Can Exposure to Outdoor Education Impact the Decisions that University of Vermont Students Make Throughout and Beyond College?

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Can Exposure to Outdoor Education Impact the Decisions that University of Vermont Students Make Throughout and Beyond College?

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Abstract

Outdoor education takes many forms such as wilderness education, adventure-based outdoor education, experiential education, and place-based education. These experiences can last several days, several weeks, several months, and sometimes more than a year. Outdoor education is implemented at many age groups from kindergarten through college level (Deringer & Wiggins, 2018; Djonko-Moore et al., 2018; Quibell, 2017; Taff et al., 2016; Uhls et al., 2014). Studies researching the impacts of outdoor education on students, show that the impact is positive and helps to improve self-confidence, relationships, problem-solving skills, moral development, and connection to nature (Collins et al., 2016; Cooley et al., 2016; Lowenstein & Smith, 2017; Roberts, 2018; Tan & Atencio, 2016). This research thesis will aim to understand the impact that outdoor education has had on the decisions that college students at the University of Vermont have made, are making, and will make in the future. The questionnaire that will be used to gather information will attempt to understand the relationship between the type of outdoor education, the duration of the experience, and the decisions, such as jobs, major, and favorite activities, that students make. In the future, this research could be used to show the effect that outdoor education has had on students and how it differs depending on how long the experience or which type of experience the student had.
The Impacts of Outdoor Education

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Introduction

Humans have an innate connection and relationship to both nature and living beings in the outdoors that can be fostered by being outside (Kellert & Wilson, 1993). Individuals who feel more deeply connected (no universal definition of connectedness to nature) to nature are more likely to feel strongly about environmental issues that we are facing today (Clayton, 2003; Dunlap et al., 2000; Nisbet et al., 2009). Outdoor education has been used to promote learning in a space beyond the walls of the classroom, promote social development, personal development, and positive relationships between student and nature (Quibell et al., 2017; Tan et al., 2016). Outdoor education can be defined through several specific types of programs. Wilderness education is a form of outdoor education in which students go on an expedition in the wilderness and are faced with a variety of situations, elements, and opportunities for learning in the natural world (Collins et al., 2016). Experiential education/learning is another form of outdoor education that aims to increase hands-on learning, community building, and skills that will be used in the “real world” (Roberts, 2018). Adventure outdoor education is another category and is normally executed in activities that are more short-term than wilderness education expeditions, such as team building games, ropes courses, or raft building (Cooley et al., 2016). Place-based education can also fall into the category of outdoor education because programs often use natural areas as an opportunity to immerse students in the area or topic that they are learning about (Lowenstein & Smith, 2017). Outdoor education as a whole has been shown to improve real world skills, provide a more holistic form of learning, improve social and moral development, increased innovation and problem-solving skills, improved group-work skills, and an enthusiasm for nature. (Collins et al., 2016; Cooley et al., 2016; Lowenstein & Smith, 2017; Roberts, 2018; Tan et al., 2016). Outdoor education has been implemented at many stages of student development from kindergarten to college. Outdoor education has also been conducted for a variety of durations from five days to a whole semester.

This paper aims to discover if exposure to outdoor education has influenced or impacted decisions later in life such as college major and plans beyond college. The different developmental stages at which outdoor education was introduced, as well as the duration of the program will be explored to understand if it makes a difference in how influential the outdoor education experience has been. This will be explored by conducting a questionnaire aimed at the undergraduate student body of the University of Vermont. The survey will determine if the
college student has ever experienced outdoor education and if it has influenced decisions in their life. This data will show the level of impact that outdoor education has had on future decisions as well as if it makes a difference when outdoor education is implemented during developmental stages and the importance of the duration of the outdoor education experience.
Literature Review

Wilderness Education

Wilderness education stems from the traditional teachings of wildlife biology, forestry, as well as ecology (Taff et al., 2016). Wilderness education in higher education today has grown and developed and now includes teachings that focus on conservation and preservation (Taff et al., 2016). These focuses are accomplished by teaching scientific theory that can be applied to research, critical thinking and problem solving, and deductive reasoning and decision-making skills (Taff et al., 2016).

Central Michigan University (CMU) has an Outdoor and Environmental Recreation program that promotes education in the outdoors through integration of wilderness certifications as well as courses in wilderness medicine (Taff et al., 2016). This program also helps students to focus on the Leave No Trace principles and enables them to take part in community projects and service-learning opportunities (Taff et al., 2016). These experiences and knowledge help students to become prepared to advocate for, protect, and teach in the outdoors (Taff et al., 2016).

An experiment in 2014 took a group of students in sixth grade, on a five-day trip to camp where they were not allowed to have access to any screens (Uhls et al., 2014). The results showed that after five days of no screens, compared to their peers who were allowed to continue with their usual screen time, the students were able to better recognize nonverbal emotional cues of their peers (Uhls et al., 2014). This shows a deeper connection to people. Similar to this experiment, a group of incoming college students were taken on an outdoor orientation in the Sequoia National Park, and came to college with better friendships, emotional regulation practice, social and emotional learning, and experience in adventure-based wilderness education. Outdoor orientation has shown to increase retention rates in students as well as increase GPA (Deringer & Wiggins, 2018). Many studies of students who engage in outdoor education programs or outdoor orientation programs before college, have been found to further develop one’s identity, friendships, connection to nature, emotional regulation, and improvement in school compared to their peers (Deringer & Wiggins, 2018; McGowan, 2016; Ribbe et al., 2016). Through qualitative research, the lasting impacts of an outdoor experience on incoming college students was noted and suggested to universities as a means to save money because the retention rates will increase (Deringer & Wiggins, 2018).
Wilderness schooling in primary school children has also shown a positive correlation in improvement of traditional schooling subjects, as opposed to children who continued with conventional schooling (Quibell, 2017).

Outward Bound is a wilderness education company that takes youth and adults on experience-based trips outdoors. In the past, Outward Bound has taken youth who are juvenile offenders or other troubled youth on trips in the outdoors (Fischer & Attah, 2001). In 1999, a study was done on 23 foster children from Atlanta, Georgia who went on Outward Bound trips in North Carolina for the first time (Fischer & Attah, 2001). This study looked at the self-esteem and behavior of the students before and after their seven-day expedition (Fischer & Attah, 2001). Upon returning, foster parents, students, and foster care workers were all asked to rate the increase or decrease in self-esteem and behavior (Fischer & Attah, 2001). By ranking the self-esteem of their child before and after the program, foster parents said they saw an increase in self-esteem of 13.5%; the only statistically significant increase (Fischer & Attah, 2001). On average, students ranked their self-esteem 31% higher than their parents and foster care workers ranked them after the trip (Fischer & Attah, 2001). Foster care workers also reported a decrease in students’ poor behavior by 21% after the trip (Fischer & Attah, 2001). These results are mixed, and the perspectives from student to parent to foster care worker vary greatly, however, it is clear to see that students reported an increase in their self-esteem after the trip (Fischer & Attah, 2001).

**Experiential Education**

Experiential education is a form of teaching that empowers students to learn through participating in an experience, allows students to build skills that allow them to engage in the community, and gives students skills to work on personal reflection and reflection of the experience (Djonko-Moore et al., 2018; Lewis & Williams, 1994). Reflection of the experience is a key component of experiential education (Djonko-Moore et al., 2018; Lewis & Williams, 1994; Roberts, 2018).

A camp in Colorado implemented experiential education for a science program with third through sixth graders who were Latin American and African American (Djonko-Moore et al., 2018). This experience aimed to give students from an urban area the chance to engage in experiential science learning in order to access more learning styles (Djonko-Moore et al., 2018).
This camp also added their own element which included an integration of culture into their learning. They called this “eco-justice pedagogy” (Djonko-Moore et al., 2018). Eco-justice pedagogy aims to give students an opportunity to learn through experience as well as exploring the topics of the oppression of people and how that influences the degradation of ecosystems (Djonko-Moore et al., 2018). This helped students to engage further in the material by putting science into context, helping them to understand ways in which it matters, and making it more relevant for them (Djonko-Moore et al., 2018).

In higher education, experiential education (experiential learning) is in high demand due the way that it sets the universities and colleges apart from others as well as setting their students apart from others when looking for jobs (Roberts, 2018). It gives students experience in the real world and that allows them to be more successful when trying to thrive in a job outside of higher education (Roberts, 2018). Experiential learning that involves the surrounding community is beneficial to the community, the students, as well as the universities or colleges because they are making meaningful connections, creating good relationships, and helping to gain a good representation of their institution (Roberts, 2018).

An alternative point of view is presented by long-term experiential educator, Karen Fox, when she explores the true meaning of experience in the context of experiential education. Through much experience and research, Fox realized that she “no longer felt confident in the theoretical basis of experiential education” (Fox, 2008). She explains experiential education as “grounded in Euro-North American epistemologies, as interpreted within the United States, Dewey’s imbrication with the American project, and dominant discourses focused on individualistic identity, cognition, linear verbal processes, and political/ethical undercurrents” (Fox, 2008, p. 39). She found that information in experiential education lacked topics of racism, privilege in experiential education, and recognition of minorities, so she became committed to finding the true meaning of experience (Fox, 2008). Fox encourages educators to make experiential education less of an individual endeavor because it can leave some people in a minority group feeling ostracized (Fox, 2008).

**Adventure-based Outdoor Education**

Adventure-based outdoor education has been shown to improve social and emotional learning skills in students from kindergarten through college (Stuhr et al., 2017). Social and
emotional learning is quantified in five “competency clusters” (Stuhr et al., 2017) that include “self-awareness, self-management, social awareness, relationship skills, and responsible decision making” (Stuhr et al., 2017, p. 404). In a social and emotional learning (SEL) study done during a three-day period of “adventure-based experience” in Sequoia National Park, “adventure-based experience” is defined as, “the purposeful planning of a physical experience or activity to provide the necessary conditions for participant growth (Brown, 2006; Miles & Priest, 1990; Stuhr et al., 2017, p. 405). This study took a group of college students into the National Park in order to understand the students’ perceptions of their own competencies in SEL during an adventure-based experience. The findings of this study showed that the main SEL themes that came out of the trip were friendship and mindfulness which led to social connection, social support, reflective awareness, and serenity (Stuhr et al., 2017).

The self-concept is the way in which people see themselves and labels that they attach to who they are (Gibbons et al., 2018). In children, the concept of self plays a large role in confidence, happiness, and performance (Gibbons et al., 2018). Outdoor adventure programs such as Outward Bound, have shown a positive increase in children’s self-concept (Gibbons et al., 2018). A study done on 397 (183 female and 214 male) seventh and eighth grade students aimed to examine the impact on self-concept of adventure activities integrated into the physical education (Gibbons et al., 2018). Students participated in groups that focused on team building physical education as well as an adventure curriculum that was based on the challenge by choice concept (Gibbons et al., 2018; Panicucci, 2002). Overall, the study found that students from both groups scored their self-concept higher than the students who participated in a control group (without adventure-based education components) (Gibbons et al., 2018).

A study done at a small liberal arts school (location unknown) explored the impacts of adventure-based activities and community service learning between college aged students and elementary schoolers (Quezada & Christopherson, 2005). This study included a class that the university students took, as well as a ropes course that the university students built and helped elementary school students explore as a community service learning activity (Quezada & Christopherson, 2005). Ultimately, the university students had to work together and with the elementary students using mental and physical skills. (Quezada & Christopherson, 2005). Some students said that through these hours of service learning and adventure activities, their self-awareness increased (Quezada & Christopherson, 2005). This shows the importance of adventure
education in raising self-awareness as well as improving collaboration skills (Gibbons et al., 2018; Quezada & Christopherson, 2005; Stuhr et al., 2017).

**Place-Based Education**

Education that is more focused on the place started to become popular in the United States in the nineties (Chang, 2016; Orr 1992, 2004; Sobel 1999). Outdoor education in general, but specifically place-based education, is rooted in Arne Naess’s philosophy of Deep Ecology (Griffiths, 2002). In the Deep Ecology philosophy, Naess highlights four main ideas: “a philosophy based on our sacred relationship with Earth and all beings, an international movement for a viable future, a path for self-realization, and a compass for daily action,” (Griffiths, 2002, p. 255).

Today, children are not getting enough time outside and are therefore suffering from “nature deficit disorder,” a term coined by Richard Louv in his book “Last Child in the Woods: Saving Our Children from Nature-deficit Disorder,” (Louv, 2008). Since children are not getting enough time in outdoor spaces, they are less likely to be connected and have a sense of place in nature. Therefore, children and the adults they grow into, are less likely to be compelled to protect and conserve a place (Chang, 2016). Place-based education is important because without this connection, people do have the tendency to harm a place as a result of their passion for it (Chang, 2016). Take for example, a ski resort. People may love a mountain so much that all they want to do is ski. So, they support a resort that gets enough money to keep cutting trees to make trails. This kind of love for a place creates more harm than good. Teaching place-based education is a balance of teaching to love a place, but to love it in a way that respects the place and feels a need to protect it (Chang, 2016).

While some outdoor education is based in creating lasting friendships and deeper connections to people, outdoor education is also about becoming more connected to the wilderness and environment. Place-based education focuses on the environment, usually a specific “natural” or “wild” area, and the history, impacts, and details about the place (Straker, 2017). Place-based education is important because, “from issues of sustainability to sensuous knowing, and action to contemplation, the diversity of experiences that wilder environments can generate is expansive,” (Straker, 2017).
Age of Implementation and Duration of Outdoor Education

Outdoor education theories and programs have been implemented at a variety of ages from elementary school students to college students. Outdoor education has also been implemented using a variety of duration periods such as one week, one month, or a school semester for example. Being connected to nature is an important goal of outdoor education and has been defined as a student’s feeling of place in nature, a student’s desire to protect nature, a student’s engagement in actively attempting to conserve nature, or one’s emotional connection to nature (Clayton, 2003; Mayer & Frantz, 2004; Nisbet et al., 2009). It has been shown that depending on the age at which students are engaged, and the duration of the engagement, students’ connection to nature can differ (Braun & Dierkes, 2017). The studies on importance of developmental stages in outdoor education implementation are limited. However, there are authors who suggest that it is important to begin nature connection with young children because it becomes harder to change or grow the connection as one becomes older (Clayton, 2003; Ernst & Theimer, 2011; Wells & Lekies, 2006). Studies of connectedness to nature are not extensive, and therefore there have not been any conclusions as how long the duration of an outdoor education program needs to be in order for it to be impactful (Braun & Dierkes, 2017).

Higher Education

Outdoor education at the level of higher education can come in many different forms, but a common one is outdoor orientation. Outdoor orientation is used as a tool to help college aged students make the transition from high school to college more manageable. These orientations typically last around five days (Deringer & Wiggins, 2018; Ribbe et al., 2016). Outdoor orientation programs have been shown to increase students’ GPA, social involvement, retention rate, as well as increased self-learning and critical thinking skills (Bobilya & Akey, 2002; Deringer and Wiggins, 2018; Gass, 1987; Kafsky, 2001).

A study at a school in Illinois used a sample size of 215 incoming college students (Ribbe et al., 2016). The goal was to measure students’ perception of their adaptation to school after the outdoor orientation program (Ribbe et al., 2016). Compared with students who did not participate in the outdoor orientation program, the students who did reported a higher level of adaptation socially, a more significantly developed level of attachment to their institution, and an overall higher level of adaptation (Ribbe et al., 2016).
Outdoor fieldwork has also been examined as a form of outdoor education in higher education settings (Munge et al., 2018). This study did a SWOT (strengths, weaknesses, opportunities, threats) analysis of outdoor fieldwork in higher education (Munge et al., 2018). They found that some strengths include increased engagement, recognition of identity, and retention rate (Munge et al., 2018). Some weaknesses that were discovered include lack of time, lack of equity, lack of evidence, lack of integration, and lack of student engagement (Munge et al., 2018). The opportunity for teachers to improve teaching as well as learning with the assistance of technology was identified, along with opportunities for inclusive practice, more diversity, and more interdisciplinary teaching strategies (Munge et al., 2018). Some identified threats to outdoor fieldwork were the cost for students, risk management, and “outdated pedagogies,” (Munge et al., 2018, p. 43). It is important to recognize these steps and findings of the SWOT analysis because it can provide a comprehensive idea about the impacts of outdoor orientation programs and outdoor education in general.

**High School**

A study that took place in Singapore examined a sample of fifteen high school classes compared to seven elementary classes (ages ranging from 7-18) (Braun & Dierkes, 2017). The study was then broken up into participation of a five-day program (194 students), a one-day program (182 students), and continuation of schooling in a classroom with no outdoor component but learning the same material as students in the programs (the control consisted of 225 students) (Braun & Dierkes, 2017). The students that continued to learn in the classroom were also broken up into five-day and one-day programs (Braun & Dierkes, 2017). In this study, the elementary school students showed a higher connection to nature after the study compared to high school students ages 13-15 (Braun & Dierkes, 2017). The control groups did not show an increase in their nature connectedness. The five-day outdoor groups showed higher nature connectedness scores than the students in the one-day group whose scores remained the same (Braun & Dierkes, 2017). Students ages 16-18 who participated in the one-day outdoor program showed a more significant increase in connection to nature than the students ages 7-9 did (Braun & Dierkes, 2017). However, both experimental groups did show an increase in connection to nature after the program (Braun & Dierkes, 2017).

Self-authorship is a term coined by Robert Kegan in his book “Evolving-Self: Problem and process in human development,” in 1982. He speaks about self-authorship as a stage of
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development in humans in which humans develop an “independent ideology” and gain a sense of self (Kegan, 1982; McGowan, 2016). A study was done on the development of self-authorship in relation to outdoor education with students in grades 10 and 12 (McGowan, 2016). Before the semester, students were given a questionnaire about self-authorship. They were asked to answer the same questions after their semester long outdoor education program in order to compare if they had perceived an increase in self-authorship (McGowan, 2016). Four sections were tested in order to measure self-authorship, and three of the four sections showed increases after the study (McGowan, 2016). This showed that students in the sample of 10th and 12th grade felt an increased sense of self-authorship after participating in a semester long outdoor education program (McGowan, 2016).

Middle School

In a study conducted in Southern California, students ages 11-13 were immersed in an experiment used to understand the impact of outdoor education on the amount of time students spend on their screens (phones or other technology) per day (Uhls et al., 2014). These students were split into two groups. One group was able to participate in a five-day wilderness education program at Pali Institute, while the control group of students continued with general education in their school (Uhls et al., 2014). It was found that students who participated in the wilderness education away from screens for five days were better able to read facial emotion than the students who did not change their daily routine (Uhls et al., 2014). This shows that students ages 11-13 are influenced by five days in the outdoors and can build deeper emotional and social connections with time in nature (Uhls et al., 2014).

Students ages 7-11, which include middle school aged students, are thought to be at a stage where they should start to learn about their surrounding environment and landscape (Vickers & Matthews, 2002). It is believed that students at this age should start pushing their geographic boundaries, exploring, and building a relationship with their environment (Vickers & Matthews, 2002).

Elementary School

A study that took place in Singapore examined a sample of seven elementary classes compared to fifteen high school classes (ages ranging from 7-18) (Braun & Dierkes, 2017). This same study mentioned above in the section under “High School” was then broken up into participation of a five-day program (194 students), a one-day program (182 students),
continuation of schooling in a classroom with no outdoor component but learning the same material as students in the programs (the control consisted of 225 students) (Braun & Dierkes, 2017). The students that continued to learn in the classroom were also broken up into five-day and one-day programs (Braun & Dierkes, 2017). In elementary school students, ages 10-12, the students showed a higher nature connectedness after the study than students ages 13-15 did (Braun & Dierkes, 2017). The control groups did not show increase in their nature connectedness, but the five-day groups showed higher nature connectedness score than the students in the one-day group whose scores remained the same (Braun & Dierkes. 2017).

Students ages 7-9 who participated in the five-day program showed the most positive increase in connection to nature in contrast to the students ages 10-15 (Braun & Dierkes. 2017). However, both experimental groups did show an increase in connection to nature after the program (Braun & Dierkes. 2017).

Elementary school students working with an amphibian conservation program were observed and involved in a study to determine the impact of outdoor education (Randler et al., 2005). This study took place in Germany and compared the impact of an outdoor education program between a class of 3rd graders and a class of 4th graders (Randler et al., 2005). The results of this experiment showed that there was no significant difference between the grades, but that both classes were positively impacted by the program (Randler et al., 2005). Both pools of students showed decreased anxiety, lower levels of boredom, lower levels of anger, and high interest in the program as well as high levels of well-being (Randler et al., 2005).

**Impacts of Outdoor Education on the Environment**

Outdoor education generally has a positive influence on students and can therefore have a positive experience on the environment. Contrastingly, outdoor education can also have a negative impact on some ecosystems. It is necessary to think about all aspects of outdoor education when discussing the importance of it.

A study done in Ohio focused on a class that visited a river ecosystem each week (Bossley & Smiley, 2017). This study placed several rocks on the river side where the class visited and several rocks further upstream where the class did not go (Bossley & Smiley, 2017). The study showed the in the place where the students visited, the rocks shifted as a result to disruption to the ecosystem, causing sediment to be dislodged and macroinvertebrate colonies in
the river to be negatively affected (Bossley & Smiley, 2017). However, they concluded that if the class traded off visiting different sites of the same river each week, it would have less of a negative impact than re-visiting the same location (Bossley & Smiley, 2017). There is a lot of literature on the long-lasting, positive impacts of outdoor education, however, there is very little on negative effects that outdoor education may have on the environment. Outdoor education is focused on the students, but perhaps there is more to learn about the effects that it has on wildlife, plant species, insects, ecosystems, and other parts of the environment.

**Decision-making and Outdoor Education**

Decision making is an important thing to think about in this context because this study will be looking at decision making and the impact that outdoor education can have in the short and long term.

Uncertainty is an underlying and constant factor of outdoor education or any type of activity in a natural area (Galloway, 2007). While standard decision-making is comprised of pros, cons, yes, and no, decision making in outdoor settings is a constant cycle of weighing options, working in new situations that cannot be planned for, adapting to changing environments, acknowledging high stakes, and being able to make quick judgements (Galloway, 2007). Training someone to be competent in outdoor decision making is extremely difficult and can best be taught by experience (Galloway, 2007). A study was done to understand if level of experience in outdoor leaders influenced their naturalistic decision making and if different experience levels impact judgments among leaders (Galloway, 2007). After several questions, it was found that decision-making in experienced outdoor leaders is less effected by the level of group cohesion than less experienced outdoor leaders (Galloway, 2007). This shows a higher level of confidence in decision-making as experience is increased. It was also found that when problem solving, less experienced leaders had a harder time uniting a group in order to find a common solution, than experienced leaders did (Galloway, 2007). This study shows that confident decision-making comes with experience.

Another study on leader decision making in an outdoor leadership setting focused on one outdoor leader and took place in the mountains of North Carolina (Grube et al., 2002). This study followed one outdoor leader and asked them to journal about four group decisions that they made each day (Grube et al., 2002). These journal entries answered questions about the decision such
as what the situation was, what did you do, why did you do it, what type of leading style was it (Grube et al., 2002). The entries showed that the leader used all types of leading and decision-making styles (Grube et al., 2002). This leader had experience in using all types and had been able to practice all of the theories (Grube et al., 2002). This shows that experience and practice are very important when making decisions in the moment in the outdoors. This could also translate to decisions in real life situations that are not in the outdoors. Perhaps, outdoor leaders are more likely to think about a situation, educate themselves on the types of solutions, and practice in order to be able to make a proper decision that shows experience.

Decision-making is heavily based in ethical values. The same applies for decisions made by outdoor leaders in an outdoor setting (Mitten, 2007). A study aimed to explore the ethical frameworks used in decision making by outdoor leaders while leading trips (Mitten, 2007). The outdoor trip leaders that were studied had to have at least two months of trip leading experience and were currently leading a trip (Mitten, 2007). It was measured how often the sample of outdoor leaders use “personal interests’ schema, maintaining norms schema, and postconventional schema” when making a decision (Mitten, 2007, p. 374). The results show the 81% of outdoor leaders form this sample use postconventional schemas (more than the average adult) when making a decision (Mitten, 2007). In other words, “on average, outdoor leaders in this study understand and basically accept society's rules. This acceptance is based on formulating and accepting the general moral principles or thinking that underlie these rules. However, when these underlying principles come into conflict with society's rules, these outdoor leaders will not go by convention; they will think in a postconventional manner and make decisions based on the moral thinking that underlies the convention” (Mitten, 2007, p. 375). It was also shown that female outdoor leaders tend to use postconventional thinking more often than the male outdoor leaders (Mitten, 2007). Moral decision making does not apply to decisions only in the outdoors. These types of moral thinking found in the study on outdoor leaders, could very well be the way that they make decisions in everyday life as well.
Objectives

In this project I am exploring the relationship between experience in outdoor education and decisions that students at the University of Vermont have made or are making about their future. I am curious to see the relationship between types of decisions and types of outdoor education, duration of outdoor education, as well as when in the student’s life the outdoor education was experienced. I would like to understand if there is a difference in decisions based on how long the outdoor education was or if the type has an influence, as well as if it matters when the student was exposed to outdoor education. I am interested to see if the age at which a student has experienced outdoor education makes a difference in the impact that it has had.

The main objectives of this research thesis are as follows:

- Gather a sample of UVM students that have experienced outdoor education in one of the forms explained in the literature review
- Collect data from the questionnaire that can allow me to understand if outdoor education does have an impact on the decisions made by the students in my sample as well as future choices they will make
- Analyze the answers from the questionnaire and find some relationship between the variables of outdoor education, duration, type, and decisions
- Show the impact of outdoor education beyond the initial experience
Methods

In order to address the question of how exposure to outdoor education at any stage of life has impacted the decisions of college age students at University of Vermont, I will create and conduct a questionnaire. This questionnaire will aim to reach undergraduate students at the University of Vermont who have experienced some type of outdoor education in their life. My target pool of responses will come from the UVM student body because I want to gain a general understanding of the influence of outdoor education (if any) among college students at UVM.

Data Collection

Reaching a broad group of students will be accomplished by sending out the survey over listservs and class Facebook groups in order to try to reach a broad audience. An advertisement asking for UVM students who have had an experience with outdoor education will be sent to listservs and Facebook groups for each graduating class along with the questionnaire.

This survey will be created on RedCap through UVM. RedCap is a survey platform in which I can customize my survey and collect data from the responses. I will send out the RedCap link when I have finished creating the survey.

I will use data collection methods such as “snow-ball sampling” as well as “convenience sampling.” (Davies & Hughes, 2014). This will allow me to collect a bigger pool of data from a larger group of participants. These other data collection methods will happen when I ask friends to fill out my survey as well as asking them to share the survey with their friends who go to UVM and who have experienced outdoor education. I will also be using convenience and snow-ball sampling when I post the survey on the UVM class specific Facebook groups. Another form of convenience sampling will be using students in my classes and asking them to help me with snow-ball sampling by asking their friends or roommates to fill out the survey as well. The more data that is collected, the more inferences I can make when analyzing.

The survey will be set up in a way that collects data only from UVM undergraduate students who have participated in an outdoor education experience. The survey will ask if you have ever had an experience participating in outdoor education and if you answer “yes,” the rest of the questions appear. If you answer “no,” the only information that will be recorded is gender, racial identity, that you have not experienced outdoor education, and how the participant views their own well-being. Therefore, the data will be from a small and specific sample.
**Procedures**

The book, “Doing a Successful Research Project Using Qualitative or Quantitative Methods,” by Davies and Hughes explains the procedures of finding a sample, carrying out a survey, creating a questionnaire, and analyzing survey data (Davies & Hughes, 2014).

The questionnaire will ask questions that aim to understand if a student has ever had experience with outdoor education, when in their life they were exposed to this, and for how long. It will also have questions such as, “What is your current major?” “How do you spend your leisure time?” (See appendix section for the full survey.) These questions will help me to understand if there is a correlation between the exposure to outdoor education, and the types of life decisions (such as major, future job, activities) they are participating in.

Louise Chawla’s research on significant life experience in relation to environmental education will be used for guidance when making questions for the questionnaire. She asked similar questions in order to understand a similar relationship with the impact of environmental education on life decisions (Chawla, 1998). The questions that she asked her sample will be a good reference as to what types of questions I should ask, and the topics that I should inquire about in order to better understand the impact of outdoor education.

**Participants**

Participants filling out this questionnaire will consist of any UVM student who has had outdoor education and who is willing to fill out the survey that was seen in an email, on Facebook, or were told about it from a friend and choose to respond to it. I am hoping to get responses from at least 100 participants. All participants will be undergraduate University of Vermont students. I will aim to collect data from a broad range of participants so that the data is not skewed by a heavy response from a specific group of participants in the same major, or from the same state.

**Analytic Approach**

I intend to create my survey using RedCap through UVM so that it is easy to send out, fill out, and analyze because the data is collected and stored automatically in the system. I will then
create some frequency distributions to show how many people picked each answer to some of the questions (Davies & Hughes, 2014). This will be shown in numbers as well as percentages. I will also look at the mean statistics in groups of students who have had some form of outdoor education versus those who have not. I would like to explore if there is a difference in answers depending on when in their life the student was exposed to outdoor education as well as how long the duration of experience was. I will show my analysis in tables as well as graphs.

In order to analyze the open-ended questions, I will print out all of the answers and code them. I will do this by color coding answers that are the same or fall into a similar category. Each category will be created if an answer has been repeated at least two times. After I create the categories, I will look at the most common answers and the types of answers to look for relationships.
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Results

This survey, created to better understand the relationship between outdoor education experience, well-being, and decisions of UVM students, was filled out by 139 undergraduate students at the University of Vermont. The majority of people that filled out the questionnaire were women, composing 64% of the participants. Twenty-two percent of the participants who completed this survey were men. The other 14% of participants identify as gender fluid, non-binary, other, or chose not to answer. All participants who filled out the survey, answered “yes” to having had experience participating in outdoor education. The survey was designed to collect all answers from students who had experience in outdoor education. Only answers about well-being were completed by students who answered “No” to having experience in outdoor education. The data that came from students who did not experience outdoor education was minimal and harder to draw conclusions from than the complete questionnaires from students who did have experience with outdoor education.

Comparing Mean Ages

Figure 1 below is a table that represents the UVM college of the survey participants as well as the mean age per college of the participants’ first outdoor education experience. This table compares the mean ages of first outdoor education experience between the UVM colleges. The left column shows the schools within UVM, while the right column shows the number of survey participants in each college. The middle column is the mean age per college. This number represents the mean age at which survey participants from each college first experienced outdoor education.

The College of Agriculture and Life Sciences, the College of Arts and Sciences, and Rubenstein School of Environment and Natural Resources all had at least 20 responses. Of those colleges, Agriculture and Life Sciences had 20 students respond, Arts and Sciences had 21 students respond, and Rubenstein had 38 students respond. The mean age of first outdoor education experience for Rubenstein was the youngest at 6.71 years old. The mean age for first outdoor education experience in the College of Agriculture and Life Sciences was 8.10 years old and in Arts and Sciences it was 8.88 years old. The survey participants in the Rubenstein College of Environment and Natural Resources had a mean age of first outdoor education experience that was younger than the rest of the UVM colleges.
The table shows that the lowest mean age of first outdoor education experience comes from the Business school at 4 years old. However, there was only one person from the Grossman school of Business who completed the survey, so there is no mean and the age is insignificant compared to the rest when looking for a relationship. The next youngest mean was 5.50 years old and those were students in the College of Nursing and Health Sciences. However, there were only two participants from this college, so it is also insignificant compared to the rest. These results are still included to show how many survey participants were from each UVM college.

<table>
<thead>
<tr>
<th>What college are you in at the University of Vermont?</th>
<th>Mean age of first outdoor education experience</th>
<th>N number of survey participants in each college</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Life Sciences</td>
<td>8.10</td>
<td>20</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>8.88</td>
<td>21</td>
</tr>
<tr>
<td>Business (Grossman)</td>
<td>4.00</td>
<td>1</td>
</tr>
<tr>
<td>Education and Social Services</td>
<td>7.14</td>
<td>7</td>
</tr>
<tr>
<td>Engineering and Mathematical Science</td>
<td>8.50</td>
<td>2</td>
</tr>
<tr>
<td>Environment and Natural Resources (Rubenstein)</td>
<td>6.71</td>
<td>38</td>
</tr>
<tr>
<td>Nursing and Health Sciences</td>
<td>5.50</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>7.51</td>
<td>92</td>
</tr>
</tbody>
</table>

Figure 1. Table showing the number of survey participants in each college at the University of Vermont and the mean age of first outdoor education experience within each college.

Descriptive Statistics of Ages Between Colleges

Figure 2 below is a table that shows the mean ages of how old participants were when they participated in their longest outdoor education experience, how old participants were when they participated in their most meaningful outdoor education experience, and how old participants were when they had their first outdoor education experience. Unlike the table above, this table only shows the mean ages of participants in the Rubenstein School of Environment and
Natural Resources compared to all other participant ages (not in Rubenstein) combined. The far-left column shows that the top rows are mean ages of students in all colleges but Rubenstein, and the middle rows are the mean ages of students who are in the Rubenstein school, while the bottom rows are the totals means of both. The “N” rows under “Mean” show the number of survey participants that answered these questions. This shows the breakdown between participants in the Rubenstein school compared to students in the rest of the colleges combined.

The mean age of the longest outdoor education experience in Rubenstein was 17 years old which is older compared to the mean age of longest outdoor education experience in the rest of the schools which is 15.72. In Rubenstein as well as the rest of the colleges, the mean age for when participants had their most meaningful outdoor education experience was around 16 years old. As shown in Figure 1, the mean age for first outdoor education experience of students in the Rubenstein school is 6.71. This is significantly younger than the mean age for participants in the other colleges at UVM with a mean age of 8.06 years.

<table>
<thead>
<tr>
<th>Students in the Rubenstein college</th>
<th>How old were you when you participated in your longest outdoor education experience? (Example: 12 years)</th>
<th>How old were you when you participated in your most meaningful outdoor education experience?</th>
<th>How old were you when you participated in your first outdoor education experience? (Example: 5 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>15.72</td>
<td>16.49</td>
<td>8.06</td>
</tr>
<tr>
<td>N</td>
<td>54</td>
<td>45</td>
<td>54</td>
</tr>
<tr>
<td>Yes</td>
<td>17.00</td>
<td>16.24</td>
<td>6.71</td>
</tr>
<tr>
<td>N</td>
<td>40</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>16.27</td>
<td>16.38</td>
<td>7.51</td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td>82</td>
<td>92</td>
</tr>
</tbody>
</table>

Figure 2. Table showing the three mean ages for three separate outdoor education experiences comparing the mean ages between students in the Rubenstein school to students in all of the other UVM colleges combined.
Figure 3 below is a table that shows the mean ages of longest outdoor education experience, most meaningful outdoor education experience, and first outdoor education experience. This table is the same as figure 2 except in figure 3, the UVM colleges that are being compared are different. In figure 3 the mean ages of the College of Agriculture and Life Sciences are being compared to the mean ages of participants in all of the other colleges (excluding Agriculture and Life Sciences) combined.

This table shows us that of the survey participants in the College of Agriculture and Life Sciences, the mean age for participating in the longest outdoor education experience is 15.71 years old which is younger than the mean age for the rest of the colleges combined which is 16.42 years old. Again, the mean ages for most meaningful outdoor education experience are all roughly 16 years old. The mean age for first outdoor education experience is 8.10 years from participants in the College of Agriculture and Life Sciences, which is older than the mean age of first outdoor education experience in the rest of the colleges. This could be because the low mean age of first outdoor education experience in Rubenstein brings down the mean age if the rest of the colleges are combined to compare against the College of Agriculture and Life Sciences.

<table>
<thead>
<tr>
<th>Students in the College of Agriculture and Life Sciences</th>
<th>How old were you when you participated in your longest outdoor education experience? (Example: 12 years)</th>
<th>How old were you when you participated in your most meaningful outdoor education experience?</th>
<th>How old were you when you participated in your first outdoor education experience? (Example: 5 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Mean 16.42</td>
<td>Mean 16.41</td>
<td>Mean 7.34</td>
</tr>
<tr>
<td></td>
<td>N 73</td>
<td>N 68</td>
<td>N 72</td>
</tr>
<tr>
<td>Yes</td>
<td>Mean 15.71</td>
<td>Mean 16.21</td>
<td>Mean 8.10</td>
</tr>
<tr>
<td></td>
<td>N 21</td>
<td>N 14</td>
<td>N 20</td>
</tr>
<tr>
<td>Total</td>
<td>Mean 16.27</td>
<td>Mean 16.38</td>
<td>Mean 7.51</td>
</tr>
<tr>
<td></td>
<td>N 94</td>
<td>N 82</td>
<td>N 92</td>
</tr>
</tbody>
</table>
Figure 3. Table showing the three mean ages for three separate outdoor education experiences comparing the mean ages between students in the college of Agriculture and Life Sciences to students in all of the other UVM colleges combined.

Figure 4 is a table that has a similar comparison as figures 2 and 3. Figure 4 below shows the comparison of mean ages of longest outdoor education experience, most meaningful outdoor education experience, and first outdoor education experience between the college of Arts and Sciences and the rest of the UVM colleges combined.

In the College of Arts and Sciences, the mean age for participating in the longest outdoor education experience is 14.85 years old. When compared with the mean age of the longest outdoor education experience of the rest of the colleges combined (16.65 years), the mean age within the College of Arts and Sciences is younger. The mean age of the most meaningful outdoor education experience in the College of Arts and Sciences is older (17.16) than the mean age of the other colleges combined (16.14). This is different than the previous two tables, figure 2 and figure 3, because the mean ages differ more in figure 4 than they do in the others. The mean age for first outdoor education experience in the College of Arts and Sciences is 8.88 years old which is older than the mean age of the rest of the colleges combined, with a mean age of 7.10 years. Again, this could be a result of the low mean age for first experience in the Rubenstein school bringing down the mean.
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![Image of a table showing the three mean ages for three separate outdoor education experiences comparing the mean ages between students in the college of Arts and Sciences to students in all of the other UVM colleges combined.](image)

**Figure 4. Table showing the three mean ages for three separate outdoor education experiences comparing the mean ages between students in the college of Arts and Sciences to students in all of the other UVM colleges combined.**

### Analysis of Answers to Open-ended Questions

Below are several graphs used to show the frequency of answers that were received to the open-ended questions in the survey. The open-ended questions that have been analyzed are “Has your outdoor education experience impacted you? If yes, how?” “Why did you decide to come to UVM?” “What is your ideal job?” “Growing up, did you have a special place in nature that impacted you? If so, please describe,” “Have you gained any characteristics from this outdoor experience/s? If yes, please list them below.” Since these questions are all open-ended, they produced various answers. Some survey participants answered with multiple of these categories in their answers while others only said one. In answers that contained multiple categories, each category was counted towards the frequency. The answers were coded, analyzed, and put into the graphs below. The x-axis of all the graphs below show the types of answers or categories that the open-ended answers were broken up into. The y-axis shows the frequency of those answers tallied from all of the surveys. These graphs show only the top most frequent answers/cATEGORIES.
Some answers had many categories with a frequency in appearance of two or more, so the most frequent answers are shown below. The complete graphs with all categories present can be found in the appendix.

Figure 5 below shows the graph that is a visual representation of the answers received to the question, “Has your outdoor education experience impacted you? If yes, how?” The answers to this question in the survey were broken up into categories of similar or same answers. The frequency of these categories is shown in the graph below. The most common answer found within the answers to the question of “Has your outdoor education experience impacted you? If yes, how?” was “increased appreciation of nature/natural world,” with a frequency of 21 answers. One survey participant said, “It (outdoor education experience) has given me a greater appreciation for the outdoors and nature as a whole.” The next most frequent impact of outdoor education experiences was “encouraged to pursue a career,” with 12 answers.

![Impact of Outdoor Education Experience](image)

*Figure 5. Graph showing the frequency of answers about the impact that outdoor education has had.*

Figure 6 below is a graph that shows the several reasons why participants in the survey chose to come to UVM. The x-axis shows the most common reasons for coming to UVM while the y-axis shows the frequency of each answer. The most frequent reason for coming to UVM is that the university is close to the outdoors/outdoor recreation opportunities. Many survey
participants had answers similar to, I chose UVM because of the, “close proximity to outdoor activities,” and the “opportunities to get outside in the backcountry.” This category/answer was written by 37 survey participants. The next most frequent reason for coming to UVM, written in the survey by 19 people, was the environmental program. The third most frequent reasoning for coming to UVM was that participants liked the town of Burlington.

![Figure 6. Graph showing the frequency of answers about reasons for choosing to come to UVM.](image)

Figure 7 below is a graph that shows the top most frequent answers to the question, “What is your ideal job?” There were several categories/answers to this question, so the graph below shows only the most common ones. The ideal job that was mentioned the most was “research,” which occurred 15 times. The second most common ideal job was “want to be outdoors.” This ideal job answer was written by 13 survey participants. These survey participants shared answers such as, my ideal job is, “to be outside in the wilderness where I can truly be in nature, and to make enough money to support myself in a meaningful way,” or simply, “something outside.”
Figure 7. Graph showing the frequency of answers about ideas of an ideal job.

Figure 8 below is a graph that represents the varying types of places that survey participants wrote as their special place in nature growing up that had an impact on them. Eighty-seven-point one percent of survey participants responded that they had a special place in nature growing up that had an impact on them. This graph shows the different types of places/categories of places that were special to survey participants when growing up. The most frequently mentioned special place was “water” and types of bodies of water. This encompassed lakes, rivers, ponds, or oceans. 21 survey participants mentioned “water” as their special place growing up. 17 survey participants mentioned that “woods” were their special place growing up. Mountains, beaches, and national parks/state parks were also frequent answers of a special place. All three of these special places were mentioned by 9 survey participants.
Figure 9 below is a visual representation of the frequency of answers to the question, “Have you gained any characteristics from this outdoor experience/s? If yes, please list them below.” Many characteristics were listed in response to this question. However, some were mentioned multiple times. The most common gained characteristic as perceived by survey participants was confidence.” 13 survey participants believe that they gained confidence from their experience with outdoor education. 11 survey participants believe that they became more “observant” as a result of their outdoor education experience and 10 survey participants believe that they gained “happiness/well-being/mental health” from their experience with outdoor education. While 8 participants said that they gained “independence,” and another 8 believe to have gained “appreciation and gratitude.” 8 participants also believe that they gained “no characteristics” from their outdoor education experience. Many participants said that they felt they gained multiple of these characteristics in the graph below. There were many characteristics mentioned and many of them were listed by at least two survey participants.
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Figure 9. Graph showing the frequency of answers about perceived characteristics gained from experience participating in outdoor education.

Descriptive Statistics of Well-Being

At the end of the survey, participants were asked to rank their happiness on a sliding scale of 0 to 100 in two separate questions. The first happiness scale asked the participants to rank their happiness on an average day. The second question asked the participants to rank their happiness when they are outside.

The table below shows happiness ranked by survey participants who have had experience with outdoor education. Those who have participated in outdoor education ranked their happiness on an average day and the mean out of 83 responses was 69.78 on a scale of 0 to 100. The mean number from 84 participants ranking their happiness outside, was 91.69 out of 100.
Have you ever participated in an outdoor educational experience?

<table>
<thead>
<tr>
<th></th>
<th>Rank your happiness when you are outside</th>
<th>Rank your happiness on an average day</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>91.69</td>
<td>69.78</td>
</tr>
<tr>
<td>N</td>
<td>84</td>
<td>83</td>
</tr>
</tbody>
</table>

Figure 10. Table showing happiness ranked on a sliding scale of 0 to 100 from survey participants who have had experience with outdoor education.

**Bivariate Correlation Between Well-Being, Leisure Activities, and Growing up Spending Time Outdoors**

This table shows the bivariate correlations between well-being, survey participants who spend their leisure time doing an outdoor sport (categorized as hiking, biking, climbing, kayaking, canoeing, backpacking, running, etc.), survey participants who spend their leisure time indoor climbing, survey participants who recreated with their family as a kid, and survey participants who had a special place in nature growing up. A bivariate correlation shows the relationship between two or more variables and how they linked. The Pearson correlation shows the how strong the linkage is between the variables. As seen on the bottom of the table, if the correlation between two variables is significant, meaning there is a noticeable relationship and association between variables, then there will be an asterisk next to the number. If the significance level is 0, it means that there is no significant correlation. The closer the significance level is to 1, the stronger the positive relationship is. The asterisks show that the correlation is statistically significant. One asterisk (*) in the table below means that the correlation is significant at the 0.05 level. Two asterisks (**) in the table below indicates that the correlation is significant at the level of 0.01.

Figure 11 below shows that there are some statistically significant relationships between the variables tested. When looking down the column of well-being, there are three significant correlations. There is a positive correlation of .185 at the 0.05 level between survey participants who reported having good well-being as well as spending leisure time doing outdoor sports (hiking, biking, climbing, kayaking, canoeing, backpacking, running, etc.). There was also a
positive correlation of .239 at the 0.01 level between survey participants who reported having good well-being and who spent their leisure time indoor climbing. There was also a positive correlation of .306 at the 0.01 level between survey participants who reported having good well-being, and participants who had a special place in nature growing up that impacted them. Those three positive correlations all involved the well-being variable. The other positive correlations involve the variable of outdoor sport leisure time. There is a positive correlation of .379 at the 0.01 level between spending leisure time doing outdoor sports and spending leisure time indoor climbing. There is also a positive correlation of .306 at the 0.01 level between spending leisure time doing outdoor sports and survey participants who said that they had a special place in nature growing up that impacted them. These positive correlations show that the variables named have a relationship and that participants who answered yes to one of the variables, were also likely to answer yes to the variable that has a relationship with the first variable.
### Correlations

<table>
<thead>
<tr>
<th>Correlation</th>
<th>well_being</th>
<th>How do you spend your leisure time? (choice=outdoor sport (hiking, biking, climbing, kayaking, canoeing, backpacking, running, etc.))</th>
<th>How do you spend your leisure time? (choice=indoor climbing)</th>
<th>As a kid, did you recreate outdoors with your family?</th>
<th>Growing up, did you have a special place in nature that impacted you?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.185*</td>
<td>.239**</td>
<td>.087</td>
<td>.306**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.041</td>
<td>.008</td>
<td>.438</td>
<td>.005</td>
<td>.584</td>
</tr>
<tr>
<td>N</td>
<td>122</td>
<td>122</td>
<td>81</td>
<td>81</td>
<td>85</td>
</tr>
<tr>
<td>How do you spend your leisure time? (choice=indoor climbing) Pearson Correlation</td>
<td>.185*</td>
<td>1</td>
<td>.379**</td>
<td>.306**</td>
<td>.060</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.041</td>
<td>.000</td>
<td>.004</td>
<td>.004</td>
<td>.584</td>
</tr>
<tr>
<td>N</td>
<td>122</td>
<td>139</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>As a kid, did you recreate outdoors with your family? Pearson Correlation</td>
<td>.087</td>
<td>.306**</td>
<td>-.027</td>
<td>1</td>
<td>.116</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.438</td>
<td>.004</td>
<td>.806</td>
<td>.290</td>
<td>.483</td>
</tr>
<tr>
<td>N</td>
<td>81</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Growing up, did you have a special place in nature that impacted you? Pearson Correlation</td>
<td>.306**</td>
<td>.060</td>
<td>.077</td>
<td>.116</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.005</td>
<td>.584</td>
<td>.483</td>
<td>.290</td>
<td>.290</td>
</tr>
<tr>
<td>N</td>
<td>81</td>
<td>85</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

*Figure 11. This table shows the correlations between well-being, survey participants who like to spend their leisure time doing outdoor sports, survey participants who like to spend their leisure time indoor climbing, survey participants who recreated outdoors with their family as a child, and survey participants who had a special place in nature growing up.*
Discussion

After analyzing the responses from the survey, I hoped to be able to discuss the transformative nature of outdoor education. I predicted that experience with outdoor education from elementary age groups upwards, would have had an impact on students in the sample at UVM. More specifically, I predicted that students who began outdoor education at a younger age and continued, would make decisions that were more impacted by their outdoor education experience than students who were not exposed until later. I predicted that students who have had outdoor education for longer durations would be more likely to make decisions that involve the outdoors in some way. I also predicted that exposure to outdoor education closer to the time of the survey (closer to college age such as high school or college) would result in a deeper and more noticeable impact on decision making.

It was difficult to narrow down such a broad topic as outdoor education. In order to discover the lasting impacts that outdoor education can have on someone, I figured that it would be a good idea to focus on decision making in an effort to narrow down the topic and attempt to quantify “impact”. Decision making itself is also broad and difficult to quantify. I was able to narrow down the idea of “decision making” by narrowing down types of decisions and asking specific questions in the questionnaire.

Age of Outdoor Education Experience

It was interesting to look at the mean ages of first outdoor education experience, most meaningful outdoor education experience, and longest outdoor education experience across the different colleges that survey participants are in. In Rubenstein, the mean age for first outdoor education experience was 6.71. This was the youngest mean age out of all the colleges. This shows a relationship between early experience participating in outdoor education and the decision to study the environment and natural resources in the Rubenstein college. Out of all the colleges, Rubenstein also had the most survey participants with 38 completed surveys.

When looking at the mean ages at which survey participants had their most meaningful outdoor education experience, I found that throughout the different colleges, the mean age seemed to be 16 or 17 years old. This could be because one can understand the meaning and gravity of an experience the older one gets. Or, this could be due to increased opportunities, resources, or a number of other factors. Many of these relationships could be a result of various
factors, however, inferences and interpretations of the results are interesting things to consider and build on for future research.

Open Ended Questions

When analyzing the open-ended questions, I looked for categories within the answers. I put same and similar answers into categories for each open-ended question and used these to look for relationships. Each category is an answer that was repeated at least two times.

For the question about the impact of outdoor education, the answers from survey participants were all positive. All of the impacts listed were positive impacts unless participants answered that their outdoor education experience did not have an impact on them. Only two people said that they were not impacted, while all other categories involved “gaining” something such as appreciation or “increased” well-being. There were 22 categories total.

The reasons for choosing UVM were mainly due to the surrounding area. The second most common answer was due to financial reasons. However, all of the other top answers had to do with Burlington, the students at UVM, the proximity to the outdoors and opportunities outside, and the environmental programs at UVM. The most common reasoning for coming to UVM was that UVM is close to the outdoors and there are good outdoor recreation opportunities. This shows the priorities of the majority of the survey participants. Considering that all people who answered this question have had experience participating in outdoor education, a relationship can be drawn between experiencing outdoor education and wanting to go to school in a place where the outdoors are accessible.

When asked what their ideal job was, the majority of the survey participants responded that they want to be able to work outdoors. The other most common answers were research, conservation, education, something environmentally focused, that survey participants have no idea yet. Being that this question was answered by people that have participated in outdoor education, a relationship can be drawn between experience with outdoor education and the desire to work outdoors or with something environmentally focused in the future. This could also be a result of being in the mindset of outdoor related topics because of the nature of the survey and the questions asked.

It was interesting to see that 87.1% of the survey participants who have had experience participating in outdoor education had a special place in nature growing up that impacted them.
Of all the types of places in nature listed, the most common were water and woods. It was also interesting to see that 96.5% of survey participants that participated in outdoor education answered “yes” to recreating outdoors with family when they were a kid. Based on this data, it is possible that the lasting impact of the outdoors that I have been trying to quantify, is a result of being in nature during childhood separate from experiencing outdoor education. It is also possible that experience in outdoor education at a young age led survey participants to connect to a special place in nature or encourage their family to recreate outside more often. This is not something that I can distinguish based on the data that I have collected.

There were many gained characteristics listed in response to the question, “Have you gained any characteristics from this outdoor experience/s? If yes, please list them below.” There was a total of 28 categories of characteristics. Similar to the answers to the question about impact of outdoor education, the answers for characteristics gained were all positive answers. The most common answer was that survey participants gained confidence with their outdoor education experience. Only 8 survey participants said that they did not gain any characteristics from their experience participating in outdoor education.

**Well-Being**

In the survey there were two sliding scales that were used to rank happiness. Survey participants were asked to rank their happiness on an average day as well as to rank their happiness when they are outside. The mean happiness on an average day was 69.78%. However, the mean happiness while outside was 91.69%. This is a large difference and it shows that people who have had an outdoor education experience feel significantly happier when they are outside compared to an average day. The survey was set up in a way that would gather average happiness and average happiness outdoors whether or not one had participated in outdoor education, however, the only answers received about average happiness were from survey participants who have had outdoor education experience.

In the bivariate correlation table in figure 11, there is a significant positive correlation between well-being, and having a special place in nature growing up that had an impact. This is interesting because both of these things could be independent of the outdoor education experience as mentioned before when discussing the open-ended questions. This is inspiring that having a connection to a specific place in nature is correlated with well-being. Perhaps that is all
we need to have an increased sense of happiness, health, and well-being, is to have a place in nature that we can return to and build a connection with. Outdoor education can promote connection to places in nature and perhaps this is where the correlation is coming from in this context.

Limitations

The topics of outdoor education as well as impact, are broad topics and terms to cover. It was difficult to quantify impact and “decisions” of undergraduate UVM students. The way that the survey and questions were structured and worded ended up collecting data that focused more on the relationship between outdoor education experience and well-being rather than life choices. It was also difficult to look at the difference in answers based on which type of outdoor education had been experienced because many people who filled out the survey had experienced all or multiple of the different types of outdoor education. In the future, making the survey more concise as well as testing the survey for a longer amount of time would hopefully gather better results. Or at least more focused results.

Another limitation has to do with the sample of survey participants. I attempted to get some information about students who have not had experience with outdoor education through the well-being questions. This did not work. It would be valuable to be able to compare answers between people who have experienced outdoor education and those who have not, beyond just well-being. In an effort to keep it simple, the survey was focused only on people who have had outdoor education experience, however, information from people who have and have not could potentially be more valuable.

The sample is also very specifically undergraduate students at UVM. This was the most convenient and the easiest sample for the amount of time that I had for this project. Ideally, I would have liked to explore different socio-economic classes, different ages, people from different geographic locations, as well as people who are not in college.

There are an incredible number of factors that impact who we become and the decisions we make. It is hard to separate them and find certain things that are solely a result of outdoor education experience. This is the main limitation to the nature of this survey. However, it was interesting to see the relationships that did come out of the data collected.
Use of Results

My hope is that these results can be used to show the benefits of outdoor education. This data shows that there is a strong correlation between people who have had experience participating in outdoor education and positive well-being. This is useful information for schools, parents, and outdoor education programs and companies. This data specific to the University of Vermont could also be beneficial to the university. Perhaps this can be used to show the importance of getting students outside and can back the drive behind the TREK outdoor orientation program for incoming students. I hope that these relationships can highlight the importance of outdoor education.

In the future, this questionnaire and research concept can be used to test the impact of past outdoor education experience of students at different universities. Perhaps this study can be attempted at a different age group that is younger, or maybe using post-university subjects. My hope is that this data can show that outdoor education is important and should be implemented more often because it does have an impact beyond the initial experience. I also would like to be able to point to specifics about the outdoor experience such as duration, age implemented, which type, in order to provide guidance to outdoor education teachers as to when, what, and where the best place for this experience could be. This could be a goal if this research were to be continued.
The Impacts of Outdoor Education

Conclusion

This survey had a total of 139 participants who were all undergraduate students at the University of Vermont. Those who filled out the entire survey have all had experience participating in outdoor education. That being said, this questionnaire did not reach a large enough sample size to reach any conclusions. However, relationships did appear, and some statistically significant positive correlations have been examined.

Through data analysis, it was found that well-being is positively correlated with experience with outdoor education, spending leisure time indoor climbing, spending leisure time doing outdoor sports, and having a connection to a place outdoors. This shows the importance of spending time outdoors and building a connection to a place in nature. The results also lead us to conclude that many impacts and characteristics have been gained through specific outdoor education experience. Overall, the results showed that outdoor education is a very positive experience. Many positive characteristics and impacts were written in the survey by undergraduate UVM students.

In the future, this research could be built upon by giving the survey to a larger and more diverse sample of people. This research could be used to focus on the importance of outdoor education or on well-being of college students or people in general. This data shows that exposure to the outdoors and education outdoors is important. The significance of this data could be improved in the future if this research were to be continued and modified.
Bibliography


Kafsky, J. (2001). The effect of a freshman adventure orientation program on the development of
The Impacts of Outdoor Education


Appendices

Time Line

I will first send out a pilot survey to some of my friends so that I can get an idea of which questions work and which ones I must modify.

Then I will begin building my sample by sending out my questionnaire on January 28th to listservs and UVM student Facebook groups. January 28-March 18th. I will be constantly collecting data from questionnaires that will hopefully be continually submitted.

I will continue to synthesize and analyze data as well as edit my thesis from April 1st-April 22nd. This will consist of collecting the final questionnaires, creating frequency distributions, conducting cross-tabulations, putting data into visually representative graphs and figures, and starting to think about how I will show the results best.

I will be continually writing about the data analysis as well as adding to the discussion from what I have found. I will start the conclusion on the week of April 22nd and start to make sure the rest of the thesis is cohesive. I will be making the final touches and adding to sections that could benefit from discussing the data and the results that I have found.

I will turn in my final thesis on May 1st.

Budget

As of right now, I do not need a budget for this project. I will be using free resources that I have access to through the University of Vermont.

Questionnaire

This research thesis will aim to understand the relationship between outdoor education and the current lives of college students at the University of Vermont. This survey will ask you to differentiate between types of outdoor education. Definitions will be provided.

https://redcap.med.uvm.edu/surveys/?s=4H8C38NYW4

1. I identify my gender as: (check box that applies)
   Man
   Woman
   Transgender
   Genderqueer
   Agender
   Genderless
Non-binary
Trans man
Trans woman
Third gender
Bigender
Gender fluid
Other

2. I would describe my race as: (check the box that applies)

- American Indian/Native American
- Asian
- Black/African American
- Hispanic/Latino
- White/Caucasian
- Pacific Islander
- Two or more
- Other

3. Have you ever participated in an outdoor educational experience?  YES/ NO

4. How would you describe your Outdoor Education Experience based on these definitions (you may select multiple):

- Wilderness education is a form of outdoor education in which students go on an expedition in the wilderness and are faced with a variety of situations, elements, and opportunities for learning in the natural world (Collins et al., 2016).
- Experiential education/learning is another form of outdoor education that aims to increase hands-on learning, community building, and skills that will be used in the "real world" (Roberts, 2018).
- Adventure outdoor education is another category and is normally executed in activities that are more short-term than wilderness education expeditions, such as team building games, ropes courses, or raft building (Cooley et al., 2016).
- Place-based education can also fall into the category of outdoor education because programs often use natural areas as an opportunity to immerse students in the area or topic that they are learning about (Lowenstein & Smith, 2017).

Wilderness
Experiential
Adventure
Place-based
Other

5. Which activities did you participate in during your experience?

- Ropes course
Summer camp
Outdoor sport (climbing, biking, canoeing, kayaking, backpacking, mountaineering, etc.)
Fieldtrip
Day hike
Outdoor education center
Fieldwork
Research
Traveling
Other

6. Please describe other if applicable

7. How many days was your longest outdoor education experience? Please note the length in days (Example: 5 days)

8. Which type of outdoor education was it?

9. How old were you when you participated in your first outdoor education experience? (Example: 5 years)

10. Which type of outdoor education was it?

11. How old were you when you participated in your longest outdoor education experience? (Example: 12 years)

12. Which type of outdoor education was it?

13. How old were you when you participated in your most meaningful outdoor education experience?

14. Which type of outdoor education was it?

15. Was your longest outdoor education experience through school or outside of school?

Inside school
Outside school

16. What was the name of the outdoor education program? (if applicable)
17. Growing up, did you have a special place in nature that impacted you?  YES/NO
18. If so, please describe. Do you still visit this place?
19. What is your current major/s?
20. What is your current minor (if applicable)?

21. Which college are you in at the University of Vermont?
   - Agriculture and Life Sciences
   - Arts and Sciences
   - Business (Grossman)
   - Education and Social Services
   - Engineering and Mathematical Science
   - Environment and Natural Resources (Rubenstein)
   - Nursing and Health Sciences
   - Honors
   - Graduate
   - Continuing and Distance Education
   - Extension
   - Pre-Professional Programs

22. What is the second college that you are in at the University of Vermont (if applicable for double majors)?
   - Agriculture and Life Sciences
   - Arts and Sciences
   - Business (Grossman)
   - Education and Social Services
   - Engineering and Mathematical Science
   - Environment and Natural Resources (Rubenstein)
   - Nursing and Health Sciences
   - Honors
   - Graduate
Medicine
Continuing and Distance Education
Extension
Pre-Professional Programs

23. Why did you decide to come to UVM?

24. What is your most impactful memory outside (structured or not, at any age)?

25. How do you spend your leisure time? (check all that apply)
   Reading
   Writing
   Juggling
   Dancing
   Outdoor sport (hiking, biking, climbing, kayaking, canoeing, backpacking, running, etc.)
   Swimming
   Playing sports
   Watching tv
   Indoor climbing
   Cooking
   Using a computer
   Making/playing music
   Creating art
   Social media
   Listening to music
   Exploring the outdoors
   Other

26. If other, please list here:

27. A. Have you had any jobs or leadership roles that involve the outdoors (paid or unpaid)?
   (Circle one)       Yes/No
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28. If yes, what was the job/s or leadership role/s?
29. What is your ideal job?
30. As a kid, did you recreate outdoors with your family?

31. Has your outdoor education experience impacted you? If yes, how?
32. Have you gained any characteristics from this outdoor experience/s? If yes, please list them below.
33. Well-Being


<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>
I feel healthy.
I am happy most of the time.
My friends would say that I am a good person.
I have sufficient motivation to exercise.
I am comfortable with my diet.
I am happy with the lifestyle that I live.
I like myself.
Anxiety is an issue in my life
Depression is an issue in my life

34. Rank your happiness on an average day. (sliding scale)

<table>
<thead>
<tr>
<th>Not happy</th>
<th>Neutral</th>
<th>Happy</th>
</tr>
</thead>
</table>

35. Rank your happiness when you are outside. (sliding scale)

<table>
<thead>
<tr>
<th>Not happy</th>
<th>Neutral</th>
<th>Happy</th>
</tr>
</thead>
</table>

Recruitment
This will be the email sent out to listservs asking for participants to fill out the questionnaire:

Hello!

Calling all UVM students who have had an experience in outdoor education at any time in your life! I am doing a research thesis on the impacts of outdoor education and I need your help!

Outdoor education in the context of this study will be defined as (Wilderness education is a form of outdoor education in which students go on an expedition in the wilderness and are faced with a variety of situations, elements, and opportunities for learning in the natural world (Collins et al., 2016). Experiential education/learning is another form of outdoor education that aims to increase hands-on learning, community building, and skills that will be used in the “real world” (Roberts, 2018). Adventure outdoor education is another category and is normally executed in activities that are more short-term than wilderness education expeditions, such as team building games, ropes courses, or raft building (Cooley et al., 2016). Place-based education can also fall into the category of outdoor education because programs often use natural areas as an opportunity to immerse students in the area or topic that they are learning about (Lowenstein & Smith, 2017).)

If you have experienced one of these types of outdoor education, please fill out the following questionnaire! The questions can be found by following this link.

Thank you for your help in making my research thesis a possibility! Feel free to pass this along to your UVM friends.

**Full Graphs**
The Impact of Outdoor Education

Frequency of answers

- confidence in nature
- connection to nature
- being encouraged to pursue a career in nature
- sense of independence
- improved sense of identity
- increased appreciation of nature/natural world
- better team player
- awareness of cultural diversity
- change in perspective
- increased appreciation of nature/natural world
- increased connections with others
- increased value of nature
- increased awareness
- outdoor experience had no impact
- outdoor ed experience had no impact

Types of Impact answers
The Impacts of Outdoor Education

Reasons for Choosing UVM

- close to the outdoors/outdoor recreation
- Rubenstein
- environmental programs
- academic/education
- specific field of interest
- UVM campus
- atmosphere
- Vermont
- career opportunity
- felt like home/fit in
- community
- resources
- sports
- student population size

Types of Reasons for Choosing UVM

Frequency of answer
The Impacts of Outdoor Education

Percieved Characteristics Gained from Outdoor Education Experience

- Confidence
- Patience
- Awareness (observer)
- Risk assessment
- Leadership
- Compassion/agency
- Determination/drive
- Independence
- Strength
- Empathy
- Appreciation/gratitude
- Loving
- Knowledge
- Curiosity
- Adaptability
- Respect
- Kindness
- No gained characteristics
- Happiness
- Self-esteem/mental health
- Adventurous
- Positive
- Resilience
- Hardworking
- Openness
- Eco-friendly

Frequency of answers