select population that already has a degree of environmental interest, I will be able to focus more on the social effects on attitude, acquisition, and behavior. Once the observations are tangible, I can formulate an integration of social attitude building to evaluate with students in a more typical learning environment.

These data are a brief look at moments in time during the students’ experience, five weeks, and will not include longitudinal data. Future studies tracking patterns of social interactions into actual behavior choices and changes in behavior over time would provide interesting conversations about behaviors over the lifespan. However, I concentrate on the
phenomenon of this particular experience as represented by the students and educators choosing to spend their summer at HMI during my observations.

**Significance of the Study**

Many extended field trip locations serving schools for expeditionary or field-based environmental learning opportunities have teaching staffs comprised of volunteers, temporary staff, or employees who are degreed in related content studies, though do not possess a background in education focused upon teaching and learning processes. Current research in expeditionary learning, adventure education, and field-based, informal environmental education often focuses on individual gains and character development, and the lasting implications are harder to determine. This research reports on the student changes made with immersive experiences and facilitated social interactions within a wilderness-based facility and expeditionary learning. This research also provides an avenue for educator planning at environmental education facilities, as well as allow classroom teachers to recognize the variables that may or may not influence assimilation of learning into behavioral representation.

Earth is at a crossroads, or perhaps has recently surpassed, a crossroads, of environmental change and degradation. As most human residents are living now, we are significantly beyond our sustainable carrying capacity (Brown, 2012; The Worldwatch Institute, 2017). In fact, US society is routinely bombarded with claims of environmentally-friendly packaging or natural products. Thus, consumers become confused by the use of such terminology (The Worldwatch Institute, 2015), and often turn to social media or casual conversations with friends to make decisions regarding personal choices about purchasing without considering environmental costs. The ecological consciousness embedded within human behaviors and expectations of convenience are a massive threat to any strides made.
to modify environmental attitudes and reconstruct a lasting ecological way of thinking. Attempts to unpack the powerful influences of ecological consciousness and its development will promote efforts to construct environmental education and experiential learning processes to fully use those influences rather than fight against them.

In 2016, the then Secretary-General of the United Nations, Ban Ki-moon, gave his farewell address to the UN. “I also stand before you with deep concern...The Earth assails us with rising seas, record heat and extreme storms. And danger defines the days of many” (Ki-moon, 2016). The reality is that the future of our humanity and our civilization is truly at the mercy of climate change, and perhaps the most critical connection is the sheer global crisis involved. In short, our species has not seen such an enormous global economic problem this complex. It will touch all humans, but not equally. In looking at this environmental and economic impact inequity, we have to remember our bias of existence. This means that those who will be most severely hurt are yet to be born (Sachs, 2015).

Annual global emissions of CO₂ continue to increase dramatically. It did not end with the Industrial revolution. In the last 54 years, the emissions increased globally by over 21 billion metric tons. From 2016 to 2017, these emissions increased by 1.6% after three years of minimal increase. This is a shockingly significant backward step in merely one year. In 2017, coal consumption increased by 1%. This is the first increase in four years, but still an increase during a time when our global leadership and much of our citizenry knows better, given the access to publicly available science. Oil consumption, globally, growth averaged 1.7 million barrels per day. This value represents one of three consecutive years oil consumption ranked higher than its overall ten-year average (BP, 2018).

These increases represent a disregard for the consequences of increased emissions and habitat destruction from fossil fuel production and consumption. This impact is far
reaching. The entire carbon cycle, a figure used in elementary science textbooks, has changed altogether. Even the nitrogen cycle is overtly humanity focused. Invasive species move on a global scale to disrupt biodiversity and habitat health. Oceans are more acidic, destroying the systems and structure of corals, sponges, echinoderms, and many other organisms. In fact, all of these factors lead to the current biodiversity crisis tipping dangerously toward collapse (Sachs, 2015). Although the planet and some species will survive, the coming decades will make it look very different. Increased flooding and water issues, food insecurity, issues of environmental and social justice and inequity, soil loss, and economic and infrastructure losses all threaten a wildly different human existence. National security is an increased concern, and environmental stress conditions are now a training and reporting area for the US Department of Defense (Jay, et al., 2018). Society is late to commit to large-scale solutions. This research is my piece toward easy changes in education to normalize sustainable behaviors, to embrace the potential of environmental education to be transformational (Kyle, 2006). Throughout the next four chapters, I cling to the statement, “The social function of education...can be achieved through education that is both empowering and transformative.” (Saiti, Kyle, Sinnes, Nampota, & Kazima, 2014)
Chapter Two: Review of Literature

“There are two things that interest me: the relation of people to each other, and the relation of people to the land.” (Leopold, 1947, p. 746). This quote summarizes this chapter and the literature that builds the story of this research. I first look at environmental education and its goals. Then I look at how people think about nature and the planet. Some people are known for their connection with nature, and thus their choices can be a beneficial lesson. Another key piece of this research is an understanding of social dynamics in both learning situations and in expedition or experiences. I will then tie the concepts together to close this chapter.

Environmental Education

Environmental education is a field that often reveals varied definitions, depending on the context heralding its discussion. Part of this is most likely due to the ambiguity of the term environment, which often leads to political dimensionality otherwise not observed in other fields, such as chemical education or life science education. Sauve (1996) discussed this variation and developed a taxonomy upon which to build these different discourses. For instance, the environment can refer to nature, a thing to be appreciated and protected apart from human integration. Environment can be a resource, a thing to be managed and sustained. It can be a problem, focusing on the issues that require solutions—such as a failing life-support machine. The environment can be a place to live, the everyday surroundings in which we conduct our daily actions within its multitude of characteristics. The environment can be a term used in lieu of biosphere, like a living organism of sorts, which encompasses all of us. Lovelock’s (1979) Gaia Hypothesis fits into this discourse; the physical Earth “is actively made fit and comfortable by the presence of life itself” (p. 152). The environment can be
considered a community project, focused on human participation. Finally, it can be a human collective, our shared living space complete with political and social dynamics (Sauve, 1996).

Many academic areas of learning have their roots within the cognitive domain, however environmental education reaches beyond general cognitions and aspires to influence the affective and psychomotor domains, while venturing into the realm of personal life ethos. Environmental education truly aims to change behavior and attitudes in the everyday life (Hungerford & Volk, 1990). This saturating effect from deeply assimilated environmental education is what Leopold mentions in the quote opening this chapter: a relationship between people and the earth in which they operate. The beginnings of environmental education trace their roots well within human history, not with a philosophical enlightening, but with mere survival and evolution of our species. Ancestral human populations needed to have keen awareness of weather, seasonal changes, balances within nature, plants, animals, soil, everything, or it would risk social ostracism due to potential risk placed on the community’s survival. Many Native American cultures historically based their worldviews primarily on maintaining a harmony of all things through intricate social consciousness and a sense of responsibility for self, each other, and the natural world—a balance of the human and natural worlds (Freeman, Milton & Carbyn, 1988; Kawagley, 2006).

In my relationships with Yup’ik people in Western Alaska, I saw first-hand how quickly children can catch birds based on knowing the natural history of animals. These animals have native names derived from sounds or behaviors of the animals. This naming process becomes conversational and translates into immediate behavior without having to learn the behavior separately. The Missouri Department of Conservation, in their Discover Nature Schools curriculum and training, recycled this ancestral way of naming organisms. They now educate teachers to answer the omnipresent student question, “What is this?” with the response,
“Until we can look it up, why don’t you watch it for a while and give it your own name?” The program encourages teachers to teach students to slow down and fully observe the organism—by generating their own name, they create a mnemonic to remember the organism and stimulate a relationship with it (Missouri Department of Conservation, 2010).

Years ago, I met Tessie Naranjo, a member of the Santa Clara Pueblo and native Tewa speaker. During that time, she taught me about the critical tie between language, oral histories and storytelling, and culture. A native community without their native language is at great risk of extinction (T. Naranjo, personal communication, July 14, 2005). Tewa is a tonal Pueblo language. Like the Yup’ik language, though linguistically unrelated, Tewa represents meaning through the sound of the words. It is also very representational or metaphorical, rather than explicit. For instance, she tells a brief story about her mother looking at the sky and saying, “The clouds are hatching eggs,” (Jacobs, Binford, Carroll, Smith & Mazzeo, 2004, p. xii). Tessie knew, without clarification, that her mother observed that it was going to rain. This text, compiled by Jacobs, Binford, Carroll, Smith, and Mazzeo (2004), is a collection of stories by Esther Martinez, a traditional Pueblo storyteller. These stories from elders to the residents and family communicate community standards, roles as citizens, behavioral expectations, societal relationships, and the cultural history. In fact, belief systems are conveyed as community belief systems, not individualistic. “We are to seek life with care and consideration for it wherever it is found—and life is found everywhere...lack of proper care can lead to loss. If unchecked, the loss can be serious,” (p. xii).

This mirrors a story told to me by a Yup’ik elder, whose name it was not my place to ask, during the summer of 2016 in Akiachak, Alaska. I had the opportunity to join a regional school system meeting between multiple elders from Akiachak and surrounding communities and school system leaders from multiple school districts. The elder shared a concern about
the individually focused generation fueled by the individually focused school system normalized in western Alaska native communities by predominately white, lower 48 mandates. They referred to people like me as an outsider, but they welcomed me because I was there without speaking. The story talks about how a man walking out alone onto the tundra will die, the only way to survive is to care for each other. I observed this from my friend in the community, a single mother about my age. Her role in the community as a woman meant she could do a lot of things, but fishing, cooking, and gathering water were not acceptable. The water went out for the entire community while I was there. She laughed at me when I offered to help her get water. She reminded me that others will take care of the water. The same scenario happened for providing fish and moose. There is no competition or hoarding; it is understood to take care of each other in the community (P. George, Personal Communication, June, 2016).

In “My Stuffed Squirrel,” a story by the aforementioned Esther Martinez, Esther tells about a stuffed squirrel made for her by her grandfather. Children then did not have toys, but rather they used items the Earth provided or things they could make. After many weeks of asking, her grandfather brought back a squirrel. He cleaned and preserved the animal, used a portion of a shawl for the eyes and mouth, sewed it beautifully with sinew, and stuffed it with wool harvested from their sheep. She loved her squirrel, but was not careful in how she carried it. Her puppy took the squirrel, and she never found it. She tells how she knew the expectation to care for the squirrel, but accepted that she did not care for it appropriately. She knew she could not ask for another (Jacobs, Binford, Carroll, Smith & Mazzeo, 2004). It seems like such a simple story, but it conveys two things. One, it shows the community standard that even children understand expectations for behavior without negotiation. Secondly, it shows a level of pride in one’s ability to care for belongings and responsibilities.
This social immersive into responsibility, accountability, and care illustrates the role of storytelling and contextual learning that is critical for high context learners, as many learners need.

These concepts of community responsibility and care communicated by the Yup’ik elder, my friend in the Yup’ik community of Akiachak, Tessie Naranjo from Santa Clara Pueblo, and Esther Martinez from San Juan Pueblo share a common theme. Local communities, community-driven expectations, and cultural knowledge can all form an Indigenized approach to shifting environmental education from mere conceptual knowledge to a tool for community transformation and sustainability. This roots itself in traditional environmental knowledge, knowledge that sustained Native peoples’ survival for thousands of years, for many generations, living in unique ecoregions (Cajete, 2000). In fact, many differences between many indigenous peoples harken back to cultural or environmental relationships with a specific geographical location. Although we may not be Native to one community or another, we are Native to this Earth. We have within us an ability to construct or rebuild an awareness to our connections with the environment and with our communities (Keogh, 2010).

The Yupiaq people also communicate through stories. Some are mythical, but plenty are intuitive or observational. “Yupiaq knowledge was based on a blending of the pragmatic, inductive, and spiritual realms...It epitomizes the Yupiaq worldview of interconnectedness, so that you cannot exclude the consciousness of the human observer...observation must be coupled with the participation of our whole being,” (Kawagley, 2006, p. 29). A Yup’ik woman, Rose, spent a day teaching me about the local plants and their medicinal uses. She taught me the word Yup’ik word yuuyaraq. This word means way of life, but it is considerably more complicated that a mere path. It is specific to life as a human and refers to our interactions
with others, the cumulative indigenous knowledge, ecological knowledge, understanding of our own being, and a spiritual balance (R. Kinegak. Personal communication, June 22, 2016). To me, this word defines my work: the connection of people to their own behavior, their connection to others, and our place and responsibility in this world. Kawagley (2006) concludes by suggesting that laboratory reenactments of science concepts bear no relevance to Native learners and most likely no other learners either. It calls for a “paradigmatic shift toward a holistic worldview...necessitated by the deteriorating global situation” (p.120).

Though my personal journey wandered through Indigenous ways of knowing over several years, there are more universally communicated definitions of comprehensive or effective environmental education. According to the international collaboration between the International Union for the Conservation of Nature (IUCN) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the definition of Environmental Education is:

The process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture, and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behavior about issues concerning environmental quality. (IUCN, 1970, p. 11)

In 1980, the IUCN focused this definition to grasp more conservation-oriented, albeit still anthropocentric and slightly utilitarian, messaging:

Ultimately, the behavior of entire societies towards the biosphere must be transformed in the achievement of conservation objectives is to be assured. A new ethic, embracing plants and animals as well as people, is required for human societies to live in harmony with the natural world on which they depend for survival and wellbeing. The long-term task of environmental education is to foster or reinforce attitudes and behavior compatible with this new ethic. (IUCN, 1980, p. 46)
Considering the history of mathematics, physics, and other foundational fields of science education, environmental education is newer and less established in many educational settings, even after these last 4 decades. This same document, published over three decades ago, calls for school partnerships with local organizations and resources to fully understand and assimilate environmental knowledge and consequent behaviors into life, rather than mere recitation on an examination (IUCN, 1980). The Belgrade and Tbilisi Declaration is often referenced for environmental education definitions (Hart, 2007; Singh, 2011) and calls for several goals of environmental education:

- Teach the interdependence of ecology, politics, economics, and society within rural and urban spaces;
- Allow everyone to learn the values and concepts, attitudes, behaviors, and skills required to not only conserve but also improve the global environment;
- Develop new behaviors toward the environment, which span individuals into groups and throughout all society.

This document emphasizes the critical primary experiences and applied experiences, awareness, knowledge, attitudes and participation, and skill development needed to fulfill these goals (UNESCO-UNEP, 1978). Thus, research that connects with these goals and definitions of environmental education keep the field centered in its original foundations. Additionally, it evidences the critical need to incorporate practical experiences into the education process that encourage growth in knowledge and concepts, of course, but also stimulates changes in behaviors, attitudes, and societal norms.

Since environmental education differs from other fields in that it requires knowledge and skill development, as well as participatory attitudes and behaviors. It seeks to change behaviors, the very thing directly causing environmental degradation (Bogner, 1998; Zelezny
Behaviors can often be predicted through an assessment of attitudes and the factors that affect attitude, as summed by the Theory of Planned Behavior (Ajzen, 1991). Literature relating attitudes, emotions, pedagogy and learning, and social interactions is lacking (Reis & Roth, 2010). Reis and Roth (2010) also call for analysis of emotive language and discursive relationships, as they are situated within a learning context, to isolate factors associated with environmental identity and participation. Only then can we effectively use formal and informal education, social media, marketing, and other outreach initiatives to directly change societal behaviors critically needed at this environmental crisis crossroads in our earth’s history.

Education toward citizenry and earth stewardship is essential, as embraced by some schools, if we hope to make any progress toward avoidance of or reduction in the inevitable global destruction. This global destruction may begin with destruction of habitat, air and water, but will inevitably lead to economic devastation (Brown, 2011). Humans, no matter how many surfaces we pave or walls we build, cannot detach themselves from the fact that we are products of and innately tied to our environment. Considering our roots deeply planted in Earth, how deeply Earth impacts our food supply through water and climate change, Brown raises a critical issue with his statement, “Food is the new oil. Land is the new gold” (Brown, 2012, p. 3). If we continue on our current human habitual relationship to the land, particularly on our American soils of “plenty,” we doom our very civilization, our future. This leads to the essential statement that “We live in a world that has an obsession with the present. Society-at-large is behaving as though we have no children. Have we lost our sense of ethical responsibility to future generations?” (Kyle, 1999, p. 12).

In order to look at methods to improve individual “ethical responsibility to future generations,” it is logical to consider the paths of those foundational to environmental
activism. By analyzing the paths to activism leading environmentalists took to achieving their levels of ecological consciousness, cues for education may be ascertained. David Suzuki, a geneticist, prolific writer and broadcaster, and eventual outspoken leader of the environmental leader in ecological sustainability in recent decades, summarizes the difference between transformative environmental education within science education to the interviewer, Mowat (1990). This quote emerged in Mowat’s collection of interviews and conversation, “My sense of injustice at what human beings were doing to the living world didn’t suddenly happen. It was a gradual understanding that science is fundamentally flawed because scientists focus on parts of nature and study these in isolation from the rest,” (p. 173-174.). In other words, aspects of science education and research focus on facts that compartmentalize the scientist from the larger picture and effect of daily living on the planet. Even a science teacher or student can easily be caught up in the facts, vocabulary and eye-catching laboratory activities without fully recognizing the meaning and grand scope of how damaging the impact of our daily choices can be to our planet. Thus, environmental education may inadvertently continue to separate new findings and science knowledge from its logical application in everyday life, sometimes even ignoring or rejecting the critical need for assimilation of knowledge into behavior changes (Chinn & Brewer, 1993).

Environmental Consciousness

“In this epoch of history, there is one danger that stands out as the most urgent and serious threat to the future of humanity—the threat of ecological disaster,” (Oskamp, 1995, p. 217). Environmental problems are more than mere steps of scientific progress waiting to be discovered; they are undeniably social issues at the core, caused directly by human behaviors (Zelesny & Schultz, 2000). The reality is that “environmental education has failed to bring about the changes in attitude and behavior necessary to stave off the detrimental
effects of climate change, biodiversity loss, and environmental degradation that our planet is experiencing at an alarmingly accelerating rate (Saylan & Blumstein, 2011, p. 1).” Zelezny & Schultz (2000) addresses the societal issues component of environmental problems, but they harken specifically back to the very root of environmental education.

Indeed, the changes that are required to solve our environmental crisis involve changes in individual behavior. Any policy, program, or intervention must produce change among individuals. An understanding of individual-level attitudes, motives, beliefs, intentions, or values will help to inform the development of such programs and also to explain why a particular program is, or is not, producing the desired changes. (p. 366)

This calls for the knowledge of how people think—how individuals construct an ecological consciousness, how that evolves, and what affects ecological consciousness so to engage skills and action of the many earth citizens needed to stimulate change.

Ecological consciousness encompasses specific psychological components within the individual. This directs and manages the likelihood of participation in and assimilation of pro-environmental behaviors, beliefs, knowledge, and values (Sanchez & Lafuente, 2010). Specifically, it looks at the connection between these aspects and the resulting behaviors. The person with an established ecological consciousness steps beyond awareness and then seeks to actively change, the “problematic relationship between modern industrialized societies and the physical environments on which they depend,” (Dunlap, Van Liere, Mertig, & Jones, 2000). The simple context for the development of this research is a group of friends walking down the street. Will a person stop to pick up a piece of trash? Why? And if so, will they take the extra effort to recycle the trash or just throw it in the nearest landfill bin? This context illustrates a simple scenario that requires action to improve the environment, potentially altruistically or potentially for social reward.
Chawla (1992) addresses the importance of attachments to places and developments of positive attachment to natural places throughout childhood. These derive from maps of a child’s geography—how the child wanders, where the child plays—and consequent personal importance. These associations with places become the location of social interactions, intriguing observations, autonomous decision-making, and other dog-eared pages critical to chapters of life that constitute identity. Time together with friends tends to encourage wandering and exploration—even if it is merely the act of flipping over a rock. Those discoveries bond friendships (Moore, 1986). For instance, the child who is around ten years old, when given the opportunity, more readily relates to natural spaces than human-created spaces (Bruni & Schultz, 2009); however, adolescents show reduced value of nature and associate more closely, then, with the various social relationships (Kaplan & Kaplan, 2002). Myers (2007) found similar patterns relating children’s identity formation to non-human animals. Even plants can stimulate feelings of appropriate behavior toward nature (Gebhard, Nevers, & Billmann-Mahecha, 2003). These analyses of relationships between children and adolescents with the environment and all within it become important because children who relate to nature grow into adults who strongly connect with the environment (Chawla, 2007). Those adults are the voters, the community advocates, the business owners, the politicians, and others who collectively decide large scale care of our ecological collective.

This lifetime of a developing identity with the environment is also has implications in social settings, although in many studies (Bashir, Lockwood, Chasteen, Nadolny, & Noyes, 2013; Griskevicius, Tybur, & Van den Bergh, 2010; Sadella & Krull, 1995), this connection derives from perceptions rather than observed behaviors. Although, in the Griskevicius, Tybur, & Van den Bergh (2010) study, environmental purchasing, product use, or restrictions seemed to contribute to social status inflation and reward, illustrating the theoretical social
ecology in which humans make decisions, as proposed by Bateson (1972). It is complex. Experience with the environment, whether with a group or alone, is a part of social context. Humans process that experience in terms of anthropomorphic storytelling or social perceptions. Much research still needs to occur to understand the social effects within nature and how the design of experience and social discourse can facilitate positive environmental associations that form the basis of ecological consciousness (Clayton & Myers, 2015).

Stapleton (2015) explored environmental identity formation, particularly as it relates toward behavioral changes toward environmental actions. I looked at the Kitchell, Kempton, Holland, and Tesch (2000) steps toward an environmental identity: awareness of the issues, identification with or personalization of the issues, and development of a path toward action or engagement in environmental behaviors. Stapleton (2015) noted that the most important piece to increase awareness of environmental issues was interaction with the tangible global issues, particularly the human interactions with those affected by climate change. However, the piece that propelled students toward behavior change and engagement with the issues after the event was the social interaction with peers and friends from the experience. These social networks allowed the students to keep the experience going after the travel events, network and share ideas, and find support to act more environmentally after the event.

Transformation toward ecological consciousness, pieces of who we are as individuals, in learning and awareness illustrates what environmental educators seek to spur during learning experiences with students. This requires a reconsideration of learning as more than cognitive learning or a combination of cognitive, psychomotor and affective learning (Bloom, 1984). Although periodically critiqued for its focus on rational explanations and underemphasized consideration of social or even spiritual contexts that may be used in environmental education, Mezirow (1991) proposes transformative learning theory in which
some experience or idea sparks a life change, a perspective change, that causes the learner to think differently about the self, to alter a belief system and to consequently behave differently. In other words, transformative education is one that changes the person and potentially a community in either career-oriented way, aspects of personal growth or psychology, emancipation or social transformation, spirituality or ecological evolutions (McWhinney & Markow, 2003). While the seeds of these transformations are often traced to an event, as Mezirow’s work tends to suggest, conversations with environmental activists and those immersed in the effects of transformation and “life’s work,” harkening to Carl Jung’s individuation, instead seem to be rooted in one or more events combined with a progression of experiences, reflections and opportunities (Kovan & Dirkx, 2003; Mowat, 1990; Walter, 2011). Thus, transformative education is a series of events or even a continual process.

When looking at the path toward expert ecological consciousness for the renowned Aldo Leopold, naturalist and cornerstone of Conservation, many readers of The Sand County Almanac (1966) tend to associate Leopold’s witness of the dimming of the “Green Fire” in the dying wolf as his turning point from the worldview of the time that naturalists existed to exterminate predators for increased game yield toward the view that nature is itself like a whole organism, operating on levels and time frames most humans cannot comprehend. Mowat (1990) asserts Leopold’s transition from logical positivism and utilitarianism to an ecological view that calls humans to be stewards and an integral part of nature. This transition can be summarized by his words in the forward to The Sand County Almanac: “We abuse the land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.” (Leopold, 1966, p.viii). In fact, Leopold himself associates that moment with a dying wolf as a shift in personal conviction:
In those days we had never heard of passing up a chance to kill a wolf...We reached the old wolf in time to see a fierce green light dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes—something known only to her and the mountain...I was young then, and full of trigger-itch: I thought that because fewer wolves meant more deer, that no wolves would mean a hunters’ paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view. (p. 130)

An analysis of his detailed field notes, both as a professional naturalist and as a private landowner, reveals he often reflected deeply on his observations and experiences. He wrote endlessly to act upon that on emotional experience to convey the intrinsic values in nature—that our planet is not merely purposed for human economic gain or utilitarian consumption. So, while Leopold had an emotional and intense experience that altered his environmental consciousness, his life work culminated in his seminal work, “The Land Ethic”. Leopold is a very rational thinker, but the awareness conveyed in The Sand County Almanac reveals also an emotional being. He experienced daily moments of interaction with nature, which fueled a continued exploration of alternative ways of thinking and living...to the point of shifting his career and writing focus.

This transformative journey of learning, as illustrated by the brief analysis of Leopold and Suzuki, becomes essential to the development of an ecological consciousness because it directs people to allow that environmental education experience to become a part of them daily within their personal behavior choices, even influencing the subconscious actions. It may have to override a lifetime of habit, combat negative associations with nature, or undo family upbringing. Pierre Teilhard de Chardin (1960) summarizes this journey of transformative learning quite beautifully:

We must try to penetrate our most secret self and examine our being from all sides...I took the lamp and, leaving the zone of everyday occupations and relationships where everything seems clear, I went down into my inmost self, to the deep abyss whence I feel dimly that my power of action emanates. But
as I moved further and further away from the conventional certainties by which social life is superficially illuminated, I became aware that I was losing contact with myself. At each step of the descent a new person was disclosed within me of whose name I was no longer sure, and who no longer obeyed me. And when I had to stop my exploration because the path faded from beneath my steps, I found a bottomless abyss at my feet, and out of it came—arising I know not from where—the current which I dare to call my life. (p. 42)

This quote carries a heavy load for educators hoping to move individuals through this process of transformation of consciousness, as it is deeply personal. It becomes necessary for educators to develop and maintain a willingness to support students through the voids, through the difficulties of self-reflection. It also requires educators to be aware of individual self-reflective abilities, levels of self-awareness, potential feelings of personal panic and also the vulnerable nature of these students experiencing highly personal evolution in a very social setting. This final statement is the driving force of this research. Experientially-based environmental education that embraces opportunities to transverse these changes currently focuses merely on the interaction between the facilitator (educator) and the participant (student), omitting the social context pre-existing the experience and continuing after the experience (Gass, 1995), even though participants often refer to social contexts or applications during the experience or reflecting on learning after the experience (Gass, 2012). So, evidently, in combination with developing a positive association with nature, environmental education may need to consider the effect of social context and interactions of the development of an ecological consciousness in order to most effectively address the transformative roll of experiences and education into behavior outputs.

School Integration of Experientially-based Environmental Education

There is considerable evidence illustrating various positive outcomes of established outdoor education programs or experientially-based programs such as Outward Bound (Hatti,
Marsh, Neill, & Richards, 1997; Sibthorp, Paisley, & Gookin, 2007; Sibthorp, Paisley, Gookin, & Furman, 2008). In recent decades, science education has oscillated between philosophies of content-driven curriculum and discovery-based curriculum, and from those oscillations and decades of education research, some ideal learning conditions emerged (Roberson, 2017). Roberson (2017) offered Csikszentmihalyi’s (1990) FLOW model as a summary of positive and effective learning environments: situations that provide students time to intentionally concentrate and immerse in an experience, as well as time to reflect fully on the experience. These traits are a part of the routines found in common middle school retreats, Outward Bound, and other experientially-based programs (Houge Mackenzie, Son, Hollenhorst, 2014; Sibthorp, Paisley, & Gookin, 2007). These attributes unified with medical input that nature can be effective treatments for Attention-Deficit/Hyperactivity Disorder or for sheer relaxation (Faber Taylor & Kuo, 2010; Kuo & Faber Taylor, 2004) provide reasonable logic embed outdoor experiences into school learning. One example of this adoption is the rise of Expeditionary Learning Schools, a movement started in 1992, which now engages well over 150 public and private schools nationwide (EL Education, 2017).

**Social Dynamics in Learning and Experience**

Stemming from Vygotsky’s (1978) essential philosophy that learning is indeed socially constructed, it is critical to determine not only how individual students best meet science standards, but how social interactions function within the context of a classroom to best support science achievement and process skill development. By considering the Zone of Proximal Development, one can not only use this philosophical space as a means to facilitate students moving to the next level of development or learning, but also use it as a way to view a student’s interaction with peers. Thus, students may use this interaction with challenging material within the context and functioning of a social system to develop their own responses
and reactions. If given opportunities to practice knowledge, thoughts and actions in these social systems, to judge peer responses and then to reflect upon successes or failures, then those bits of knowledge, thoughts and actions are more likely to extend into situations without the social support system (Vygotsky, 1978).

Enyedy (2003) refers to alignment of personal behaviors and knowledge systems with social systems as a cultural practice. This is an extension of Corsaro’s (1997) peer culture theory, which contrasts from a typical school culture developed and maintained by adults. Peer culture is a collection of behaviors, routines, physical objects and their uses, and attitudes that were invented or modified by a group of students and thus adopted as a group. Educators and researchers can use this model to assess how students work together in a social manner and use it as a measure to guide inquiry. If recognized by the educators or researchers, peer culture can be an influential aspect in interpretations of student choice, participation, interests and social structures.

Gee (2005) analyzes these unique cultures or social groups and suggests they establish and maintain their own lifeworld Discourses. This refers specifically to the unique methods of thinking, behaving and speaking in a non-expert scenario and he differentiates these casual interchanges not as taking the place of the formal, scientific discussions and verbiage, but rather be a language place in which scientific explanations and Discourses may be settled. In fact, Gee notes the expectation of scientists and educators for students to exclusively use scientific language and professional Discourse as a broader, cultural way of knowing and communicating ideas. This is a prime reason why students, rooted in their own unique lifeworld Discourses, are unable to succeed or achieve highly in science. Even as students gain vocabulary, they often require opportunities to acquire the full context and concepts behind the vocabulary—situated meanings that are relevant to the individual students
attempting to transfer from their personal lifeworld Discourse into the scientific Discourse. In the aforementioned discussion of indigenous ways of knowing, we can begin to recognize the subversive conflict between the very high context learners and cultures and low context learners (Hall, 1976). It is the role, then, of the educator to provide ample and diverse opportunities for students to transition into the scientific Discourse to appropriately acquire the full concepts, rather than mere vocabulary.

Through this present study, various social groups interact with environmental education and outdoor experiences. Educators and interns modeled, encouraged, and scaffolded the vocabulary and expectations for the participants. By considering Gee’s (2005) Discursive worldviews, curriculum planning can coordinate opportunities for instructors to plan for teacher practice, situational experiences, social scaffolding, and group expectation planning. This research shares observations of this and student response to both the literal high context experience and expedition, as well as the high context of constructing trust, social ownership, and personalized contribution to the program community. By investing in these high context scenarios, teachers can level the playing field for a spectrum of contextual learners and welcome them all to environmental education in a way that builds social ownership and enables them to reach professional levels of communication and participation.

Vygotsky (1987) suggests the integration of learning within a social construct will allow impromptu ideas and scientific concepts to grow, facilitated and enabled by peer discussion and guided argumentation. Teacher facilitated hands-on inquiry provides this opportunity for students to make spontaneous discoveries, rooted in a lifeworld Discourse of the students, but also to practice scientific Discourses grounded in the teacher facilitation and concepts uncovered in the inquiry. This co-constructive interplay allows students to move between
lifeworld Discourse and scientific Discourse and provides niches in lifeworld Discourse for the context, concepts, vocabulary and uses of the scientific Discourse (Moje et al., 2004).

Power and privilege are critical factors for social interactions and the success of student discourse. Adolescence can be rife with cliques and unspoken power structures. Whenever students engage in peer discussions and hands-on opportunities, power structures can play a role in its successes or failures. Gender alone can be influential on the status on a student or the power held by a student in a student group (Bianchini, 1997). This social status, or even academic status in other situations, is directly associated with the privilege held within a student group (Moje & Shepardson, 1998). Often times, those individuals with less privilege or of lower status in a group, either in a classroom, social group or society, form models of interactions or even individual behaviors. Gee (2005) suggests these individuals may use these models “to judge themselves and lower their self-esteem. But, as we have seen, since they fail to identify themselves as actors within that model, they cannot develop the very expertise that would allow and motivate them to practice it,” (p. 83). Thus, they settle into a position of less privilege and leave the shifts of status to those with more power in the group.

Recognizing power structures within a classroom is critical in establishing effective communication in a classroom to work towards conceptual change in all students. Hinchman and Young (2001) warn that classroom talk can easily be either purposefully or inadvertently hurtful via peer interactions or even institutional or teacher interactions. In fact, social interactions within the classroom can often solidify power structures or status hierarchy by confirming that some students own the discussion, leaving others submissively or passively sitting silent (Alvermann, 1995). This can be avoided, addressed or redirected by teachers sharing strategies of recognizing alienating Discourse patterns and openly sharing these observations with students. Teacher use of transformative communication (Pea, 1994;
Polman, 2000) can also help guide students from disjointed or off-task discussions and brainstorms to increased participation and student ownership of inquiry. Quieter students or students harboring other truths or ideas may be more open to sharing ideas in the form of written reflections or other sharing environments (Hinchman & Young, 2001).

Clayton and Myers (2015) discuss the various strategies for how people engage in environmentally focused thinking and behavior and address social comparison and perception as a means of decision making. Generally, psychology publications address social comparison, namely for the sake of this study, intragroup comparison. This social comparison occurs when one group member compares the self and personal behaviors to the accepted norms of the group (Oakes, Haslam, & Turner, 1994). In turn, conversations and social activities may include a group of people together in an outdoor setting or in conversation about environmental issues. When groups come together, participants feel more hope and empowerment toward those issues (Wilks & Harris, 2016). Continued analysis and evaluation of how to inform and promote ecologically driven intragroup comparison stimuli would lead toward more ecological personal behaviors and potentially societal change (Ferguson, Branscombe, & Reynolds, 2011).

Theory of Ecological Attitudes

The success of environmentally-focused conversations in social or political realms is a critical intersection in this current climate. The US recently elected a climate-change denying and an anti-environmental regulation presidential and congressional regime. This further departs environmental education from the place of priority it requires to address in current crisis: energy, agricultural losses, reduced plant nutrition due to increased atmospheric carbon, ocean resiliency risks, arctic geopolitical posturing, emergent diseases, and increased warfare due to food and water security pressures, to name a few terrifying realities (Feng,
Rütting, Pleijel, Wallin, Reich, Kammann, Newton, Kobayashi, Luo, & Uddling, 2015; Myers et al., 2014; Worldwatch Institute, 2015). Attitudes are a considerable portion of this due to the fact that while behaviors are more tangible and observable, attitudes are often our gauge for predictability of behaviors, particularly when they engage the action, target, and context similar to one another (Ajzen, 1991; Ajzen & Fishbein, 1977).

In order to inspire change in attitude, and thus behavior, rarely is content enough to spark change. In wandering through science departments over the years, science educators and researchers often pride themselves on facts and unbiased, non-anthropological communication. However, it seems that in this, we forget the humanity of our message—if we seek to alter human attitude and behaviors, closely-held personal attributes, then we need to venture into the emotional and learn to connect with our students and targets on a personally-connecting level (Lin, Hong, & Huang, 2012). This idea echoes Bogner (1998), who states “when emotional principles are integrated, outdoor nature experience is generally considered...to promote environmental action” (p. 18).

The efforts to reliably and validly study attitudes of environmental thinking began as many studies do, with descriptive qualities often lacking in theoretical foundations (Johnson & Manoli, 2008). This led to the development of three fairly well-documented measures. Musser & Malkus (1994) proposed the Children’s Attitudes Toward the Environment Scales (CATES), which tested well for internal-consistency reliability, but poorly for test-retest reliability. It gave easy-to-understand items for elementary-aged children, but the choice selection has an awkward choice format. Leeming et al. (1995) put forth the Children’s Environmental Attitude and Knowledge Scale (CHEAKS). This measure had better constructs, but the items included issues that children cannot truly control, thus limiting its relationship to personalized behaviors and left the realization of behavior still uselessly hypothetical. The
New Ecological Paradigm (NEP) (Manoli, Johnson, & Dunlap, 2007) tests well and is quite useable with children, however it is designed linearly, leaving out important dimensions of ecological thinking. For instance, one can test with very biocentric thinking, but even that can take a more utilitarian perspective or a nature for the sake of nature perspective.

It was this dimensionality that led Bogner and Wilhelm (1996) to develop the 2-MEV, a broadly analyzed (Johnson & Manoli, 2011) scale to measure a participant’s intentions about the Preservation of Nature and the Utilization of Nature. The 2-MEV scale is a model of the Theory of Ecological Attitude that suggests multiple dimensions to thinking about nature. Preservation can be further defined by attitudes regarding intent to support nature, care with resources, and enjoyment of nature. Utilization can be further defined by attitudes regarding altering nature and human dominance over nature. In other words, people can be strongly biocentric, but still have anthropocentric attitudes with regards to nature. The theory, measured with the 2-MEV, places participants on a quadrant grid rather than a limited and linear spectrum. The 2-MEV has been tested in many countries and situations with positive results toward higher validation and reliability (Bogner & Wiseman, 2002; Fremery & Bogner, 2015; Johnson & Manoli, 2011).

Implications for the Study

The social setting, both literal and perceived, has not been used to look at how student identify with environmental thinking, develop attitudes, and act upon them, particularly in the context of reformatting environmental education teaching development. Saylan and Blumstein (2011) report the most significant failure of environmental education roots within the political and consumer realms, poisoned by money, business plans, marketing, and citizen complacency in actual world change.
Sachs (2015) states “the world is far off course for achieving sustainable development” (p. 481). Policy-making is a social action. Peer interactions provide the behavioral rewards fueling our power to change the world...or not. Science knowledge, environmental concepts, and empowerment to change policy—these are topics that are shared and discussed in mass media communication, social networking interchanges, and social discourse. When we consider the personal notion of environmental consciousness, it cannot be considered outside of the various social settings in which the information processing, behavioral decision-making, and empowerment to change policy occur. Sachs asserts “we must not give up hope” (p. 506). Through policies, such as the Sustainable Development Goals and the Millennium Development Goals, Sachs (2015) shows how we can have hope in the roadmaps presented. We need societal adoption of transformative ideas. Environmental education becomes a transition from science alone to a great, unified human endeavor.
Chapter Three: Methods

I observed adolescents during a high mountain expeditionary learning experience at HMI. In this chapter, I will outline my research design, participants, data collection, my position as the researcher, and analysis methodology. These methods allowed me to address my research purpose. My purpose was to investigate the extent to which adolescents use social interactions to help develop their ecological thinking in order to relate social interactions and expeditionary models to developing environmental education programs and instructor development.

Research Design

I depend heavily on the immersion of the researcher into the field as the primary data collection and analysis tool. As such, this is an interpretive qualitative research study (Merriam, 2009). I was interested in observing several students participating in a shared experience—namely their actions, interactions, written reflections, and the meaning they assigned to their experiences. It did not fulfill the “understanding about the essence and the underlying structure” of the expeditionary phenomenon or culture of a group of people (p. 23). Thus, it did not extend to the level of grounded theory, phenomenology, or ethnography. I received IRB exemption status in May 2018 (see Appendix A).

The data did not include personal interviews, but rather extensive field notes during immersive field research (Bailey, 2018), student and course documents, rich descriptions, and school publications. To collect field notes, I spent 16 of the 37 student days at HMI with the students during the bulk of their day or evening activities, meals, meetings, classes, and free time. I spent an extra day on campus prior to student arrival to collect field notes on the location and staff interactions.
The combination of detailed field notes and the basic qualitative analysis allowed me to interpret observations, written documents, field notes, and other data as it emerged. It allowed me to be open to emerging themes as the students told their own stories through their actions, written assignments, and unsolicited conversations during the shared experience at HMI. Thematic analysis, using a variety of data, does not adhere to one specific qualitative research method and can be used with a variety of theoretical frameworks (Braun & Clarke, 2006).

In addition to my field notes, I collected student and institution artifacts. The field notes often included notes on participant interactions, brief summaries or quotes of spoken word, rich description of the rooms, surroundings, students, instructors and interns, and locations. The institution artifacts included the HMI website and social media, course syllabi and assignments, mission statement, diversity statement, rules, instructor assessments, and instructor comments. Student artifacts included their initial application essays, journals and essays for classes, expedition reflections, and the final Full Circle essay reflection. These were all analyzed using basic thematic analysis. I clarified my interpretations directly with student participants, interns, instructors, and administrative staff as needed. The written documentation, field notes, and member-checking opportunities provided a means to triangulate data.

While in the field, I compiled my daily field notes into a reflexive journal that allowed me to insert photographs, maps, documents, and websites into my reflections and notes. This gave me an opportunity to combine my personal thoughts and formalize my rich descriptions and other notes. This helped me avoid biases and kept me more familiar with my notes (Rocco, T.S. & Hatcher, T., 2011).
Participants

The student participants were high school students at High Mountain Institute. The school is in Leadville, Colorado. Each semester or summer, the school receives an entire class of new high school students, up to approximately 30-50 students per fall or spring term and 25-30 during the summer term. During the 2018 summer term, 29 students enrolled at HMI, and 27 students completed the term. One student, Katja, voluntarily, but unexpectedly, left the HMI program during the first expedition for mental health reasons. A second student left after returning to campus after the second expedition. This departure was prearranged and due to her participation in varsity cross country at her normal high school.

The 17 students with informed consent approval served as the participants. The informed consent forms, both for the students and for the parents, are included in Appendix B and Appendix C, respectively. Students apply to the school for admission, compose two admissions essays, and are interviewed to determine their interest and commitment to the environment. This was a purposeful sample population of environmentally-aware students to interpret their environmental attitudes, analyze their self-reporting of environmental interests, and align social interactions to understand the role of social groups and discourse have on the development of ecological thinking, behaviors, and attitudes.

I selected participants via unique purposeful sampling method, as a group of adventure and environmentally focused students accepted into an environmental education specialty school during the summer of 2018. I distributed my IRB approved parental consent form (Appendix C) via email through the HMI summer programs director. The parent replied back and entered their child’s name in the email response. After I had my list of parent-approved student participants, an intern distributed the student assent forms for student approval. In total, I had 17 participants out of the 29 students attending HMI during summer.
term. Given the length of time in the field, multiple data sources, physical observations, and member checking opportunities, this was a sufficient number for rich data and saturation. The teachers and interns, although not a main focus for my purposes initially, provided some unexpected insights into interpretation, class dynamics, and further classroom observations. This research used observations of seventeen students. The sample is expected to provide adequate data to reach qualitative saturation for this population (Guest, Bunce & Johnson, 2006).

The coursework at HMI follows a college-preparatory list of expected classes one would find in a typical secondary school. However, this program situates itself and the curriculum within the Rocky Mountains and waters surrounded the built facilities. The courses are embedded with environmental history, service work, nature literature, conservation sciences, career explorations, training in teamwork and leadership, significant engagement with the outdoors. The school seeks specifically to immerse students in a community that increases personal identity and confidence in the wilderness and of their own lives.

**Researcher Role**

I had prior knowledge of the school and learning environment due to a previous role as an independent school accreditation evaluator. The participants were not familiar with me prior to the 2018 Summer Term. Once the site was selected, I took the time to get to know the school and location. I previewed the applications to summer term, spoke to instructors and staff, and familiarized myself with the facility. I valued this extra time to learn about the students to establish a comfort level with the students and a sociocultural insight to the school environment. Some may view inherent bias in this prior participant/researcher relationship, however I adhered to the idea that genuine understanding and truer interpretation may result from the researcher’s in-depth knowledge of each participant and the participants’ comfort
with the research/observer. Drawing from Wolcott’s (1994) perspective, validity takes on a new meaning in rigorous qualitative research, specifically that validity comes from knowing the participants and the context, and then assuring the data collected from them is appropriate and within their context. From an immersive study of participants’ words and documents, I was able to identify essential components and grapple with their potential interpretations to arrive at an understanding (Merriam, 2009).

Table 1, Timeline of Research Activities, illustrates my timeline for the project to clarify my immersion in the research site, study, and students. It includes my pre-visit conversations with HMI staff, IRB proposal and approval, time with HMI, time with HMI students, and data analysis.

Table 1. 
**Timeline of Research Activities**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January-May, 2018</td>
<td>Introductions and on-going conversations with Head of School, Danny O’Brien, primarily. Eventually, I met, via phone, summer program director and risk management director.</td>
</tr>
<tr>
<td>April 2018</td>
<td>IRB proposal submission</td>
</tr>
<tr>
<td>May 2018</td>
<td>IRB exemption accepted</td>
</tr>
<tr>
<td>25-26 June 2018</td>
<td>I arrived at HMI campus to meet some staff and orient to HMI.</td>
</tr>
<tr>
<td>27-30 June 2018</td>
<td>Met students at arrival, orientation, and Exped 1 preparations</td>
</tr>
<tr>
<td>1-8 July 2018</td>
<td>Finalized week 1 field note journaling, member checked with staff, coded HMI website and field notes</td>
</tr>
<tr>
<td>9-14 July 2018</td>
<td>Returned to HMI, met students on trail at the end of exped 1, classes and meetings on campus</td>
</tr>
<tr>
<td>15-28 July 2018</td>
<td>Finalized week 3 field note journaling, member checked with staff about student relationships, coded student application essays, coded student documents from Exped 1 reflections and instructor feedback</td>
</tr>
<tr>
<td>29 July-2 August 2018</td>
<td>Returned to HMI, met students on trail at the end of exped 2, courses on campus, prep for Full Circle and Solo, endings, student departure</td>
</tr>
<tr>
<td>August-September 2018</td>
<td>Complete journaling and coding, coded Full Circle essays and course essays, writing</td>
</tr>
</tbody>
</table>
Validity and Reliability

To increase my data credibility, I used multiple methods, multiple sources of data, and respondent validation during the data collection and analysis process (Merriam, 2009). Intense and specific observations coupled with written texts, and casual conversations will compile multiple data sources from which to draw interpretations. Data collection and analysis continued until saturation occurred, even after I looked for alternative explanations for data. Finally, the comfortable collaborative relationship between participants and the research allowed natural and honest member checking of interpretive findings. I asked clarifying questions about what I saw or read. Nearly every day of my visits, I spoke with faculty, staff, and directors to fully understand the HMI experience and the student interactions.

Attrition is a concern for studies in education, particularly those with fewer participants. In the unlikely event that a participant chooses not to continue or cannot fulfill complete participation in the study, the initial observational data may still be used since it was archived prior—unless the student or parent requests otherwise. If that initial online data requires further information or unique classroom observations stimulate a need for an interview, phone interview follow-ups would be a natural option. In the case of a withdrawal from participation, other interviews and survey data would be analyzed. Any written data would be eliminated from research analysis. There were two participants not finish the program, no one expressed concern about the research or withdrew from my project. One student left HMI during the first expedition due to a mental health need unrelated to my involvement or research and did not withdrawal from the study. The second stayed until the last few days of the HMI summer session. She had to leave early for her varsity athletic
program at her home school. This was prearranged with HMI and did not withdrawal from the study.

**Data Interpretation and Analysis**

I initially visited the school to observe students interacting and to more fully understand the learning culture, class dynamics, student interactions, and settings in which the learning occurs. Field notes and researcher reflections sufficed for this background information.

During the first week, third week, and fifth/final week, I wrote field and participation observations—personalities, interactions, word choices, clothing choices, and other information that can allow for interpretation. This basic, interpretive qualitative study guided my methodology for transcribing data from field notes, coded, and compared with any other field notes. I asked for additional clarifications, if the participant agreed; which they all did eagerly. I felt welcomed by both staff and students alike. These qualitative contributions provided the critical social context for the data. Thus, construction of categories via assigning codes that emerged from the transcriptions built major themes (Merriam, 2009).

**Limitations**

I seek to qualitatively describe and interpret the interactions and discourse of a specific group of students during a particular time and in this environmentally immersive learning environment. Therefore, replication of the full experience and findings is impossible; rather, depth in understanding of the experience and represented identities and contributions to the development of an adolescent ecological consciousness is the ultimate goal. By reporting complete descriptions, data and analytical procedures and then fully conveying adequate depth of understanding, transferability instead of generalizability is a better option.
Participants are adolescents, and they are still developing into their biological, psychological, social, and spiritual selves. There is considerable work to be done to understand the development of a lifespan ecological consciousness. This would have to begin with community and family, piece together effects of teachers and peers through the ages, and follow into other educational or informal experiences and post-graduate life choices. These data offer a snapshot of that lifespan. It would be a typical snapshot relatable to immersive experiential informal environmental education or a teacher’s experience with students over the course of an academic class. Additionally, though they represented many geographic locations, most of the students represented the current stereotype of environmentally participatory people: white and middle to upper levels of socioeconomic privilege. While I did not focus on this stereotype or the limitations set forth by access to experiences and privilege to freely explore nature, the reality is that environmental education has to acknowledge the precedent and find a way to embrace the access, contextual needs, and other ways of thinking represented by people of other races, cultures, and socioeconomic positioning.

In order to address issues of legitimacy in this basic interpretive qualitative study, I used techniques suggested by Merriam (2009) and Rocco and Hatcher (2011). First of all, I recognize that I am a researcher immersed in the study and someone who interacted amicably with the participants. I am transparent about this in the data and discussion of the events. I immersed in the experience for 16 of the 37 days of the program, staying with the participants during day hikes, classes, social interactions, meals, full circles and meetings, and other events through the days and evenings. I did not sleep on campus, and occasionally the school requested time away from research, namely the two mountaintop expeditions and the final Full Circle meeting, although I had the written essays that were shared during the last Full
Circle. Additionally, I was able to use multiple data sources and member checking to assist interpretation.

**Procedures**

**IRB and Informed Consent**

The University of Missouri-St. Louis Internal Review Board approved the research design and informed consent process for this research in May 2018. (See Appendix A.) Parents/guardians were notified by email, and students had the written letter and additional explanations of the project during their time at High Mountain Institute. The students were minors, ranging in age between 15-17 years old, so they read and signed an assent form. For parents or guardians to allow participation in this research, they replied to the email with an automatic email statement, “I consent for my child to participate in this research. My child’s name is [fill in name] and is attending the High Mountain Institute.” The parents or guardians then embedded their child’s name. I gave the students whose parents or guardians responded with permission a copy of the if students and/or their parents choose not to participate, then any observations or other data will not be analyzed for this research. Since this will be a case study of a few groups of students, the other non-participant students will only provide context for the dynamics and culture of the class. I did not collect video or recorded data for this exploratory project.

I assigned pseudonyms to students based on names of similar popularity during the average year of birth for all children born the same year. I used the Social Security list for these popularity data. The teachers, although not the focus, were not named, rather I used general terms like “faculty” or “staff” to refer to those in paid positions at HMI. I held all data and observations confidentially on a university protected server. I stored any hand-written notes, documents, and maps in either my locked car inside an opaque backpack, in a locked
condominium, or in my locked office at my university. After the research study, all data will be permanently removed from the server, thus destroyed, or physically destroyed for printed documents or hand-written field notes.
Chapter 4: Field Observations and Interpretations

When I began my graduate studies, I was a science teacher. My perspectives were focused on supporting the next generation in their development as decision makers, citizens, voters, and consumers. As I progressed through my studies, trendy topics in science education consumed me here and there, but eventually I had my own children and found my focus shifted to sheer urgency about this world itself. The health and future of this planet was not only in the hands of those of us living on it, but now it impacts my very genetic progeny. Keogh (2010) poses the following guiding question: “If our world is really looking down the barrel of an environmental catastrophe, how do I live my life right now?” (p. xi). This quote may easily transform into teaching or those providing rich outdoor experiences—how do we teach and guide people to changing how they live and make decisions in order to prevent or lessen environmental catastrophe? In short, we need people to value environmental issues to the point of purposeful change of behavior without direct personal benefit (Rhode & Ross, 2008). For me, this is not merely the right thing to do; this is a highly personal plea for the lives of my children.

As presented in Chapter 1, and reiterated here, the purpose of this study is to determine the extent to which adolescents use social interactions with friends, classmates, family, and instructors to help develop their ecological consciousness, as observed through ecological attitudes, behaviors, and discourse. First, I will introduce the concept and culture of HMI, then I discuss the 2018 Summer Term experience, and finally, I story the participants through their words and through my observation. Out of the 29 2018 Summer Term participants at HMI, I had full informed consent from 17 students and their parents or guardians. Since this is a social cohort-based experience and study, I cannot merely describe the 17 participants without the context provided by the other 12 students, so their...
contributions and interactions are generalities for the sake of constructing context and not for the conveyance of story or interpretation.

**Concept and Culture of HMI**

HMI truly represents its name, High Mountain Institute, as it is approximately a ten minute drive outside of the highest incorporated town in the United States, Leadville, Colorado. Leadville is an old mining town that was the colorful epitome of the Wild West: untamed lawlessness, swindling, riches, fame and fall, boom and bust. While once one of the largest towns in the west, it currently serves as home to about 2600 residents. Several residents told me that they take pride in being like cockroaches, meaning they would be the only ones to survive nuclear war. While a common town joke, it gives credit to the tenacity and quest for independence within the town. In fact, also communicating fierce independence of the town culture, in multiple places around town post the folk quote traditionally attributed to Ronald Reagan, “The nine most terrifying words in the English language are, 'I'm from the government and I'm here to help.’”

HMI departs a bit from the fierce independence in its Mission, though still aiming to produce independent thinkers. HMI’s strong community structure is foundational to its programming, as evidenced through the following statement:

> The High Mountain Institute engages students with the natural world. Our school boldly unite rigorous intellectual inquiry, experiential learning, wilderness expeditions, and shared responsibility in a strong community. Our students realize their potential—as leaders, independent thinkers, and thoughtful citizens. (HMI, 2018, para. 13)

The ideas of shared responsibility and strong community are infused into HMI policy, curriculum, and culture. I spent my first day at HMI, the day before students arrived, familiarizing myself with the campus and getting initial impressions before the students consumed their attentions and my observations. Upon driving into campus on a pervious
gravel road, nestled just north of the towering Mount Elbert and Mount Massive, the initial view is of an approximately half acre sized array of solar panels. There are pines and several buildings, many of which connect to each other with boardwalks. The parking area is just to the north of the main entry building, Barnes Building and Who’s Hall. It is a welcoming wooden building that looks much like a private home, entered via walkway over a little stream. This is where the front administrative office is, as well as kitchen, dining area, library, classrooms, and upstairs offices.

When I entered campus, it was relatively empty of staff. They enjoyed a day off before students arrived. The facilities director showed me around and welcomed me to wander campus. He was very welcoming. The designs conveyed openness to those the building welcomed: open cubbies for personal items, chore assignments, circular tables, whiteboard communications, climbing walls, and group-oriented bins of materials. Even though the summer was hot and dry, the communal cabins did have wood stoves for heat during cooler weather. Nearby was a wood-cutting station for students during other terms to cut, stack, and retrieve wood; this is yet one other example of community-focused care and shared responsibility.

Recruiting and selecting students for HMI is a daunting task. HMI is a semester high school with other learning options, that model alone is difficult to fit into secondary student scheduling—academics, work, athletics, other extracurriculars, social life, and family. Additionally, the costs and gear can be overwhelming to families. To counter this, HMI has a well-established system of scholarship and financial aid that can cover much or all of the tuition and gear. However, the reality is that the school still attracts a great proportion of quite privileged and mostly white students with the flexibility to go away from home and seek experiences, students with some level of comfort with wilderness. Additionally, the primary
recruiting tool is word of mouth and alumni—recycling backgrounds due to similarity of home. The admissions staff and leadership readily acknowledge this inequity and seeks to partner with urban charter schools and other outreach going forward in recruiting. Like many environmental organizations, diversity—racial, cultural, and socioeconomic diversities in participation are consistently a struggle. Outdoor recreation and environmental education program participants have been and continue to be overwhelmingly white people of privilege (Gress & Hall, 2017; Warren, Roberts, Breunig & Alvarez, 2014; White, et al., 2014).

HMI students follow this trend, too. Of the 29 students attending this summer, 2 self-reported as African American, 6 were Latinx, 2 were Asian or Pacific Islander, and 19 were white/non-Latinx. Although the tuition and student account total $9400, several students had full or partial scholarships. Students hailed from California, Texas, Massachusetts, Ohio, New York, Rhode Island, Minnesota, Georgia, Australia, Germany, and Colorado. There were three students from Colorado: two from Leadville, awarded full scholarships for local students, and one from Salida, less than an hour away. Eleven were male, 18 females as assigned to cabins, one of these students identifies as agender.

The staff, faculty, and administration are nearly all white and a fair mix of gender identity. One faculty member is a Spanish-speaking Latina—students who spoke Spanish felt at ease speaking their native language with her. Perhaps to compensate for lack of diversity employed by HMI to represent the content and outdoors, many posters hang on doorways representing a wide variety of people who thrived in outdoor sports or challenges, people of varied gender, socioeconomic status, race, and cultural background.

The 2018 HMI Summer Term Experience

HMI has multiple course options to meet the desires of potential attendees. While they list themselves as a semester high school, offering an accredited single semester of a
junior or senior year of high school through full course-load curriculum, AP, and Honors classes. Backpacking and skiing fully consume one third of that semester. Additionally, HMI offers Gap Year programming, Adult and Educator programs, and others. For the interest of this research, though, HMI offers a five-week summer program for students entering their sophomore through senior years of high school. The academics cover two critical and immersive themes over the term: Practices and Principles: Wilderness and Leadership, and Developing a Sense of Place: Social and Environmental Science in Colorado’s Rocky Mountains. Table 1 offers the HMI summer session student schedule for these five weeks.

Table 1.

2018 Research Schedule and Student Activities

<table>
<thead>
<tr>
<th>Days</th>
<th>Dates</th>
<th>Experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>June 27: Wednesday</td>
<td>Students arrive to HMI Campus</td>
</tr>
<tr>
<td>2-3</td>
<td>June 28-29: Thursday-Friday</td>
<td>Orientation and expedition preparations</td>
</tr>
<tr>
<td>4-12</td>
<td>June 30-July 8: Saturday-Sunday</td>
<td>Backpacking expeditions in the Sawatch and Collegiate Ranges, depending on groups</td>
</tr>
<tr>
<td>13</td>
<td>July 9: Monday</td>
<td>Return to campus and deissue equipment</td>
</tr>
<tr>
<td>14-17</td>
<td>July 10-13: Tuesday-Friday</td>
<td>Activities, classes, and field experiences on HMI campus or in Leadville</td>
</tr>
<tr>
<td>18</td>
<td>July 14: Saturday</td>
<td>Whitewater rafting on the Arkansas River</td>
</tr>
<tr>
<td>19-22</td>
<td>July 15-18: Sunday-Wednesday</td>
<td>Activities, classes, and field experiences on HMI campus or in Leadville</td>
</tr>
<tr>
<td>23</td>
<td>July 19: Thursday</td>
<td>Expedition prep</td>
</tr>
<tr>
<td>24-32</td>
<td>July 20-28: Friday-Saturday</td>
<td>Backpacking expeditions in the Sawatch and Collegiate Ranges, depending on groups</td>
</tr>
<tr>
<td>33</td>
<td>July 29: Sunday</td>
<td>Return to campus and deissue equipment</td>
</tr>
<tr>
<td>34</td>
<td>July 30: Monday</td>
<td>Hot Springs in the morning; Course closures in afternoon, clean and pack</td>
</tr>
<tr>
<td>35</td>
<td>July 31: Tuesday</td>
<td>Campus Cleaning; Prep Full Circle and Solo—leave for solo 3 p.m.</td>
</tr>
<tr>
<td>36</td>
<td>August 1: Wednesday</td>
<td>Return from Solo 8 a.m.; Full Circle; move out of cabins and slideshow at night</td>
</tr>
<tr>
<td>37</td>
<td>August 2: Thursday</td>
<td>Leave early for airport/ pick-ups</td>
</tr>
</tbody>
</table>

As a researcher, it was not practical to be in place throughout the entire 37 days of the Summer Term; to observe a fuller story, I planned to observe the beginning, middle, and end of the program. The Head of School also informed my timing, as he wanted to keep sacred a few events: Expedition and Full Circle. I observed the preparation and departure of
Expedition 1 and the emergences from the trails after both Expeditions 1 and 2. Additionally, I made copies of the Full Circle documents; so even though I could not observe the event, I could read the students’ words. I made three visits to HMI: June 25-July 1, July 9-15, and July 28- August 2. This timing allowed me to immerse into HMI and the student interactions from the moment they set foot on campus, transitioned through varied activities and expeditions, and then as they departed campus.

Due to the personalized rich description involved in these data, I learned the student names as they arrived on campus through individual introductions, field notes, and application photos provided by HMI. By day 2, I felt confident that I knew almost everyone’s names who were on my permissions list; and by day 3, I knew everyone. The students knew me as “Jen,” a biology professor who was doing dissertation collection. Many students were really interested in my research—two wanted to study something similar in college, and three others would joke with me by standing within earshot, but without eye contact, and fake conversations about nature to make me laugh. One of these students did not have parental consent, but would often say things such as, “I really love trees and nature, don’t you? Nature is awesome.” Although meaningless for my actual research question, it does provide foundational understanding about the sense of humor shared by the students and their ease with my presence. Another student who did not have parental permissions referred to me a “Mom,” after I brought him his lunch that he forgot during one outing, and other students needed “mom hugs” after expedition and initiated hugs when they saw me. I feel that my smile and authenticity to my personality allowed students to relax around me. However, I wanted to respect students’ personal decisions and privacy, so I would insert reminders that they did not have to respond to me when I would ask questions within the context of natural
They usually responded with a laugh, most likely because my presence seemed unthreatening.

The staff and faculty welcomed me into their spaces and classes. I participated in the initial ice-breakers. I never formally introduced my research, only as informal conversations. Although I had a notebook and pen with me most of the time, I rarely wrote any notes outside of formal faculty talks—it did not seem natural, and I felt it would interfere with the flow. I instead would sit alone at a table to write notes as needed and later would write extensive field notes at nearby Turquoise Lake whilst atop a boulder.

The initial days at HMI brought several opportunities for students to get to know one another. Immediately after arrival, students turned in their cell phones, laptops, and medications. After tours and casual conversations, there was a Circle meeting in the Yurt-style Stuen Hall. Stuen Hall and the Circle ceremonies have distinct rules and traditions, including lining up outside the hall, remaining silent, removing shoes before entering, entering to the left and circling around the inside of the room, and then sitting at the same time. They had a Power Object, a rock that goes back to the first Circle when the founders started the school. Those holding the Power Object have the opportunity to speak. Everyone else should remain silent and listen. During this time, the Head of School welcomed everyone and acknowledged the challenge of travel and altitude. All were to introduce themselves and share how they are feeling, with the exception of “nervous” and “excited.” Students were tired and eager to go to bed. One young man, Kyle, from Brooklyn, NY, looked around to everyone and stated utter honesty, “I don’t know about y’all, but the only trees I’ve seen before this have been in a park. These trees here ain’t in a park. I don’t know what’s in those trees. I’m scared as hell.”

Every morning began with exercise: yoga, hike, jog, or aerobics. The second day, faculty went over rules, advising, hygiene, climbing wall, and risk management. All rules,
guidance, and risk management had the context of creating a place of community, a safe place of protection. They were intentional in stating that there were no labels at HMI, everyone was free to define themselves. “Our expectation of you is that you’ll be exceptional in all you do.” They shared 8 rules, all presented in terms of creating a safe and welcoming, albeit small, community for all attendees and staff. They closed with a letter from an expelled student, selectively quoted here:

Let me preface this by saying that I’m fairly certain that my time at HMI was one of, if not the most meaningful experiences of my entire life. Everything from the friends I made, the things I learned, the boundaries that were pushed, the community that was formed all resulted in an environment in which I felt I could truly thrive both socially and academically. ... HMI was the place where I felt most connected to something larger than myself, a community of individuals all striving towards a heightened level of introspection and a more conscious existence. Becoming a part of the HMI community and then having to leave it all behind was truly the most painful experiences I have ever endured...HMI, perhaps by design, coincidence, or a little of both, is not the place where what you may believe others think of you or your social credibility will impact your role in the community or even your overall experiences. My biggest mistake was assuming that HMI was like the other schools I had attended, where the superficiality of someone’s persona can come to define their position in the sometimes false social hierarchy that high school can be... (FYI, you should know by living in the tightly-knit community that is HMI, you really can’t hide too much anyway.)... (1) trust the school itself to be a welcoming place where you will be accepted for who you are, (2) trust the faculty at HMI, they really are on your side and just want your time at HMI to be the most academically, socially, and personally fulfilling it can be, and (3) trust yourself and know that self awareness...is the only way we can identify our flaws, and only then can we begin to improve ourselves as human beings.

Of course, by sharing this letter, faculty give credit to their policy about sending students home when students disobey, but they also give credibility to the community and the process HMI has in place to develop their community. This letter and the design of these initial days all set up the students to align with their mission: an ongoing repetition of inquiry, leadership, wilderness, expedition, and “shared responsibility in a strong community” (HMI, 2018, para. 13). This, combined with the application essay asking about applicant relationship with HMI ideals of “expeditions, intentional community, and place-based academics,”
indirectly establishes mental expectations within the students as they begin to design their identity and relationships to place and each other. It most certainly embodies institutional use of social learning to convey mission-driven priority in curricular and activity planning and execution.

**The Participant Story**

I chose to organize my field notes and written artifacts in a way that created an initial story of the participants. This allowed me to story the themes in a way that illustrates the connections between the participants and with wilderness. I present these stories here in the order in which I met the participants. The names I gave to the participants here are all pseudonyms. I chose their pseudonyms by using the Society Security list of names given during the average year of the participants’ birth. I found their names, or a derived name, on the list and then chose a name of similar popularity.

The first story here discusses the interns as a whole, and not as individuals. I did not anticipate the critical importance of the college interns in the student experience, relationships, and development of environmental thinking.

**Interns.**

In addition to faculty, HMI employs and houses college-age interns who offer more social guidance, supervision, and behavior modeling during the session. Each cabin of students had an intern assigned to it and named for the intern, i.e. Eli’s Cabin, Maddie’s Cabin. During the beginning of the arrivals, four of the seven interns were at the tables in the main hall writing letters. They invited Katja and Angelica, the first two students to arrive to HMI, to sit and chat casually. I am a person, who talks a lot, but casual conversation is not my personal forte; I admired the comfortable ease they created for the students during this awkward transition between drop-off and waiting for the airport arrivals to come to campus. They
framed their activity as “bringing back the art of letter writing.” Interns joined faculty and students on expeditions, social opportunities, morning exercises, meals, snacks, occasional cabin meetings/checks, and other outings. Faculty and interns lived on campus, but in a separate area deemed “never known locations,” meaning that students would never have a reason to be in those areas.

Due to these close living conditions, even with separated living areas for interns and faculty, everyone was together often and seemingly continually. This created a small community where everyone could feel known and could not socially or physically hide easily. As I watched this over the course of the summer, my primary focus was the students, however I could not help but notice intern interactions, in particular. Interns represented the transition between students—most were alumni of HMI—and faculty, thus offered a social insight and modeling of positive feelings toward outdoor activities, academics, and the general culture of HMI. Of course, they are college-age students—adults. They needed freedoms, privacy, and time away from the high school students enrolled at HMI. I observed this weariness most notably after the first ten-day expedition backpacking after all returned to campus on 9 July 2018. They physically separated from students and were quiet, avoiding eye contact. We shared some casual conversation about their trip. They were all tired and craving a shower and an adult beverage; I perceived that a few incidents or lack of hiking experience in the high school age students wore on them. They needed to be refreshed, and the next day they were rested and back to energy. They respected each other’s needs for respite and took turns resting or attending HMI student scheduling.

While the staff, faculty, and interns were not the focus of this research, I do need to comment on their influence on the community, and thus social aspects, for the students. As previously mentioned, I viewed the interns as a bridge, both in age and in experience,
between students and faculty. By employing college-age interns, HMI gained additional supervision of students and cemented a relationship with these interning alumni, increasing probability for alumni donations and for word-of-mouth recruitment. However, they also gained models of positive behaviors and relationships with outdoor activities and buy-in for the HMI programming. Humans, as a social organism (Dalgleish, et al., 2017), observed each other and form relationships typically. Positive interactions increased oxytocin and thus positive feelings toward people and the context in which those occur (Feldman, 2012). These positive social and contextual associations connected physically with neural responses. This means that the students’ brains not only recognized situations for social acceptance by trying and finding ways to enjoy the activities modeled by the interns, but their neural responses stimulated desire to increase those positive social interactions (Dalgleish, et al., 2017). By modeling this community between each other, the interns set a social expectation. In this five-week program, students had a limited time to establish themselves as part of the social system, and those who were socially cued by the interns would presumably emulate behaviors accepted in the community. Those who did not feel as if they could assimilate into the intern-modeled community would perhaps seek positive social feedback from a different social group, perhaps led by self or peers, or withdraw from the social interactions fully, beyond introverted personality. As the data unfold, I viewed it in terms of these assumptions, thus it was important to share observations of the interns as a general group and initial social grouping into which the students assimilated upon arrival to the HMI campus.

**Katja.**

Katja was the first student to arrive at HMI for Summer Term. Her mother arrived with her right at noon. Her mother knew me by name from the parental consent email, and she expressed interest in my research through her tear-filling eyes. Katja was overjoyed to be
there. She and her mother traveled from New South Wales, Australia. Although their travel together included California and other visits, their purpose was for Katja to attend HMI. She dressed the part: casual wicking t-shirt, tan hiking pants, boots, and a hat. She had a bounce in her step and fist-pumped while saying, “Hell yeah!” upon arrival when she discovered that she was the first person to arrive. Her mother cried a little, and they shared a hug. Katja settled easily into the campus.

As enthusiastic as Katja was during this initial entrance into HMI and the community, I noticed her energy levels decrease a bit over the next couple of days. She missed one class meeting due to a headache. When I returned to campus on my second visit, after their first expedition, I learned that Katja left expedition early at an evacuation point pre-planned by the HMI Director of Risk Management. The staff told me that she left due to mental illness. There was no clarification or willingness to clarify. She returned home.

Angelica.

Angelica arrived nearly 20 minutes after Katja. Her father and brother walked with her into campus, having traveled to area regional national parks for camping and hiking. Angelica walked tall and confidently, at ease. She was neither nervous nor consumed with enthusiasm, as Katja was. Angelica had an easy smile, but a cool distance. Both girls were eager to turn their cell phones over to HMI staff. They both agreeably called it “freedom.” Katja was more talkative during this interchange and discussed getting a flip phone, rather than their smart phones, in order to reduce reliance on them and to limit social media and constant connectivity. I held my own smart phone in my hands and wondered if I agreed with them. I wondered what five weeks without a cell phone would look like in 29 adolescents, using a mental example of my own college students who nearly all default to their phones during the slightest moment of inactivity.
Matt.

Matt is from a town about an hour south of Leadville. He walked coolly and confidently in comfortable outdoor-friendly clothing. He had climbing webbing on his sticker-laden Nalgene water bottle. His face, however, was open and expressed some insecurity—expected from a young man walking into an unknown place alone. I introduced myself and welcomed him with a smile, and Matt returned the smile easily. He did not have many words to share. Initially, I wondered if he had an insecurity, felt aloof, or if he was a bit introverted and still happy to be there.

Matt was quiet in classes and in the initial days at HMI. Even though he shared a cabin with other young men in the program, I did not notice much interaction socially over the next few days. As the first ten-day expedition approached quickly, Matt’s aloof quietness was less noticeable in the sea of his peers’ nerves! Nine days after I dropped his group off at the trailhead, I met the same group at their endpoint. Matt still stood off to the side. I wondered about his social connections. However, returning to campus, I saw him hug some of the other students and smile. As that second visit continued, I saw that Matt was a laid-back young man, perhaps more introverted than not, but he indeed developed observably positive interactions with the other students, though mostly other males.

Autumn.

Autumn was one of the younger students at HMI during this summer term. She was a very successful cross country and track distance runner in just her first year of high school. Her initial application essay noted the opportunities to be outdoors with other friends who pushed her to be better. Though she was younger than most of the students at HMI and less outgoing than others, Autumn expressed laid-back acceptance, humble participation, and a strong willingness to be athletic and challenge herself. The most surprising observation I had
of her was after the second expedition when all of the students in the group ran back up the hill after dropping their packs at the bus, peeled off their clothes, and jumped into the mountain stream despite the 58 degrees air temperature! Autumn was one of the first ones into the water and went fully under on a dare. She laughed with everyone, but she did not limit herself to one group of students. Along those lines, though, by not limiting herself to one group or another, I did not observe her as developing anything more meaningful than comfortable camaraderie with peers. Autumn pre-arranged to leave after the second expedition for a cross-country training camp, so I was unable to observe her during my last visit to HMI, the fifth and final week.

**Olivia.**

Olivia was a Leadville resident. Leadville students had an opportunity for a scholarship to HMI. This helped provide a connection between HMI and the local community, a critical puzzle piece for their mission and curriculum considering the focus on place-based programming and course-work. Olivia had a quick and easy smile, but she is very quiet and seemed to struggle with becoming freely comfortable with social interactions or inserting herself into conversation. She did, however, stay involved and participated openly in class-based courses or in physical opportunities.

**Steven.**

Steven was a big band and jazz saxophonist who played in various traveling bands. Though self-identified as shy, Steven noted his passion for music and his best friends through his music involvement. His purpose for leaving California and the immersion in his music scene for the mountains and HMI was two-fold: his desire to explore his love for the outdoors and learning whilst immersed in the outdoors, and his awareness that college was looming as was
a new and tightly-knit social independence that he would have to navigate. He viewed HMI as a way to explore his place in both scenes. My initial impressions of Steven were a bit conflicting. He seemed awkward, quiet, and out of place. However, his first introduction to the group during Circle that first evening demonstrated his quick wit, laid-back approach to social interaction, discomfort with eye contact, and a silly series of nicknames. I could not decide what my initial personality assessment should be for Steven. He was quiet and even difficult to overhear in conversation! As my observations progressed into the second and third visits, I saw Steven evolve into a type of quiet leader—still quiet, but someone who became the center of his immediate friend group. He wound up connecting with another participant, Brittany, and they developed a summer romance during the second half of the program.

**Brittany.**

Brittany was a hard-to-miss student this summer. Not only was she tall with a shock of long, wild blonde curly hair, but she also had a big personality expressed with a loud voice. She had notable attention-getting strategies: laughing at herself, exaggerated movement, and more revealing clothing than other students. She was from a flamboyant resort town on the East Coast, and after reading her application essay, I learned she sang in jazz clubs. The combination seemed to support the almost stage presence she demanded upon entering a room. She gravitated toward male students more naturally than other female students in the HMI summer term student group, in particular an athletic young man from KIPP schools in New York City during the first days. They would talk during class meetings. Eventually, though, while he stayed in Brittany’s group, she made a connection with Steven and, by my last week visiting HMI, they were the only apparent “couple” resulting from this Summer Term. She readily shared her ideas in class with a diverse vocabulary and with insightful critical thinking. She was typically fairly positive and aware of other people. Often that behavior and positivity
emerged through her singing, an activity that spread to others in the group. However, in the more physical-oriented classes, despite her joy for fitness and running, Brittany struggled to take risks in looking imperfect in an activity such as storm proofing, rope organization, navigation, or climbing. This struggle resulted in increased eye contact with the young men in her group and self-laughter, both of which distracted her from the tasks at hand and ended in non-success.

**Jasmine.**

Jasmine was from Ohio, but very well-traveled. She cited trips to Costa Rica and Peru in her application essay, both included physical adventure and desire to develop her personal independence. She was independent at HMI, and although she was quieter in the whole group setting, she was talkative in smaller groups. As a lacrosse athlete, Jasmine often spent free time at HMI doing physical things: climbing in the bouldering room, biking, or going for a run. Jasmine had knee surgery prior to HMI, but still wore Kinesio tape on it and a brace as needed while backpacking. She did not talk about it with peers, and it never appeared to slow her activity. Socially, Jasmine integrated into a solid camaraderie of other female students and a few of the males who had outdoor experiences. Jasmine and another of her friends were interested in my research and would ask about how groups form dynamics. I thought those were very insightful questions, even for adolescents to look objectively at their own group as a group with their own unique dynamic and individual interactions that differ from other groups. Jasmine’s application essay echoed her verbalized interest in groups by writing about her interest in culture and immersing into the unique features of an area and the cultural history and present.
Nelly.

Nelly joined the HMI Summer Term from Germany. She was an adolescent who seemed to always smile, and the faculty notes conveyed this joy for life as well. Nelly spoke German natively, but learned English as most students do in German schooling. I enjoyed noting fewer instances of “I don’t know the word in English.” as my visits progressed; Nelly had an excellent mastery of the English language, and this immersion made that more concrete for her. In watching her interactions with peers, it was evident that Nelly was laid-back, outwardly happy, and easy to harmonize in varied social scenarios. Like Jasmine, Nelly enjoyed the physical nature of the HMI experience. They joined other, mostly female, students in the bouldering room for peer or personal challenge. She would also frequently go out for bike rides. One evening, just before the second expedition, Nelly went out for a bike ride and got lost. HMI encourages outings, even alone, but there was a sign-in sheet that had to be signed by the Faculty On Duty (FOD) or the Intern On Duty (IOD). In that she was a place for location or route, a return time, and a “panic time.” Nelly was within that time, but she wound up going the wrong direction. Fortunately, a local woman recognized that this was probably an HMI student on the wrong path, and she took Nelly and the bicycle back to campus. They all referred to this as the hitchhiking adventure while falling into giggles.

One observation that summarizes Nelly well was in a classroom, actually, during Humanities. The students read various documents of historic and present Leadville, mining industry and social issues alike, and they covered the walls with student-identified stakeholders organized by time periods. Then, they connected stakeholders physically with colorful yarn and conceptually by taping an explanation of the connection to the yarn. Rather quickly, students began to toss yarn balls, purposefully, and referred to each other with new, momentary, nicknames like “Tape Man.” As things began to wind down, Nelly started to
Limbo through the yarn web snaking through the classroom. The first one, though, was just a way to move in and out of the classroom in a way that used more physical movement than merely bending forward, but then she decided to try the lowest yarn connections. She was impressively successful.

Kate.

Kate is from New York City, a self-defined “city girl.” She wrote her initial application essays about the joy of the city, the awareness one needs in the city, and the availability of activities. She had a high interest in fashion and theater. She expressed in her clothing choices and careful grooming. Initially, I saw that she interacted with peers with joy and polite poise, to the point where my field notes included her perfect posture and smile while working on the floor and writing on a large notepad to record notes for the group. However, during my second visit, I noted her switch to Birkenstock sandals, flannel shirts, and denim overalls. A few days later, they went into the downtown area of Leadville to conduct stakeholder interviews of folks on the street. That evening, I saw that Kate had her long, dark brown hair shaved fully. She connected with an intern at HMI who had a partially shaved head and outdoor friendly clothing while still looking fashionable. I interpreted Kate’s change as an embracing of outdoor life, modeled after the intern. Kate was part of the friendship bracelet crew, which was not an exclusive group at all, rather just a crew of people passing time with embroidery thread, tying bracelets, and sharing design ideas. This group at one time or another included Kate, Nelly, Shelby, Maya, Alexis, Ashton, Ben, and occasionally others, including those outside of the permissions of this study.

Kate self-identified her desire and expectation to find people at HMI who were like her; I anticipated this meant passionate, city-savvy adolescents seeking adventure. I did not think she was alone in this expectation, as people tended to find similar to themselves on
varied levels (Lewis & Kaufman, 2018; Feld, 1982). In her final reflections, Kate noted, “It was not like minds that I needed.” Those moments along the trail, depending on each other while “at the will of nature,” she wrote that she “saw the incredible beauty within each of you.” Kate released her hair that she shaved and saved back to the mountains, surrounded by those she learned to love, atop Mt. Massive during their second expedition.

**Ben.**

Ben looked like the youngest students at HMI during this Summer Term session, and he probably was close to it. Small in stature and contributing a strong background in mountain sports, including climbing, Ben quickly became a peer leader and encourager in the bouldering room on campus and on rock faces in the field. Ben naturally smiled and shared supportive words, both of which settled Ben into solid friendships within the group. Although his body was a bundle of energy and constant motion, he seemed well liked by all. He quickly succeeded at various physical lessons, such as learning knots. I was sure this came from his prior experiences. After a quick redirection, he would partner up with others as they caught on to do self-started timed competitions or trying to flip the rope into a knot rather than just tying it.

Ben was in constant motion. Ben did indeed have an ADHD diagnosis, but I was particularly interested in the fact that about 25-30% of the students had an ADHD diagnosis, based on self-reported and anonymous data during a diversity activity at HMI. About that same number of students also reported anxiety and/or depression, some also with ADHD. According to the CDC, slightly more than 9% of children between the ages of 4 and 17 had an ADHD diagnosis, and nearly $\frac{2}{3}$ of those children have at least one other mental health diagnosis (Danielson, et al., 2018). Here at HMI, though, there were still moments of classwork, reading, writing, and discussion. One management strategy I observed, outside of
the access to outdoor activities, though, was the use of wooden chairs that had a length of wood connecting the front and back legs of the chair similar to a rocking chair. However, it was nearly straight on the front portion and angled on the back so there was a slight movement option like leaning back on the legs of the chair without falling. The setting was welcoming of different kinds of learners, and this was one way it manifested.

Shelby.

Shelby was outgoing from the beginning and the first name that I learned, although not in person. She called HMI because she was lost in the Denver airport after flying into it from Minnesota. I was able to hear her talking with the Director of Programs and heard coughing and panic in her voice. Even when she arrived on campus, Shelby was very concerned whether she was in over her head and able to do this experience at all. Additionally, she was sick. Shortly after arriving, she met the Summer Term Coordinator who spoke to Shelby in Spanish. That one interchange is what Shelby cited as the turning point for her attitude toward HMI. From her initial essays, it seemed like Shelby came to HMI on a whim and became overwhelmed by the experience until she realized it was a community that welcomed her.

Shelby quickly found her voice in the student group and became that joyful voice that rang with laughter above the rest. Her summative essay is full of memories that jump from one story to another, sometimes without completing the sentence she started. This was not a result of her grammar; rather it spoke to her enthusiasm. Even in her initial inner struggle, Shelby came out of the HMI summer with fond memories, positive interactions, and personal growth over challenges.
Maya.

Maya connected with me early in the Summer Term because she loves psychology and wants to be a researcher who studies people, so she was excited to learn about my research. She was nervous at first, of course, but bubbling and friendly with everyone very soon. She formed a tight bond with Ben and three other non-participants, but she was often in the full friendship bracelet group or out running or riding bikes. One of these girls were very good friends with Maya, and the two of them would often “fake” data conversations to joke with me. They would stand within earshot, but outside of direct vision, and say “Oh I love trees, don’t you love trees? Nature is so cool.” They would see me look their way, and we would all laugh. But she did note in more serious terms in her final essay, though, that the environment was transformative for her. The forest lost its fright. The Rockies became home. Through the faculty guidance and friends to share the experiences and expeditions, she became equally aware of other organisms and natural joys like a full moon as she used to be about her movements on a theater stage back home in Massachusetts.

Mario.

Mario, like Olivia, was a local Leadville resident. He drove to campus, but did not arrive until 4 p.m., just before the buses arrived with the students from the airport. Mario has a mix of various heritages—Native, Mexican, but identifies as “a native Leadville guy.” My initial impressions tagged him as a bit socially awkward and an adolescent who tried to be outgoing despite introverted tendencies. However, by the end of the term, though, I felt he was very comfortable in his skin and in his conversations with a variety of students. Regardless, though, Mario always wore a smile. In fact, after reading his essays, Mario set a goal for himself to break out of his shell. He previously used theater to express himself, but this Summer Term, he was able to find confidence as his own character. The faculty notes
from the first expedition discussed this transition in terms of using the peace of the backcountry to demonstrate “great emotional intellect in his willingness to share vulnerability amongst his peers and his ability to energize...our group.” They used this to define him as a “textbook lead-by-example” peer leader. I felt this summarized my observations of his, as well.

Mario, himself, inadvertently addressed this shift in personal comfort and social ease that I mentioned previously in his final essay for the Full Circle closing event. He wrote about feeling out of his element, even though he hailed from Leadville, out on expedition. Maybe hiking and backpacking just was not going to be life changing for him. However, about halfway through the first expedition, he looked up at the night sky after tucking into his sleeping bag. He found himself finally looking at the stars instead of glancing past them and obsessing about everything else. “Isn’t this such a beautiful time? Isn’t it nice to find yourself somewhere different and real? I should just let myself be wherever I am. I stopped worrying about the life changing and started focusing on the moments with the land and with the people.”

**Kyle.**

Kyle was one of the most distinctive students attending HMI this Summer Term. From Brooklyn, New York, Kyle was openly out of his element in the isolated campus outside of Leadville. During the first opening Circle, he did not remove his sunglasses that he wore consistently through the summer, but I could still tell that he listened intently at all of the students talking about their excitement for expeditions. He was one of the last people to talk about his feelings upon arriving to campus during this Circle, but he took the moment to be honest. “I don’t know about y’all, but I’m from Brooklyn, New York. We don’t have trees there that aren’t in a park. These trees around here are actually real trees. And we’re not in a park. I don’t know what all is out there in those trees!” Prior to the first expedition, but after the
hygiene lesson, Kyle expressed his fear, “I am convinced I am going to look up when I’m squatting behind a tree, and a bear is going to be standing there watching me!”

I waited at the trailhead where the students were going to emerge after their first backpacking expedition. In this group were Kyle, Angelica, Alexis, Shelby, Matt, and five other students not in the study. After they emerged, most pulled out their journals to finish their humanities essays and personal reflections or evaluations. They met individually with the faculty or intern leaders prior to packing up in order to go over their goals and post-expedition feedback. The students told me how clean and hydrated I looked and asked for hugs. Kyle was a hugger, too. He asked to show me his entry he wrote on expedition, which I thought was really quite special to have this 16-year-old young man proactively share his writing!

In all honesty at first I was not exactly fascinated by nature. The only thing I could think of was my suffering and exhaustion. As I began to relate I saw the beauty secreted away within the trees. Truth be told every an, tree, plant, and creature has a story that I find important for myself to learn and dissect. As I surround myself with the vast wonders I have been able to further my own story. To create and live this story is nothing short of a dream as my own part has bonded not only with those that I have ventured with, but also with the creatures and plants that have shielded me from the outside world. In short what a wonder this trip has been.

This bit of writing was not a mandatory reflection, rather just one of few pieces of writing that I have from Kyle. His application essay mentioned his excitement for learning outdoors, but his behavior on campus definitely changed considerably toward nerves compared to the excitement he planned in his application.

Kyle was very outgoing. At the end of each expedition, he ran into each of his “bros,” crashed, and hugged everyone, even me! He hugged me when I left after the first and second visit, and, like everyone, at the end of the Summer Term altogether. He always had beats
going in his mind, and sometimes it came out physically—turning anything in his hands into an instrument. Otherwise, he was generally quiet in formal classes, even sitting alone sometimes. Outside of class, though, Kyle came to life. HMI kept a stash of costumes on campus for various events, such as the talent show. For the social square dance, Kyle was the first to come out in a costume: a pink satin and silver sequin prom dress. It was infectious and other students went back into the building to select a costume, like Steven who selected a red, fringed flapper dress and shaggy wig with plaid tam o’ shanter.

Alexis.

Alexis was a student from Savannah, Georgia. She gravitated my way until she began to get to know her peers better. She described herself as introverted, but she used piano to get to know others. She played an earworm popular song that stayed in everyone’s mind throughout the summer, but it gave her an icebreaker for starting conversations. Additionally, Alexis had a sarcastic sense of humor that helped mesh conversation into friendships. She was very uncomfortable with leadership, whether in free time with peers, in team building games, or during her “Leader of the Day” opportunity on expedition. Unfortunately, this manifested itself in a bit of negativity. Faculty told me that Alexis slowed down the group a bit during expeditions. Alexis told me that she dealt with considerable mental health issues, including anxiety and depression. I think the combination of these concerns, combined with a virus or headache, made her call for an evacuation from the second expedition. The Summer Term Coordinator called it a “medixperience,” since she was okay but “appreciated the time back here on her computer.”

I could tell that Alexis was ready to head home to Georgia when she used her laptop to show me her old home on a real estate website. Her family just moved to a new home just before the HMI Summer Term, so she showed me her new home, too. She positioned the
website to show the cost of the houses, so I was sure that she wanted to make sure that we knew she was well off. Alexis had a lot of internal struggle, but in her final essay, Alexis addressed these internal struggles. She found a joy for rock climbing and the moments of peace in nature, but she will probably not be doing a backpacking trip anytime soon.

**Ashton.**

Ashton was a far quieter student than the others mentioned here. I had fewer observations of her due to my focus on other students who I followed to and from expedition or in classes. I did, however, watch Ashton in the climbing room. She enjoyed climbing a lot and would challenge Alexis, Ben, Nelly, and Maya to various route challenges. Ashton was also from New York City. She had few wilderness or outdoor sports experiences, but she was very athletic and excelled in both the physical, mental, and interpersonal components of the expeditions. Her quiet nature, however, held her back from peer leadership, but she was a part of a friendship group, usually in smaller numbers of friends.

**HMI Student Activities.**

**Circles in Stuen Hall.**

Stuen Hall was previously a genuine yurt built specifically for community meetings to symbolize both the strength of wilderness and the strength of community itself. In the beauty of nature and in the shadow of Mt. Massive, the founders planned to create a space where people could come together and build a unified community to think critically and systemically to rise above challenges. After a fire in recent years, Stuen was rebuilt as a permanent structure that maintained the yurt style. Circle was a method designed at the very beginning of HMI between the two founders to facilitate formal conversation or difficult discussions in a methodical manner. They used a hand-sized granite stone, typical of stones scattered
around the terrain, as their object of power, meaning the participant held the stone was the one who could speak, and the others were supposed to stay silent and listen fully. Even entering the building for Circle, not classes, was a methodical system, seeming to slow the participants to acknowledge tradition or the sacred. Students aligned single-file and silent on the boardwalk outside of Stuen, and they entered moving toward the left and circling the circumference of room, standing until they all were inside, and sitting when they were all inside the building. At that point, the leader or the person calling the Circle, would turn an hourglass in the middle of the room to begin five minutes of complete silence.

The first Circle, as mentioned previously, was an introduction and welcome to HMI and to the full group. The next Circles were recreated on Expedition to share concerns, observations, reflections, frustrations, and plans. Since I was not present for these Expeditions, my knowledge about them came from reading student essays and chatting with them casually. The next Circle physically in Stuen was a Community Meeting on July 9, the first full day after the return from the first Expedition. This one was to include a Community Meeting to establish community norms and rules based off of the HMI mission statement and diversity statement. The five minutes of silence was still uncomfortable for the students. Ben wiggled, and Brittany struggled to stay quiet. Others eventually just closed their eyes. Mario sat up tall with his hands to the side as if he was doing a meditative pose. It was tough for me, too. Eventually, the Summer Term Director announced the plan and pointed us toward the mission and diversity statements, listed as written on the tablet paper in the following Figures 1 and 2, with the prominent words as identified by students.
Students freely spoke the words that resonated with them. I was unable to keep up with the various speakers, but the words spoken were the following: engage, boldly, unites, experiential, wilderness, expeditions, community, realize, independent thinkers, and thoughtful. Several students repeated the same words as others. The students then used previous group experiences to think about things they wanted to keep in this community, scrap, or adapt for this community. In groups, they wrote their ideas and compiled them into two rules for the community. The groups then offered them to the full group for their own community rules:

1. Go out of your way to include others and avoid unhealthy conflict to create a positive environment.
2. Challenge yourself to engage in intellectual inquiry in and out of the classroom to promote curiosity without harmful pressure.
3. Live to the price of your heart but not at the cost of
others; challenge yourself and others, but support each other all the while.
4. Enter new experiences with an open mind and an uplifted spirit.
5. Treat others the way they want to be treated.
6. Be an active community member who looks outside themselves (sic).
7. Keep an open mind with respect to people, their identity, and the environment.
8. Actively work to create and maintain an intentional and curious community.

Figure 2.

*HMI Diversity Statement*

![Image of handwritten diversity statement]

We continued into the diversity statement with the same opening. Figure 2 shows the HMI diversity statement with the words highlighted that the students mentioned as being significant. Again, students freely spoke the words, and I was unable to keep up with the speakers while highlighting words spoken: diversity, inclusion, growth, potential, achieve, community, belonging, confidence, express, and self. After this, the interns gave us all six
strips of paper, each of different colors. Each color represented six different diversities. Purple was sexuality. Red was socioeconomic classification. Yellow was physical or mental abilities. Pink was race or ethnicity. Finally, blue was religion. We listed the words that defined ourselves in each of these categories on each strip of paper.

This was very uncomfortable for me, personally, as I am not sure I had ever physically written these personal attributes on paper. I looked around at the students. Here I was, a 39-year-old woman struggling with this, not sure how to proceed. I did not know if I would have to read these to the group. However, I decided to just write it, just like the students, interns, and faculty did. They appeared to be universally serious and focused, many looked uncomfortable and others at ease. After we finished writing, the interns recollected the strips into the bowls and mixed them. Then they redistributed the strips of paper. We were allowed to keep our own if we drew it out of the bowl, but our mixed strips created a new individual. This new list of diversities was the list we were to use to answer the Summer Term Director, MJ’s, next set of directions. MJ asked us to stand when she read our diversity for each category, and she offered another category by saying, “Please stand if you have a diversity that I have not named, and please read what was written on your paper.” My new individual was made of strips listed in Figure 3.
It was powerful to see the various ways the community was both similar and different from each other. No one stood up in the “poor” category; most were upper to upper middle class. There were some differences in the sexualities; most were heterosexual, but some identified as gay, lesbian, asexual, or bisexual. Almost all identified as some type of cisgendered male or cisgendered female; only one was agender. Mental and physical abilities ran the gamut, and some included positive attributes. The greatest number stood for ADHD, depression, or anxiety. Religions were widely diverse. Most students were white, some were Latinx, others Native, or Asian of varied descent. One key diversity missing from the listed options offered by MJ was African American. Considering there were two students identifying as black or African American at this institution that desired to recruit more non-white students, this felt like a significant oversight.
There were other Circles and Community Meetings when I was not on campus or during Expeditions, but the last Circle was a very sacred event for the HMI experience. I always asked if it was appropriate to join various events or programming, and similarly, I asked about attending the Full Circle on the afternoon before the students left campus for the summer. The Director of Programs, Jessica, asked for this to be kept as the sacred Circle of participants. During this Full Circle, students wrote and prepared “Full Circles”—closing essays—during their solo experience the previous night and finalized with their advisory group that morning around Turquoise Lake. These essays were supposed to show their reflections, lessons learned, final ideas, and memories. They were not supposed to be a laundry list of friends or problems. HMI keeps a copy of every student’s Full Circle that has ever been written at HMI. I was able to read these, and it helped me assess the lasting ideas. These will inform my themes later in this chapter.

**Off-campus and other less-formal social events.**

Since the students were living at HMI for five weeks, it is logical that leisure-like activities were built into the overall program. These activities were humorously termed mandatory fun. HMI was very methodical about scheduling non-academic and non-expeditionary activities. Students were grouped purposefully for these activities. The activities included exercising every morning before breakfast, whitewater rafting, swimming at the Leadville Aquatic Center, visiting the hot springs, fly fishing, and square dancing. I observed whitewater rafting and square dancing.

One thing I found interesting about HMI was the student groupings. They never allowed free choice or spur-of-the-moment student groupings. All planned events that required smaller groups had pre-planned groupings. Students did have free choice for meals or non-scheduled free time to partner with whomever they wished. I hoped to see student-
led groups to see how social interactions occurred in activity-based programming, but HMI staff were purposeful in re-mixing students in order to split groups that were too isolating.

During the third week, near the end of my second visit, I attended the square-dancing social event. They brought in a professional square-dancing caller and had the music piped through an audio system. The students dressed in costumes, either with western wear constructed from their own clothing or with costumes in the HMI stash. Kyle came out strutting in his pink satin and sequin dress, greeting everyone with his signature, “Bro!” Students trickled out to the gravel parking lot that served as the square-dancing floor. While they waited to begin, Brittany, Steven, Ben, and other students in their group gathered around the basketball hoop. Some played. Maya, Shelby, Alexis, Ashton, Kate, and Jasmine chatted off to the side. The others filtered into the area, talked to interns, or moved between groups. Steven, as mentioned previous, went back to change. Once the event started, students jumped right into the square dancing. Some appeared somewhat awkward, but it faded quickly as they became involved in the directions. Alexis was outside of her comfort zone wearing a feminine outfit, as selected by her roommates, but even she relaxed and partnered with Shelby for the dancing. Later, Angelica laughed about it to me that while it was silly; they all participated to make it work for the group. “Either we all have fun and do this, or we ruin it for everyone.” There was a lot of laughter. I did not participate, so a couple of students, the director, and an intern asked me to use their cell phones to film it for them.

The following day, I followed the student busses to the whitewater rafting location and helped with sunscreen and PFD tightening, and then I followed the rafting bus to the drop-off. The students went to their rafts with their groups and their guides. They looked surprisingly serious and nervous as a whole. Most had never been rafting; only six had gone previously. Angelica, though, from the first day I met her, was calm and confident. That carried
into this rafting experience, “Come on guys, we got this!” She had gentle encouragement to her group as they lifted the raft onto the hand railings and guided it down several flights of stairs to the Arkansas River. After the float, I met the students at the take-out location. The rafts came in fairly quickly, within a minute or two of each other. They were notably exhausted and low energy. They did not run up the hill or joke with each other. Some, however, were still smiling and excited to see me. Several needed hugs, and others asked for photos. Three students who are not participants asked me to take their photos and send them to their mothers. I walked them to the bus, and I said good-bye. One bus was rather vocal that they wanted me to stay and hugged me goodbye.

Expedition, though not a leisurely activity, was a critical piece of the entire HMI experience. In the 37 days of the HMI Summer Term, 20 were spent on expedition. The 29 students were split into three groups with four faculty and interns per group for Expedition 1; and the 28 students for Expedition 2 had similar groupings. The students had different combinations of people, purposefully selected by staff as mentioned previously. The expeditions covered 30-38 miles in the Sawatch Range. Students summited La Plata Peak or Mt. Antero on the first expedition and Mt. Massive or Mt. Elbert on the second expedition. During this time, the nine or ten students were split into three or four tent groups. Additionally, they had a separate group for cooking. Outside of hiking, students learned alpine plants, stars, animals, geology, and weather. They had readings, journaling, and map reading. Each student also participated as the Leader of the Day (LOD). The LOD was in charge of way-finding and map reading without interruption from faculty or interns.

These are the pieces of HMI that illustrate the codes from the written documents within the context. A few important pieces emerge here. First of all, the participants in the HMI summer term found peer groups in the process, but HMI proactively reorganized and
designed groups for equitable mixing of peer groups. This created a community of learners and participants reaching beyond interactions into relational skills for leadership and followership. Additionally, HMI paired intern alumni with the student groups. This mentorship served the logistical need for staff guidance and supervision, but upon my observations, they served as natural scaffolds into community-driven, outdoorsy, and environmentally aware young adults.

Unexpectedly, though, the role of context seemed to be critical. The students moved away from their homes and schools to isolate in a wilderness-oriented environment without cell phones. Then they poured all their energy into preparing for and adventuring out on a ten-day expedition within days of arrival. The students had no choice but to learn to depend on each other and mentors to fight through challenging terrain and discomfort. I code this as disequilibrium. This is the essential moment for mentors to be present and model desired behaviors, such as pro-environmental behaviors. In the preparation for expedition, the interns build a support network for the students who were nervous about departing on the ten-day backpacking trip. However, they served another purpose: building awareness of human impact on wilderness and consequently normalizing pro-environmental behaviors. The major example here was bathroom choices and hygiene. Few adolescents are comfortable with conversations about bathroom behavior with peers they only just met—but the comfort and openness of the younger interns normalized the atypical, but earth-friendly bathroom behaviors needed on expedition. The combination of discomfort and mentorship were thus essential for developing universal pro-environmental behaviors in this group of adolescents.
Written work.

Over the course of this program, I collected several artifacts: application essays, first expedition self-evaluations, first expedition faculty evaluations, online blog authored by students about expeditions, reading journals written on the first expedition, college essays written on the second expedition, and the final Full Circle reflection written during solo. In reading these essays, I isolated eight codes: Nature or Wilderness, Community or Relationships, a Better Way of Learning, Stretching beyond Comfort Zones, Personal Growth, Physical Fitness or Activity, Planning for the Future, and Leadership. These codes did not emerge in every piece. For example, students wrote about venturing beyond their personal comfort zones fairly often, but the jarring result, the disequilibrium, of this was something better observed. Sometimes pieces were more summative and not particularly informative, such as the expedition blogs for the HMI website.

To summarize the presence and universality of these coded concepts in the student writing, I created a table to visualize the varied use and prevalence of use of these eight concepts per student in the study through the different writing samples. This visualization helped me to see my data in a way that revealed patterns of use or importance for this group. While I did not see behaviors that were selectively environmentally focused or has many grand conversations about sustainable behaviors, I aimed to look at these data for changes in patterns of use from the application essays to the college essay written during the second expedition, and the final Full Circle essay, particularly in the context of my observations. There were three pieces of writing I chose not to include in this numerical comparison: the online blogs, the goals and self-evaluations written before and after the first expedition, and the readings essays written during the first expedition. Groups of students composed the online blogs, and they were geared to be online. Since I did not see them until it was out of context,
I could not verify that HMI staff did not edit them or how the blogs represented equitable collaboration. The goals and self-evaluations were more like worksheets and guided students to write about leadership development, communication styles, and expedition processes like campsite cooking or map reading. Finally, the reading essays, those informed by individual experiences and interpretations, were still based on specific questions about the readings. The readings were Wendell Berry’s essay “The Work of Local Culture,” Zitkala-Sa’s essay, “Why I am a Pagan,” and Leslie Marmon Silko’s essay “The People and the Land ARE Inseparable,” from *Yellow Woman and a Beauty of the Spirit*.

In Table 3, I represented a numerical tabulation of the presence of the eight concepts I coded in all of the student-composed and the HMI marketing and course materials. I do not want to miscommunicate the occurrences; the individual numbers are not as telling as the shifts in focus merely symbolized by the numbers. For example, a student may have of lower use of nature or wilderness related code in one essay over the other because the essay was not as long as another.
In this application, the students wrote two essays. The first was a general opportunity for students to reflect on the HMI Mission Statement and communicate their personal story and potential to thrive under the HMI mission. The second essay was an opportunity to share a meaningful experience, hobby, or part of their life that they value greatly. The general average use of the coded concepts seemed to favor community, friendships, family, and excitement to meet new friends. Another focus was nature, wilderness, or excitement about experiencing either. These would be natural concepts for adolescents applying to a residential school in the middle of a very natural part of the Colorado Rockies. Students wrote less often about their comfort zones, future planning, and leadership skills. Within this same essay, though not addressed often, nearly every essay spoke about a desire to experience a new, different, or better way to learn.
It’s a new, better way of learning. Instead of being cooped up in a classroom, there is (sic) opportunities to get hands on training and learning in the wilderness and gain new experiences. This opportunity appeals to me simply because it’s different. (Mario)

In New York, I don’t see much nature and I hope to refine my understanding of it. (HMI) differs very much from what I currently learn as at this moment of time I am taking classes focusing on preparing me for college and not necessarily the world. (Kyle)

Simple living where modern devices and electricity in the bunks are prohibited. To a city girl, leaving the conveniences of lights and cell phone reception might seem like a prison, but to me, it is a paradise. I can learn to embrace the simple living. Doing academics in the outdoors would be a new and exciting experience for me. (Kate)

Students came into HMI expected to learn in new ways. They valued being a social organism and looked forward to being in a new place to experiment with pieces of their personalities, complete with a new set of friends. One would expect such concepts would emerge in these essays. Developmentally, adolescents would not naturally focus on future planning or awareness of their comfort zones unless it was part of the expectation or discussions, so I was not surprised to see this trend.

More telling, though, is the lack of discussion about leadership. Plenty of adolescents, particularly in a group motivated enough to complete an application and travel across the country to a five-week academic experience have some sort of leadership experience: mentorship, student council, team captains, or even making decisions for friend groups. However, few chose to talk about these types of experiences. Ben briefly talked about being a Junior Ski Patrol. Angelica discussed mentoring another student with special needs. Nelly wrote about how her decisions affected the crew team. Others were similar. Those who discussed leadership did so in passing. This was interesting because the specific worksheet for
planning goals and providing self-reflection used on the first expedition required students to consider their impact on both self and others and the roles of their skills on the success of the expedition as a whole. Frankly, the stakes were high. Not only was it a written piece, but it was related to the context of expedition: eating, sleeping, physical hurting, and map reading for the hiking. Each student took turns as the Leader of the Day (LOD), and they had to make decisions for the entire group. Their failures and successes could not be hidden or made insignificant. This first expedition happened after only three days at HMI. It was formative for students in breaking down walls and put everyone on the same level. It humbled everyone. This was the background, then, for the coursework and then the second expedition when students wrote a sample college essay based on a prompt about the place where they live from the standard college application that I represent in the coded concept count in Table 4.
Table 4.

**Uses of Statements Related to Concepts: Standard College Essays**

<table>
<thead>
<tr>
<th>2nd Exped</th>
<th>Nature</th>
<th>Community</th>
<th>Learning</th>
<th>Comfort Zone</th>
<th>Physical Activity</th>
<th>Future</th>
<th>Pers. Reflect.</th>
<th>Leadersh</th>
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<td>4</td>
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<td></td>
<td></td>
<td></td>
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<td>3</td>
<td>7</td>
<td>0</td>
<td>4</td>
<td>0</td>
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</table>

Averages: 4.3 2.5 0.6 2.2 2.6 1.3 3.7 1.0

Given that the HMI Summer Term does not contribute to grades back at the sending high school like the Semester program would, sometimes students may miss an assignment deadline. Angelica and Mario missed this one. As previously mentioned, Katja missed this because she went home during the first expedition.

The data in Table 4 show some changes in usage of words thematically coded. Since the topic of this essay was about the student interpretation of home and not related to schooling or summer camp, I expected lower mentions of better ways of learning. Community and friendships were still important to students. The students, though, chose to write about other topics outside of these themes. However, perhaps these weeks of challenges, physical exertion, and intentional reflection during Circles or self-evaluations, students seemed to
have more reflective themes. Students wrote more about leadership ideas and planning for the future.

About over an hour of hiking while I was LOD, we were off trail. We encountered this really big trail going uphill. So I pulled out the map again and realized we were at a drainage. If we followed it downhill, we could follow a stream and eventually arrive back at the trail. (Olivia)

This quote, though intended for a college essay, represents the effect of the leadership and supportive community. This could have easily been a negative memory for Olivia, but instead she valued it enough to demonstrate her passion for the wilderness around Leadville.

Finally, the culmination of HMI was the Full Circle and the corresponding essay that would be read aloud during the last Circle. It was written by each student during the solo experience two nights before departure and revised with the faculty and advisory group. Table 5 summarizes the number of references to each theme. Given the context of adolescents departing friends with whom they spent five weeks and the context of the reflection-based programming, I expected considerable focus on friendships, community, learning, and personal reflection.
Table 5.

Uses of Statements Related to Concepts: Final Full Circle Documents

<table>
<thead>
<tr>
<th>Full Circle</th>
<th>Nature</th>
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<th>Learning</th>
<th>Comfort Zone</th>
<th>Phys Activity</th>
<th>Future</th>
<th>Pers. Reflect</th>
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</table>

Again, most students completed their Full Circle essay during solo and submitted it on time. Kyle missed the deadline. Autumn left shortly before the end of the second expedition to return home for high school Cross Country training. The numbers increased in many categories, but these essays were not longer than the college essay discussed previously. The nature of this assignment, though, stimulated more reflective thinking and ideas based on HMI mission ideals.

Most students wrote a deeply personal Full Circle essay, and Kate was no exception. Visually, she shaved her head and changed her fashion during the HMI experience, so I hoped to read a personal reflection to match.
I kept looking for people “like me.” I realized later during my first expedition that it was not like minds that I needed but like souls. *(Kate)*

Later she continued...

When I shaved my hair off between expeds I cut off that person who I was before. Tangled in my hair which was always too straight for my taste was my problematic methods of reaching out to people, my narrow idea of the people I connected to. My mother and the partners she had who I gave my heart to but all they did was stay with it awkwardly for awhile before throwing it back at me and knocking me out. I released my hair during second exped on top of Mount Massive with my friends with an open heart and I cherished the love they game me. But at the same time we were beginning to find love from the wilderness. The first time my two feet were firmly on the ground. With each step I took, I felt the earth lifting me up. I was powerful and meaningful. I was united with my environment. The sun hugged me. The water held my hand. I was part of something larger than myself, and I will love it back. I will love you all back. *(Kate)*

These words astounded me and verbalized the overwhelming visual change I saw in her. She made a commitment to herself and changed in a way to value others more genuinely and openly, to others to love and support them even outside of her typical social groups, and to the earth. She did not discuss much environmental thinking prior to this essay, other than noticing nature in general. This section, however, communicates oneness with her natural world. She ended the essay with knowledge that with this new awareness and openness, she could never again be lost. Kate obviously grew through a lot of personal reflection, which was so important to her that she symbolized it with both her head shaving and with its release atop the second highest peak in the contiguous United States.

Matt’s essay also caught my attention, because of his self-awareness. Earlier in this chapter, I mentioned my observations that he was cool, relaxed, and introverted. He wound up opening the essay echoing the observations from my field notes:
I came to HMI thinking I could just go through the motions and I would probably be fine. I came here thinking I would clam up. The entire time I came here thinking I wouldn’t change much or at all. (Matt)

Then he realized that he was outside of his comfort zone and could not merely float through the summer. He found himself engaged by peer interactions and having fun. He even made notes of leadership by reminding himself and others to be proactive about foot and skin care.

I learned how to get to know people by actually continuing the conversation rather than saying “yeah” or “cool.” I want to keep the positive outlook on life that HMI so generously handed me...I don’t want to let go of the bonds I made while laughing or crying. Going through the motions is an awful idea because you don’t learn anything. Clamming up won’t teach you anything about anybody. (Matt)

This is interesting, almost as if he both acknowledged his personality and recognized the drawbacks about his nonchalant approach to people. The essay suggests that the setting, the reflective opportunities, the social interdependences, and the high stakes, authentic situations of expeditions all contributed to Matt’s changes and personal reflections.
Chapter 5: Discussion and Conclusions

I explored the use of social interactions by adolescents to develop environmentally sustainable ways of thinking and ecological consciousness during one extended education and adventure experience at High Mountain Institute. My observations and analysis of written documentation collected by HMI allowed me to develop themes of interactions, experiences, and disequilibrium, which contribute to environmental action: connection to community, leadership, personal reflection, and thoughts of the future. In this chapter, I discuss my findings and link them to my conceptual framework and purposes for this study. Then, I position my research and findings within the current literature and offer the contribution of this research to the greater field.

Discussion of Findings.

The transitions that occurred for the students during their time at HMI, can be summarized by the visual representation in Figure 4.

Figure 4.
Pathway through the HMI Journey
In other words, HMI provided a very natural and beautiful setting in which students learn adventure skills and typical high school academic concepts in a high context setting that encouraged community within the student group and staff. HMI’s location in a rural area outside of Leadville, Colorado, surrounded by mountains, gorgeous scenery, trees, and flowers, removed students from their comfort zone and relocated them to an unquestionably beautiful area. This location spoke to the students loudly: most students felt inspiration from the access to nature, although some felt intimidation or even fear from the overwhelming remoteness. It acted as a reset button for social expectations within students and established all participants on level playing fields.

At this point, after arriving to campus and acknowledging feelings and the physical effect of the impact of reduced oxygen, HMI staff began transitioning students into the campus community’s rituals and culture. HMI faculty gave them the quick introduction to hiking, backpacking, hygiene, and other survival skills to ready them for a ten-day expedition, a backpacking trip. The campus cook and the director of wilderness programs and risk management instructed the rest of the skills, like cooking and tent set-up, and immersing in the wilderness. This created a high-stake learning environment. The students could sink or swim, and if they sunk, the faculty and staff created situations to believe in them and would build the students up again. Additionally, students learned field identification of plants, animals, and stars. Each student had to find personal leadership skills and guide the group with individual map reading skills. By creating an environment where students had the opportunity to support one another, depend on one another, relax and enjoy games and nature’s wonders together, and Circle together in group-guided reflective practice, students could grow academically and consciously. Finally, as many of the Full Circle essays
documented, students experienced personal growth, change, and a healthy way of handling their mental health, emotions, and changes.

Although the HMI campus and camping practices exhibited pro-environmental behaviors, I did not observe specific sustainable behavior training or sustainable skill instruction for the students. Minimal waste, reducing packaging, and reducing impact was not a lesson plan, it was all an expectation and a source of pride. Students did not have a choice but to make these their habits over the 37 days. The faculty and interns communicated values through learning a sense of place: geological and land knowledge, flora and fauna identification, analysis of mining and its stakeholders, effects of climate change, and opportunities to see all of these things. HMI focused on allowing time for students to immerse in wilderness, a very high-context learning environment which makes socially-driven conceptual learning, readings, and written reflections relevant and important for students. More than half of the College Essays, from The Common Application essay assignment (see Appendix F), referred to HMI or the mountains positively as “home.” This ownership then could translate to stewardship and protective decision-making, as a resident would do with their home.

By normalizing nature and experiencing wilderness, HMI created a pathway to social interactions. Similarly, by valuing and prioritizing respect and community so highly, HMI created a pathway to environmental and wilderness value by allowing friendships to bloom in the wilderness without distractions. Social conversations were about nature: stars at night, birds in the background, and challenges to see the sunrises. Students realized they were small pieces of the planet; yet, their choices in the backcountry could be very impactful on a delicate alpine environment. Tarp groups, those who shared a tent while on expedition, often reflected on conversations while bundled into their sleeping bags. They looked into the night
sky and watched stars blanket their entire existence. This feeling of being small is humbling and easily breaks down barriers between groups, but yet the simple acts of bathroom choices while backpacking in a large group can be powerfully damaging to the habitat. Being humble about our place in the universe and being aware of our impact and power is a meaningful combination. Students from New York City discussed this appreciation and realization the world is larger than New York. Others expressed desire to keep the waters and land pristine, not only for the habitat itself, but also for their children and grandchildren.

The river is a part of our collective bloodstream, and I hope it does not become polluted. For when this happens we will both become diseased. In James Wright’s poem he says, “I have wasted my life.” I don’t want this to happen to me and with the help of the river it hasn’t. I want to be a part of the story of nature not idly watching it pass by. I don’t want my kids of my kids kids (sic) to waste their lives either and I believe with the river that won’t happen. (Matt)

I am not sure the HMI experience will solve all of this planet’s current crises. But what it does do is (a) create an environment for tight-knit social interaction, (b) allow social interactions to reflect on visuals and experiences, (c) put social groups into a high-stakes adventure setting, which requires interdependence and reading of the land, and (d) require students to reflect on experiences and interactions. Experiencing leadership, survival, challenges, and camaraderie can be empowering and can offer the motivation to continue to care about a place and its critical parts. To many of these students, any threats or changes to the ‘home’ could be motivation for their voices to be heard. This hope is based on the outpouring of financial support, verbal support on social media, and alumni communications, particularly after fire threatened the former Stuen yurt and the May 2018 wildfire, which resulted in campus evacuation.
As a global society, we cannot control the many variables that contribute to the development of an ecologically sustainable consciousness or cultural ethos. However, we can create change in the culture of our homes, businesses, places of leisure or meditation, and schools. We can demand immediate policy awareness and change, rather than tolerating distraction and poor science celebrated in this current US presidential regime. We are potentially beyond the tipping point for life as it currently exists on Earth. Models may not currently agree on the ability to reverse or slow traumatic biotic and abiotic changes on Earth. Yet, we need to live more globally aware, since we have a shared obligation to steward resources in a way that acknowledges climate change and the biodiversity degradation impacting our personal lives. For these reasons, we should continue to research the impact of environmental education programs, particularly expeditionary learning experiences.

Environmental education needs to focus on specific foundational goals to enable participants the opportunity to place themselves within the content, so they can begin to take action when possible. The following list shows three basic goals of environmental education. Tying these to the HMI observations and experiences illustrates an example of marrying curricular goals with transformational education and behavioral change.

1. Teach the interdependence of ecology, politics, economics, and society within rural and urban spaces.

HMI is an isolated place. The students and staff may represent various diversities of gender identity, mental health, and cultural practice, but it does not represent racial or socioeconomic demographics typical of the United States. Although, admissions staff does purposefully recruit students from school systems that serve higher percentages of non-white students and offer scholarships for local students and students with financial need, demographic diversity is a continual concentration. This commitment in recruiting and in
teaching about diversity do, however, demonstrate value of different ways of thinking and different backgrounds. Most students traveled to this rural space from large cities, but the interaction between rural and urban life was not emphasized. HMI did do the others quite well. The curriculum and group activities immersed students in local ecology, economy, political systems, ecology, and society within the local context of mining, tourism, history, living within the impacts of nature, learning to see nature, and ecological data collection and analysis. Environmental education should not stand on science alone, and HMI did this well.

2. Allow everyone to learn the values and concepts, attitudes, behaviors, and skills required to not only conserve but also improve the global environment. Most of the curriculum and student experiences over the course of this summer term centered on the local context of HMI. It was not until the last day of courses that specific planning for home behavior occurred, so global environment discussion was minimal in both instruction and in student reflection. However, the concept of transferability of the behaviors and new attitudes formed during student experience at HMI resulted in student comments about hoping to participate in microadventures back at home and plan for a healthier planet with access to wilderness. More importantly, students transformed their thinking during their time at HMI. Given two free-writing or minimally prompted essays, one before HMI and one at the end, students moved from nature and community in terms of learning and school to nature and community in terms of future thinking, personal reflection, and leadership. This personal transformational empowerment is the fuel for change, and it assures the humanity of the transformation, emotional and genuine personal connection. As Lin, Hong, & Huang (2012) states, essential tools for changing attitudes and behaviors are the emotional and personal connections between students and between leaders and students.
3. Develop new behaviors toward the environment, which span individuals into groups and throughout all society.

Within the context of the 2018 HMI summer term, I cannot fully address how well the new behaviors of adventure, confidence, waste reduction, and value for nature transitioned into the students’ individual communities. Without the comparison of specific before and after experience behaviors, this goal is more difficult to ascertain. Students did, however, discuss plans to engage in more outdoor oriented activities and care for their surroundings.

**Author’s Perspective on the Research**

This research was an observational study of one expeditionary learning program incorporating many of the features needed for effective environmental education for the transformational journey of learning. Even though the students at HMI did not reveal critical earth-saving messaging, they did all demonstrate considerable change in revealing personality, belief systems, peer group preferences, survival skills, identification of leadership and metacognition, and environmental content knowledge specific to this setting. The experience of HMI is foundational for many individuals who chose to communicate about their experiences in their written work or in public settings, such as their Facebook review pages. Reviewers said the following posts:

- Posted by Chloe K. in 2016, “HMI is the closest place to heaven on earth. Best faculty, students, outdoor education, and attitude.”
- Posted by Abby S. in 2015, “there are no words. this place changed by entire life.”
- Posted by Jammy M. in 2018,

  The morning of my 17th birthday, I woke up to a beautiful sunrise on the Mesa, then hiked into the canyon to our next campground and was given a back-country cake
with candles and celebrated with some of the best people I’ve ever met. It’s still the best birthday I’ve had, even 10+ years later. HMI was an incredible experience and helped make me the person I am today. I loved it, and am so glad I went.

These quotes are voluntarily posted reviews and represent the most recent 4 posts on the page. There were no negative reviews or ratings lower than 5 out of 5, representing perfect ratings. HMI is an example of an immersive experience that allows students to reflect deeply as individuals and as a group. The combination of community and individual growth makes for learning that encapsulates our human needs for metacognitive reflection and personal application as well as our needs for social learning, as a social organism.

Students who complete the experiences at HMI are not all going to be biologists or climatologists. They represent a wide variety of passions and academic or professional interests. This is a very good thing, as Earth need advocates in all communities, professional, social, and academic fields. HMI’s main hall, Who’s Hall, contains walls covered with photos of graduates. One wall had written interviews, letters, and postcards from alumni. Those documents contained phrases that reveal the influence of HMI beyond the time enrolled and beyond my on-campus research observation time period.

• From Jonathan A., 2012 alum: “I found a community that nurtures a love for the outdoors...In my free time I like to go jogging along the Schuylkill River... (HMI) instilled a love for the outdoors that I never would have nurtured as a kid from Queens.”

• From Todd H., 2009 alum: “I still carry with me the lessons learned from nature...the consequences of this semester transformed into my love for nature & wilderness...Just as you keep your Nalgenes always at your side, keep too the times, lessons, & friends from the magical place you currently inhabit.”

Thus, participants have documented the lasting life impact they credit to HMI in terms of its community, expeditions, expectations, and opportunities for student interactions and
leadership. While the individuals do not mention environmental advocacy, they do mention participation in outdoor activities, enjoyment of nature, reusable water containers, and even mention rivers by name. This last component is important to me as an educator of plants, animals, habitat, and earth systems. My sentiment is summed nicely by Busch’s (2017) opinion article: “Giving something a name is the first step in taking care of it. Place names help us to attach landscape to history and region. And when it comes to the question of attachment, we are not just speaking of how names are attached to places, but how humans become attached to places.”

HMI curriculum and the primarily expedition focus are designed to create an environment and a culture for personal development, leadership development, passion for outdoor activity, and environmental education. There is evidence that the students do indeed change during the course of this type of immersive experience, and there are some token pieces of evidence that those changes persist within the individual through several years after the HMI experience. Going forward, actual interviews before, during, and after the experience could look more closely at the specific changes and process of change within the individuals. Additionally, assessment of interviews after the HMI experience, even years after the experience, could track the actual behavioral changes and environmental behavior or action impacts for the individuals. That research could then connect social interactions with faculty, interns, friends, and family to environmental consciousness persistence.

Aldo Leopold and so many of the primary movers in ecological thinking and the movement toward sustainable development and living found their connection to Planet Earth through specific experiences combined with the privilege of self-reflection and considerable social communication. While we cannot claim these HMI summer term students will be the next Aldo Leopold, I truly aim for every educator to be empowered to provide powerful
transformational opportunities to engage students in environmental thinking and action. The observations and artifact analysis support that change can occur in students even in a relatively short amount of time. Through intentional planning, community building, active involvement in nature and opportunities to construct social normalizations and expectations, teachers and school systems can influence individual empowerment toward action.

Teachers and school systems do not change easily. Moving away from teaching as teachers have been taught is difficult. This is an example of the power of socially learned behaviors. What we observe from mentors, family, and other important people is influential over our behaviors. Teacher education and professional development ought to engage educators in adventure finding, community building, shared development of community standards, intentional self-reflection, and social interactions, thereby scaffolding pro-environmental behaviors into the social mentorship and social learning within teacher education. Teachers, too, can benefit from increasing authentic context—social interactions and expeditionary learning, because they represent learners who need relevance and high context experience. Teachers are also global citizens themselves, and they also need to live the expected standards of sustainable living and ecological ethos. The health of our abiotic systems, biodiversity, and human populations depends on these changes being embraced immediately and by all.

For me as a biologist, it is hard to teach without facts, data, and the complete picture of the critical impacts of climate change, pollution, habitat alteration or destruction and the like. It surrounds much of what I do and is the context for nearly everything I measure, advocate, and teach. However, from these observations and the words of these students, I realized I need to not only create community and community expectations with my work with others about environmental issues, but I need to embed community in a context where their
action and care is not merely relevant, but also critical for their comfort. In other words, the environmental issues need to have a role in personal survival and social conversations. Similar to the expeditions, getting a teenager up at 3 a.m. to watch a sunrise at the peak of a “14ner” may seem like an impossible task, but if their friends are going to do it, they may do so as well. Teachers and administrators are not immune to this social pressure, either. When something works, when change occurs, and when we can document reductions in the concerning current increases in consumption shared by BP World Energy (2018), the social and economic pressures will spread.

In normalized US schooling, students do not often have the opportunity to be in the natural spaces prior to learning or during learning. Fortunately, this natural space does not have to be the pristine summits of Sawatch Range. Students can be in a schoolyard or even a storm drain next to a sidewalk to see the impacts of nature and the impacts of humans on nature. The intersection of urban spaces with nature are some of the richest learning grounds. Merely being physically in nature or by a storm drain is not enough to create pro-environmental behaviors. In order to use the model that elicited change observed in HMI students, the school yard visits need to be combined with skill learning in the setting, opportunities for peer leadership with the options to fail safely, team building and opportunities to grow friendships outside of their normal comfort zone. Students ought to reflect on personal ideas and experiences and share ideas with their friends in a discretely structured manner.

The concept of entering into a realm beyond one’s comfort zone—or, in some cases being pushed beyond one’s comfort zone—creates a critical piece toward the results presented here: disequilibrium. Creating disequilibrium within the context of a safe community forces individuals to reach out and grab the support structure so fastidiously
designed to rebuild individual frameworks and ethos. This disequilibrium, when processed through safe social interactions, discourse, social media contacts, and even internal reflections, becomes the sweet spot for construction of individual leadership ability in environmental thinking, values, and pro-environmental behaviors. Orion & Hofstein (1994) discussed this basic concept in their idea of novelty space: preparing students to an extent for the physical environment, the psychological effect, and the conceptual topics. He notes that novelty space is critical for success. In this study, disequilibrium replaces the concept of novelty space since students need to be slightly uncomfortable and outside of their comfort zone. This is represented in Figure 5.

**Figure 5.**

*Transition from Social Interactions toward Behavioral Change*

![Diagram of the transition from social interactions to behavioral change](image)

Figure 5 illustrates the idea of social interactions, in various formats and based on some disequilibrious event, supporting personal reflections and growth. The critical and deep personal growth could then lead toward pro-environmental behaviors, if supported and done within the context of other pro-environmental peers, mentors, conversations, and deep thinking. Of course, without the pro-environmental social support structure, the personal growth may potentially mirror other voices—unscientific social media postings, anti-environmental movements, and other voices vying at the opportunity to be heard. In other
words, if environmentally sustainable messaging does not find a way to socially support and empower personal growth through the disequilibrium some already feel from the scary messaging from climate change reality, then we may lose those individuals to voices that can give hope: climate change denial, convenient living without consequence, or pure apathy.

Recently, my own university students had the opportunity to immerse in marine systems along the barrier reef systems in Belize. Plastic pollution was everywhere. We did a reef clean up and removed over 60 kg of litter off the barrier reef crest in just one hour of work along a transect. My students were frustrated by the carpet of shredded, thin plastic covering the broken coral surface. To further contextualize the issue, we had to cut torn netting off a spotted eagle ray. The netting caused the animal to catch on the jagged reef crest. The students vowed to reduce their own plastic use. This was easier to do in Belize, a nation that recently banned single use plastics. Back home in rural Nebraska on a college campus, however, students frustratingly resubmitted to plastic use. They did not know how to avoid it from the campus coffee house. The transition from the transformative experience to home, everyday living is a great need that required further investigation to smooth the transition and solid assimilation to pro-environmental behaviors. Student voices are strong, though. Campus leadership and leadership within small college towns listen to loud and logical student voices. Constant empowerment for change—working with individuals to make personal changes and also speak up for community and industry change—is the essential piece that make the pro-environmental behaviors last for the individual and rise to the level of global change.

Earth will go on far beyond this study, far beyond my life, and far beyond life as we know it today. It provides all we need, and we rob even more from it (Global Footprint Network, 2018). It is resilient, but it will change. It already has. The concern is not the end of
the world, but the stress to the living systems. Selfishly, we as humans have to consider the impact of Earth’s changes on us, our health, our security, and our safety. As our governments and militaries plan for environmental stress, we have no choice but to prepare our children and ourselves. We know the majority of environmental education teaching and learning techniques are not producing results and changes toward more sustainable behaviors. Rather, it seems the current US president and his colleagues are obsessed with undoing positive environmental protections, including climate science itself. This alone calls for prioritization toward improvements and personalization of environmental science, not only as content, but also as a progression of attitudinal, behavioral, living, and policy changes. These HMI students experienced powerful community development during their time in Leadville and the surrounding peaks. Through the sense of community, empowerment and inspiration for change can increase. Further research into the accessibility, cultural responses, and relatability to other regions or levels of wilderness would increase the connections with traditional school systems and increase the potential for the all-encompassing impacts we need.

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Appendices
Appendix A: IRB Approval

Office of Research Administration

One University Boulevard
St. Louis, Missouri 63121-4499
Telephone: 314-516-5899
Fax: 314-516-6759
E-mail: ora@umsl.edu

DATE: May 11, 2018
TO: Jennifer Fruend, BA-Biology; BA-Education; M.Ed Secondary Education Curriculum and Instruction
FROM: University of Missouri-St. Louis IRB
PROJECT TITLE: [1060399-1] Evolving an Ecological Way of Thinking: Social Interactions and the Construction of Environmentally Focused Behaviors in Adolescents during Expeditionary Learning
REFERENCE #: New Project
SUBMISSION TYPE: New Project
ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: May 11, 2018
REVIEW CATEGORY: Exemption categories # 1, 2

The chairperson of the University of Missouri-St. Louis IRB has APPROVED the above mentioned protocol for research involving human subjects and determined that the project qualifies for exemption from full committee review under Title 45 Code of Federal Regulations Part 46.101b. The time period for this approval expires one year from the date listed above. You must notify the University of Missouri-St. Louis IRB in advance of any proposed major changes in your approved protocol, e.g., addition of research sites or research instruments.

You must file an annual report with the committee. This report must indicate the starting date of the project and the number of subjects to date from start of project, or since last annual report, whichever is more recent.

Any consent or assent forms must be signed in duplicate and a copy provided to the subject. The principal investigator must retain the other copy of the signed consent form for at least three years following the completion of the research activity and they must be available for inspection if there is an official review of the UM-St. Louis human subjects research proceedings by the U.S. Department of Health and Human Services Office for Protection from Research Risks.

This action is officially recorded in the minutes of the committee.

If you have any questions, please contact Carl Bassi at 314-516-6029 or bassi@umsl.edu. Please include your project title and reference number in all correspondence with this committee.
Appendix B: Student Assent Form

Assent to Participate in Research Activities (Minors)
Evolving an Ecological Way of Thinking: Social Interactions and the Construction of Environmentally-Focused Behaviors in Adolescents during Expeditionary Learning

1. My name is Jennifer Fruend.

2. I am asking you to take part in a research study because we are trying to learn more about how learners interact socially in a nature-rich, experience-oriented learning school, particularly how they may change or develop their behaviors about nature and the environment.

3. If you agree to be in this study, you will participate as normal in High Mountain Institute’s (HMI’s) curriculum and interact with other learners and instructors at HMI. You will see me, Jen, joining you for a few days at the beginning, middle, and end of your summer program. I may casually talk with you as people have conversations, but it will not be a formal interview. There will be no audio or video recording as a part of this study.

4. Being in this study will not harm you in any way. Your activities would be the exact same as if I wasn’t even there. However, if for some reason I do make you uncomfortable or you have any questions or concerns, please feel free to tell me or your HMI instructors who are not connected with this study.
5. There are no direct benefits for participating in this study. However, participation will contribute to the knowledge about developing environmentally focused behaviors and may help society as we learn to live in a changing world.

6. If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you, and no one will be upset if you don't want to participate or if you change your mind later and want to stop. If you change your mind, please tell me.

7. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can call or text me at 402-643-5806.

8. If you agree to participate, I will share the information with other people in the form of presentations and publications. My observations and notes will be coded to protect your identity fully. I will use code names to construct an organized story of your experience here without providing any physical descriptions, actual names, or anything to relate my observations to you individually. Your privacy is important to me, and all data and notes will be destroyed at the end of my writing. Nothing will be audio or video recorded. During the project, my information will be protected by university-level security on our servers.

9. Signing your name at the bottom means that you agree to be in this study. You will be given a copy of this form after you have signed it.

____________________________  ____________________________
Participant’s Signature        Date                         Participant’s Printed Name

______________  ______________
Participant’s Age                Grade in School
Appendix C: Parental Consent Form via Email

Dear HMI Summer Term 2018 parents,

While Summer Term is in session, Jennifer Fruend, a biology professor at Concordia University in Nebraska and a doctorate student at University of Missouri-St. Louis, will be visiting campus. Her dissertation work is looking at the various ways students interact with each other and the land to build environmental ways of thinking and behaving. Her work is outlined in more detail below, but, in short, she will be observing some of our programming and would like to be able to ask students questions. Because our students our currently minors, she needs parental permission for this study.

If you would be willing to allow us to invite your child to participate, please click the link below, which will send a reply email to project director Jennifer Fruend of the University of Missouri. All you need to do is click on this link (Yes, I consent to have my child participate in the research), add your child’s name, and hit “send.”

Any and all questions should be directed to Jen (jennifer.fruend@cune.edu) - thanks in advance for your help in allowing us to understand more about spaces like HMI "where nature and minds meet!"

Jessica

***

1. Your child is invited to participate in a research study conducted by Jennifer R. Fruend, under the direction of Dr. Bill Kyle from the University of Missouri-St. Louis. The purpose of this research is learn how learners interact socially in a nature-rich, experience-oriented learning school, particularly to see how they may change or develop their behaviors about nature and the environment.

2. a) Your child’s participation will involve the following:

   - Simply participating as your child would expect while enrolled at the High Mountain Institute (HMI). They will have classes and activities as HMI normally conducts.
   - They will see a researcher joining you during classes, experiences, and perhaps casual time. I am not there to evaluate learners or instructors at all; rather, I want to see how learners talk about interests and experiences while with a new group of peers. I will be there for about three weeks of the five week session.
   - No interviews are needed, but I may ask quick questions or just have casual conversations like any human interaction they may experience. They are always welcome to respond or not respond without consequence.
   - Nothing will be audio or video recorded.

   Approximately 5-15 students may be involved in this research kindly hosted by HMI.

   b) Your child’s participation will not require any additional time beyond the normal HMI experience.

3. There are no anticipated risks associated with this research.
4. There are no direct benefits for your child participating in this study. However, participation will contribute to the knowledge about developing environmentally focused behaviors and may help society as we learn to live in a changing world.

5. Your child’s participation is voluntary, and you may choose not to allow your child to participate in this research study or choose to withdraw consent at any time. If you or your child wants to withdraw from the study, you can contact me at the following cell phone number or email: 402-643-5806 or Jennifer.Fruend@cune.edu. Your child may choose not to answer any questions that they do not want to answer. They will NOT be penalized in any way should they choose not to participate or to withdraw.

6. We will do everything we can to protect your child’s privacy. By agreeing to let your child participate, you understand and agree that your child’s data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your child’s identity will not be revealed. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection). That agency would be required to maintain the confidentiality of your child’s data.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the

   Investigator, Jennifer Fruend (402.643.5806), or the Faculty Advisor, Dr. Bill Kyle (314.516.5375). You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research Administration, at 516-5897.

--
Jessica Fuller
Pronouns: she, her
Director of Programs
(719) 486-8200 ext. 107

High Mountain Institute
531 County Road 5A
Leadville, CO 80461
www.hminet.org
Appendix D: HMI Summer Term Application Essay Writing Prompts

These essay writing prompts were a part of the application packet each HMI student applicant completed prior to their acceptance and arrival to HMI during the 2018 Summer Term.

Application prompts and essays from the participants provided by Ray McGaughey, Director of Admissions and HMI Alumnus.

1. The HMI Summer Term combines wilderness expeditions, intentional community, and place-based academics. Why does this combination appeal to you?

2. Which single extracurricular are you most passionate about and why? This is not necessarily the extracurricular to which you commit the most time. Possible answers include a sport, club, volunteer work, summer camp, etc.
Appendix E: Sample HMI 2018 Summer Term Humanities Course Syllabus

Developing a Sense of Place:
Social & Environmental Science in Colorado’s Rocky Mountains

Humanities Section, Summer Term 2018
Instructor: Daniel Fiedler

Overview: The Humanities portion of your summer term will explore how communities and individuals establish themselves within a place. Initially, we will focus on identifying how the Leadville community and the individuals within it have built their own sense of place and history. You will learn about and engage with the local community to see how it is shaped by and shapes both its environment and the people. Then, you will have a chance to reflect on how you are shaped by and help shape your own local community as well. Several themes will help guide our inquiry through the duration of the course:

1. A sense of place is a connection, relationship, or attachment to place that results from experiences, knowledge of, and memories associated with that place;
2. The natural and human environment shapes and is shaped by the values, perspectives, and ideologies of its people;
3. Places can be valued in a variety of ways and every individual has a unique perspective that informs how s/he understands and interprets their place.

Expectations: Your level of engagement with this course will determine not just your own but your classmates' experience as well. We will work as a team, just like we do on expedition, to get the most out of this classroom time. I expect everybody to be in the classroom on time and prepared to contribute to the discussion. While debate and disagreement are vital components of intellectual discourse, I expect each of you to be considerate toward the other members of our community both inside and outside the classroom.

Schedule:

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<thead>
<tr>
<th>CLASS</th>
<th>TOPIC</th>
<th>TO DO</th>
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<tbody>
<tr>
<td>Class 1 (Before Expedition)</td>
<td>Overview and expectations. The difference between space and place. What is a “Stakeholder”?</td>
<td></td>
</tr>
<tr>
<td>1st Expedition</td>
<td>Discussion of place, ethics, and stakeholders.</td>
<td>Readings: Sa, Berry, Silko for discussion on expedition.</td>
</tr>
<tr>
<td>Class 2 On Campus</td>
<td>History of Leadville mining and introduction to contemporary debates. Introduction to Humans of Leadville Project.</td>
<td>Readings: Blair, Klucas, Riag, and Clifford</td>
</tr>
<tr>
<td>Field Trip</td>
<td>Field Study with Cloud City Conservation Center, then time to complete Humans of Leadville Project.</td>
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<tr>
<td>Class 3 On Campus</td>
<td>Humans of Leadville Project Presentations. Introduction to “Place Where I Live” Essay.</td>
<td></td>
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<tr>
<td>Evening Activity</td>
<td>Town Hall Meeting with all students.</td>
<td></td>
</tr>
<tr>
<td>2nd Expedition</td>
<td>&quot;The Place where I Live&quot; Assignment.</td>
<td>&quot;The Place Where I Live&quot; essay and creative project</td>
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<td></td>
<td>Readings: Oliver, Lopez, Hopkins</td>
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Appendix F: Common Application Essay Prompts

The humanities instructor used the common college application essay prompts for one of the expedition 2 assignment options, and then students were able to polish it once they returned to campus.

These prompts are quoted from The Common Application (2018).

1. Some students have a background, identity, interest, or talent that is so meaningful they believe their application would be incomplete without it. If this sounds like you, then please share your story.

2. The lessons we take from obstacles we encounter can be fundamental to later success. Recount a time when you faced a challenge, setback, or failure. How did it affect you, and what did you learn from the experience?

3. Reflect on a time when you questioned or challenged a belief or idea. What prompted your thinking? What was the outcome?

4. Describe a problem you've solved or a problem you'd like to solve. It can be an intellectual challenge, a research query, an ethical dilemma - anything that is of personal importance, no matter the scale. Explain its significance to you and what steps you took or could be taken to identify a solution.

5. Discuss an accomplishment, event, or realization that sparked a period of personal growth and a new understanding of yourself or others.

6. Describe a topic, idea, or concept you find so engaging that it makes you lose all track of time. Why does it captivate you? What or who do you turn to when you want to learn more?

7. Share an essay on any topic of your choice. It can be one you've already written, one that responds to a different prompt, or one of your own design.
Appendix G: HMI Summer Term 2018 Full Circle Assignment

FULL CIRCLE
Summer Term 2018

So, think back to the very beginning of the Summer Term... we started with a First Circle the very first night we were on campus, and we’ll finish the Summer Term with Full Circle on the very last night.

Here are some Frequently Asked Questions about Full Circle

What’s this Full Circle yer talkin’ about here?
Full Circle is a meeting in Stuen Hall where every student gives a presentation in which you reflect on your experience here at HMI. We will start around 2 pm. We may take a break in the middle to go for a walk or for dinner or for the group photo, depending on how the schedule takes shape. We may continue again after dinner.

How long does my presentation have to be?
You should plan on speaking for 5-7 minutes. Please do not go over. Please do not go under either; we really want to hear what you have to say about your time here, and we know that you have at least 5 minutes worth of thoughts.

How prepared is the presentation? How spontaneous?
This is NOT an off-the-cuff presentation. Your presentation should be written out in full. After Full Circle, you’ll turn in a final draft of your presentation and these get archived into HMI history. Turning in your final version of your presentation to be photocopied is your “ticket” for your Summer Term 2018 long sleeve t-shirt. While it is okay to include a quotation or a song or visual aid for your Full Circle, it is important to note that this is meant as a written/spoken presentation. No interpretive dances, please.

When do I need to write my presentation?
You should write the VAST majority of your presentation during Solo. The morning after Solo, you will do a Full Circle “rehearsal” in your advisories. Your advisor will give you feedback, help you tinker with any last minute details, and listen excitedly.

Is there an order for the presentations?
No. At Full Circle, we’ll do a brief introduction/reminder about the format, and then you can choose when to go.

Where do I give the presentation?
There will be a Full Circle “throne” for you to sit on.

Are the presentations graded or evaluated in any way?
No.

What makes for a good Full Circle presentation?
Okay, this one is a little bit more difficult to answer. First of all, Full Circle presentations run the full gamut from really funny to really serious. Many have parts of both. The idea of Full Circle is that you are reflecting on some aspect or aspects of your experience here. Re-tell and interpret the stories you’ve had here; give the memories some meaning. The tone should reflect your voice, your style, your experience.

Some questions you might want to think about include: why did you come to HMI in the first place? how have you grown or changed over the last six weeks? what do you want to take with you from the Summer Term? what do you remember most about your time here? what do you value most about your experiences here? what are some of the experiences that have impacted you along the way? That’s just a start; the most important thing is that your Full Circle be personal.
Is there anything that I absolutely shouldn't do in my Full Circle?
Why yes, in fact. Thanks for asking. Though Full Circle gives you a lot of freedom to be creative and speak your mind, there are a few things that we ask you NOT to do in Full Circle. Here they are:

1) This is not an essay on "how did the Summer Term work for me?" you don't need a thesis. You don't need topic sentences. You don't need cheesy metaphors.

2) This is not an Oscar speech. It's great to mention people or groups that have been really meaningful to you here, but don't do a laundry list of, "I'd like to thank..."

3) Avoid focusing too much on events and experiences that aren't directly connected to the Summer Term.

4) Avoid inside jokes, profanity, and telling us about the rules that you broke.

5) This is not the space to give the constructive feedback that you've been waiting to give HMI, the faculty, your peers, or an individual.

Is there anything else we should know about Full Circle?
Just keep in mind that your presentation is the trace you leave behind as you head away from the High Mountain Institute. Make sure that the message you send is one that reflects how you want people to remember you. We will make a copy of your Full Circle to keep in the archives here at HMI, and yours will join more than a thousand other voices sharing their HMI experience.

This sounds really daunting.
That's not actually a question. But, it's really not that bad. In fact, we hope that you'll have a lot of fun and learn more about your time here by doing this. Don't worry about being profound. Again, be yourself, share what you know well—the stories of pranks, aha! moments, changes of opinion, “Saturday-night” activities, backcountry experiences, and friendships made.

Have Fun and Good Luck!