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What Is The Rationale And A Design For An Outdoor Classroom For Grades Five Through Eight?

Britney House
Hamline University

WHAT IS THE RATIONALE AND A DESIGN FOR AN OUTDOOR CLASSROOM FOR GRADES FIVE THROUGH EIGHT?

By

Britney A. House

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Primary Advisor: Susan L. Manikowski
Secondary Advisor: Vivian P. Johnson
Peer Reviewers: Diane Strobel and Amanda K. Sterna

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Chapter Overview

Through my coursework for my master's degree, I learned about environmental education. One topic that was introduced in my master's program was the idea of teaching students using the outdoors. A question I started to wonder was, "What was the rationale and a design for an outdoor classroom at my school for grades five through eight?" This question began to intrigue me and became the basis of my capstone project. I intend to incorporate what I have learn through my master's capstone project into my classroom and the school as a whole.

This chapter examines the experiences in my life that have lead me to choose the subject for my capstone project. From my personal life to my professional career, I have had many experiences with nature that have created an interest in the topic of an outdoor classroom. The first section of this chapter describes how experiences I had in childhood provided a foundation for the appreciation and enjoyment of nature. Time spent on my grandparent's farms and family camping trips were instrumental in providing me with an appreciation for outdoors and nature. In the next section, I address the influence of working at an environmental consulting firm in town, and college experience increased a desire to explore this project further. In the subsequent section, I will discuss how my college and professional career influenced this path into environmental education and the choice of topic for my capstone project. Finally, I will discuss why this project is important for science teachers. As a science teacher, I am always looking to increase

engagement with my students, and I wondered if being outdoors could do this. Even though all of these experiences helped influenced the choice of topic for this capstone project, a large component of my appreciation for nature came from my earliest personal outdoor experiences.

Personal Outdoor Experiences

I was born in 1989, and my earliest memories of my interaction with nature and acquiring an appreciation of nature is on my grandparent's farms. My family would frequently go to my grandparents' farmsteads when I was growing up. I can remember playing outside with my siblings and cousins on their farms. When we would go there, we would be sent outside because we were loud and energetic and our parents wanted to talk. We were able to roam the property and have unstructured play time. We were able to be creative, imaginative, and resourceful during our outdoor play time. Not only did outdoor play improve our cognitive abilities, it also gave us an opportunity for physical activity.

At my grandma's on my mom's side, her property had woods, corn fields, cow pasture, and land enrolled in the Conservation Reserve Program (CRP) though the United States Department of Agriculture (USDA). Most of the time we would catch and tame farm kittens or build forts out of square bales. She owed about 250 acres of land, and we could wander to all the corners of the property. Sometimes, we would build forts out of fern leaves and sticks. We even made outfits from fern leaves that we put over our regular clothes, our parents have pictures as proof (refer to Appendix A). Other times, we would go bog jumping.

What my family referred to as bogs, were created when the cows in the pasture would follow the same path and make these little mounds of dirt surrounded by water, from which you could jump across (refer to Appendix B). On one particular bog jumping excursion, my sister wore her brand new school shoes and fell in the muddy water. Not only did we have fun exploring and learning at the farmstead, but we also were able to have unstructured play.

At my grandparents on my father's side, they had woods, a creek, and also CRP on their property like my other grandmother. We would drive the four-wheeler around their property and looks for signs of deer in the area. At the creek, we would go fishing and throw sticks in the water to watch how fast the water was flowing that day. We also went fishing on the local lakes and would go deer hunting on their property in the fall. Not only did we learn about nature, but we also learned about local cultures and their connection to the land at my father's parents house.

Near my father's parents house lived an Amish community, which provided me a chance to learn about how they could live without electricity and flowing water in their homes. The women made their own clothes and canned food. They would come over to the house once in a awhile to visit my grandparents and bring them goodies they baked. This taught me about a more sustainable way of life. These experiences early on in my life laid my early appreciation for the outdoors. As I got older, my parents started to take us on camping trips. Family trips around the United States and Canada have also been a source of my affiliation with nature.

Both of my parents are teachers, so they would have the summers off. My parents would plan trips around the United States each summer and bring us along. At the time, I did not understand the significance these trips would have on me; but, I am most appreciative of these experiences now. Most of our destinations were to state and national parks to view these sites of natural beauty. We would bring our pop-up camper along and camp during our trip. Each trip last about two weeks. My parents must have gained a strong appreciation for nature throughout their lives, which is shown through their continuation of these trips without their children.

Going on these trips to view these natural sites and places expanded my awareness of environments very different then what I knew growing up in Morris, MN, and helped me appreciate nature. It did not cost a ton of money. All we had to do was drive there and observe. While discussing landscape topics with my 8th graders, I have discovered that very few of these students have been to one of our nation's state or national parks. Most of the families are not as lucky as I was to have parents with a flexible work schedule that allow them to travel. Since they are unable or have not had the opportunity to travel yet, I want to create a place on our school grounds for students to build their own appreciation of nature. By accomplishing this, they would not have to travel far to see wonderful and captivating natural phenomenon. These personal experiences have been important in building my appreciation of nature, as were the experiences I have had in establishing my profession. These undertakings will be covered in the next section.

Professional Experiences

During the summer in 2008, after my senior year of high school, I was allowed to stay home to work and earn money for college while my parents traveled. I knew I was interested in working with the environment in high school, so I did a mentorship at an environmental consulting firm in town. Through this mentorship, I was able to secure a summer job. Working at this company I learned how they clean up emergency hazardous spills and implement remediation plans. I would get go with an experienced person to collect samples and occasionally go to a spill response to help clean up the area. Working outdoors was one of the perks of this job and I enjoyed being outside. This work experience helped me declare my major as an incoming freshman to college.

When I first started college in 2008, my major was environmental science. After one semester I changed my degree to Science Education because I found a passion for teaching others. Due to all of my time spent outside and being able to look at natural beauty, it made me biased towards my selected emphasis area of Earth Science. How the Earth's systems work and the geologic history of Earth was interesting to me. My favorite classes at Bemidji State University were my geology classes.

When the time came in the spring of 2012 for me to student teach, my placement was at Bemidji Middle and High Schools. Initially, my assumption was that older students would be more academically driven and would be a better bit fit for me. However, during student teaching I fell in love with the middle school age group and the curriculum.

During the spring of my senior year of college in 2012, I applied for a job at the same high school from which I graduated. The position was for 8th grade Earth and Space Science and 9th Grade Physical Science teacher. The school district hired me, and was I excited to begin this teaching assignment because it was for the content area and age group I most enjoyed.

Even though I enjoy this age group of students, they have their advantages and challenges, just like any age group and grade does. I like this age group because they are young enough that most of them still have their inquisitive and curious mind, and old enough that I do not need to teach them how to tie their shoes.

At their cognitive level in middle school, I can expect students to have a higher order of thinking skills and to be able to observe the world around them. I have students make observations throughout the year. Observation is an important skill to acquire in the science field. Students need to take the time to see what is happening around them and ask why. There are so many natural events that happen to them everyday. Often they are unaware of and do not understand the mechanisms of the event, such as why the sky is blue or why the wind blows. I want to harness their sense of wonder and questioning through the use of an outdoor classroom at my school. After four years of teaching, I wanted to continue to grow my knowledge and teaching skills. I was encouraged by my father to start working on my master's degree.

Starting the summer after my fourth year of teaching in 2016, I chose to start working on my master's degree. I wanted to continue teaching during the acquisition of my master degree, so I needed a program that was online. I chose a degree through the

Natural Science and Environmental Education (NSEE) program. Through the coursework, I learned about the benefits for students, teachers, and the community when introduced to environmental education and outdoor learning. The benefits of an outdoor classroom can include increased academic performance, improved physical, intellectual, mental and social health, increased enthusiasm to learn, a sense of place, and increased community and civic engagement (Outdoor Education – Research Summary, n. d.). This graduate program ignited an interest in outdoor education and lead to my current capstone question; what is the rationale and a design for an outdoor classroom at my school for grades fifth through eighth?

Another important factor that was relayed through my graduate coursework is that one needs to understand the demographics of your students in order to be the most effective teacher. In the next section, I will discuss the demographics of our school and how that affects my teaching strategies.

School Demographics

The high school I work at is about 90% white students and 10% other ethnicities. According to the district website where I teach, about 25% of students are economically disadvantaged and about 17% are on the free and reduced lunch program. It is a rural school with a large agricultural community. There is a significant number of Apostolic Christians in our area and their values influence the community and school. In addition, there are times that the structure of the lesson has to be adjusted because many of the Apostolic students do not have a computer or internet at home due to their religious beliefs.

I teach 8th grade earth science, 9th grade physical science, and depending on how many 8th grade classes I have, sometimes a 9-12th grade Science, Technology, Engineering, and Mathematics (STEM) or 9-12th grade Earth and Space Science elective.

Through my courses at Hamline, I gained an interest in planning and creating an outdoor learning space for grades five through eight at my school. I wanted to learn more about the impacts on student engagement from outdoor learning space. The outdoor learning space at the pre-kindergarten program in our school district also triggered my interest in an outdoor classroom. The pre-kindergarten program acquired the funds and created an outdoor learning space for their students in 2016 (Morris Area Schools, n. d.). According to their website,

> The use of OLE will assure children's overall development meeting the following goals of Morris Area Schools:
>
> 1. Emotional & Social Development: Help children develop friendships, establish executive functions like impulse control, communication skills, and empathy.
> 2. A Vibrant, Nature Rich Experience: One full of play, adventure and wonder.
> 3. Kindergarten Readiness: Prepare children to thrive academically in all disciplines. (Morris Area Schools, n. d., ¶ 1)

This outdoor space was built for children birth to age five and has areas for playing, experimenting, observing, and learning. This space is not suited for my 8th graders, and I wanted to create a space for older students. I chose to do a project about outdoor learning spaces for older students because this is something I hope to create at the high school where I teach. As a science teacher, I want to use the outdoor classroom to

increase student engagement in the lessons, and therefore increase student learning, as well as increasing student enjoyment and interest at school.

Significance of the Capstone Project for Secondary Science Teachers

A goal of my project is to enhance student engagement in my classroom by developing an outdoor classroom. In 2016, the Minnesota Department of Education conducted a student engagement survey for the 5th and 8th graders in my target site. According to their website;

> The Minnesota Student Survey (MSS) is one of the longest running youth surveys in the nation. It is a triennial survey that began in 1989. The survey is an anonymous statewide school-based survey conducted to gain insights into the world of students and their experiences (2017a, ¶ 1).

The information from the survey is designed to help teachers understand their students and design their lessons accordingly. I will focus on the findings of this survey for the 8th graders, because that is who I work with on a daily basis. According to this survey, students reported their perceived level of caring how well they do, attention during class, engagement, and usefulness of the content they are learning about. Seventy percent of 8th grade students stated that they care about how well they do at school all of the time. Twenty-nine percent said they pay attention in class all of the time and fifty-three percent said they pay attention most of the time. Fifty-nine percent of the 8th grade students said they never go to class unprepared. Sixty-five percent said they strongly agree that if something interests them they try to learn more about it. Sixty-seven percent said they agree that what they learn about at school is useful and 18% said they strongly agree.

Fifty-two percent said agreed that being a student is one of the most important parts of who they are and 23% strongly agree. I agree that most of my 8th grade students have a good disposition about learning, want to do well, and try to succeed at school. If my goal is to increase student engagement, providing an outdoor space to learn will help me reach this goal. Using the information from the survey about their perceived levels of engagement, I will make considerations to support the rationale and design for my proposed outdoor classroom.

Summary

In conclusion of Chapter One, my outdoor experiences as a child and my environmental education as an adult has shaped my interest in my capstone question, "What is the rationale and best design for an outdoor classroom at my school for grades five through eight?". Through the creation of an outdoor classroom, it is my hope that students will become more engaged in classwork and grow in all areas as a holistic approach to learning. In Chapter Two, I will focus on a literature review about the rationale behind creating an outdoor learning space for students in grade five through eight. I intend to include what design components need to be incorporated for an effective learning space. In Chapter Three, I will describe the plan for designing and building an outdoor classroom for students in grades five through eight. Both the rationale and design will be presented to the science department and administrators at my school. A timeline for completing the project will also be discussed in Chapter Three. My concluding thoughts and reflections on the project will be discussed in Chapter Four.

CHAPTER II

Review of Research Literature

Chapter Overview

My master's project is to provide a rationale and design for an outdoor classroom at the school where I teach. This is the basis for my capstone question, "What was the rationale and a design for an outdoor classroom for grades five through eight?". In this chapter, I will address twelve components to consider for the planning of an outdoor classroom and presenting a proposal: The Outdoor Classroom, Education Outside the Classroom, Place-based Learning, Whole Student Approach, Design Elements, Attention Restoration Theory, Nature Exposure & Student Engagement, Nature Exposure & ADD/ADHD, Nature Exposure & Stress, Design Elements, Barriers to Outdoor Learning, and Best Practices for Presenting.

The main objective of this capstone project is to enhance student's learning through the use of the outdoors. The sections on outdoor learning and education outside the classroom provide definitions and teaching practices for an outdoor classroom. Outdoor learning needs and benefits for students are addressed with terms and practices that help one understand the need for providing students with outdoor experiences. The benefits from these experiences will also be described in the coming sections. Although many of the terms are similar in definition, learning objectives, and outcomes, it is important to understand these terms and how they influence the nature of outdoor education and student learning. The main idea among these teaching approaches and learning methods is the needs of a student as a whole. This chapter will address how

outdoor education helps students grow and develop in all developmental areas; social, emotional, physical, and cognitive.

Nature exposure can help a student grow and develop as a whole, as well as help restore attention, increase engagement, and decreases stress felt by students. This chapter will discuss how spending time outside helps students restore their directed attention, which is explained through attention restoration theory. Student engagement can also be increased by taking the classroom and putting it outside to conduct lessons. This chapter will also show how ADD/ADHD symptoms and stress can be reduced when students spend time outdoors. Incorporating certain design elements can increase the benefits to all students as well.

As a part of my capstone project, I want to identify the elements of design to make an outdoor learning at my school the most useful and applicable for other teachers and staff. Universal design techniques will be important to incorporate into the plan so that all students will have access to the outdoor space. This section will give an overview of a design elements and their purpose within the outdoor classroom.

As this is a different approach to teaching students, teachers may perceive and have real barriers to utilizing an outdoor classroom. I will identify barriers and provide ideas on how to overcome them to help teachers feel confident and comfortable in harnessing the benefits of an outdoor classroom. To get support for creating an outdoor classroom, you have be to able to present effectively to the audience to gain their support and approval.

When presenting, there are techniques and presentation formatting that can help you increase their chances for support and approval from their audience. The font colors, size, and type can all be used to make your presentation more effective. Also, verbal and nonverbal tendencies can help persuade your audience to consider your idea. Once you know how to make the presentation part compelling, it will be easier to help the audience understand what the benefits to students are, and what makes a space outside an outdoor classroom. The next section will discuss the definition of an outdoor classroom and its function as a part of learning.

Defining The Outdoor Classroom and Its Function

My project's focus is to create an outdoor classroom for students in grades five through eight. An important part of knowing where to start is to understand the definition of an outdoor classroom. As defined by Focus on Forests (n. d.) a program of the Ontario Forestry Association (OFA), "An outdoor classroom is a space that brings learning outside. It becomes a gathering place for teachers and students and provides an opportunity to integrate nature into your school grounds" (p. 2). Based on the OFA definition, any subject area can use an outdoor classroom space to bring learning outside, as well as extend learned concepts. It could be as simple as having them read their textbook outside, instead of inside. I want my outdoor space to be open to all grades and subject areas, with a design focus on science for students in grades five through eight. There are many learning opportunities for students outside of the traditional classroom that expand upon outdoor education concepts and can lead to engaging students with the

environment. This concept is referred to as education outside the classroom, and will be discussed in the next section.

Education Outside the Classroom Teaching Method

Since my goal is to have students learning outside the traditional classroom, it is important to understand the focus that goes along with educational experiences outside the classroom. According to the New Zealand Ministry of Education (n. d.), Education Outside the Classroom (EOTC) is a teaching method that provides students with interdisciplinary activities and experiences in nature and at locations outside of the traditional classroom, such as at a zoo or a museum. Another definition of Education Outside the Classroom is real world learning (Field Studies Council, n. d.). This means students get out into a natural environment and their community, so the content and activities are applicable to students' everyday lives. Other similar concepts and terms to describe Education Outside Classroom I found through my research include; Out of the Classroom Learning, Learning Experiences Outside the Classroom (LEOTC), and Learning Outside the Classroom.

Two of the more synonymous definitions for Education Outside the Classroom are Learning Experiences Outside the Classroom (LEOTC) and Learning Outside the Classroom (LOtC). According to New Zealand's Ministry of Education, the definition for LEOTC is; "Learning Experiences Outside the Classroom (LEOTC) supports community-based organizations to provide students with learning experiences that complement and enhance student learning, in alignment with the national curriculum" (Learning Experiences Outside The Classroom, What is LEOTC?, ¶ 1). The other

definition, according to the Council for Learning Outside the Classroom (2017) defines LOtC as;

> Learning Outside the Classroom (LOtC) is the use of places other than the classroom for teaching and learning. It is about getting children and young people out and about, providing them with challenging, exciting and different experiences to help them learn. (Council for Learning Outside the Classroom, 2017, ¶ 1)

All of these terms are very similar in definition in that they focus on students learning outside the traditional indoor classroom and its lesson structure. Their objectives all have students involved in their community beyond the traditional classroom and learning about the student's surroundings through interdisciplinary coursework. Not only are students outside the traditional classroom, but this teaching method also focuses on all areas of a student's growth, not just intellectual.

> Education Outside the Classroom (EOTC) is a teaching method that aims to promote schoolchildren's learning, physical activity (PA), social relations, motivation, and well-being. EOTC activities are characterized by teachers using the local environment in their teaching, and involve innovative teaching methods, child-led approaches to problem-solving, experimentation, cooperation, PA, and play. EOTC has become common practice for many teachers in Scandinavia; however, only case studies have evaluated its impacts. (Nielsen, 2016, p.1)

This quote from Nielsen was important to me because it provided a rationale for an outdoor classroom. Students are not just going outside to be outside, there are many

benefits to the student as whole from learning outside the traditional classroom. There are a variety of activities and experiences that teachers can provide students outside the traditional classroom.

A benefit to having access to an outdoor classroom is that the type and length of activity can vary based on the needs of the teacher and the students. The New Zealand's Ministry of Education (n. d.) explains that an EOTC experience can be a short trip outside or a field trip to an off site location. Possible activities could include; a short excursion to watch birds outside in your schoolyard or a longer school trip abroad. An EOTC experience should provide students with the opportunity to do and learn new things that they cannot in a traditional classroom (New Zealand's Ministry of Education, n. d.). Students do not always get the opportunity to try new activities and to have new experiences. Student engagement and learning increase when they get to physically participate and have a hands-on experience for what they are learning, it will increase what they get out of the activity. This is supported by a quote from a student who participates in New Zealand's EOTC program; “You get more of a thrill and you get the experience instead of just reading about it or hearing about it from someone else. The memories are stronger” (New Zealand's Ministry of Education, n. d.).

In alignment with New Zealand's Ministry of Education, the Field Studies Council (n. d.) also notes that it is important to use observation as a form of assessment and direction for follow up lessons. The Field Studies Council (n. d.) recommends observing your students because “Out-of-classroom learning makes a unique contribution to a child’s education, and offers many varied benefits to them, not least developing a

sense of place and wonder for the world around them" (p. 2). The sense of place is another benefit for students and can be promoted through the teaching method referred to as place-based learning.

Place-based Learning

Place-based learning is an important pedagogy to understand in relation to my capstone project because students will be utilizing the space outside on the school grounds as an outdoor classroom. As defined by Sobel (2004), "Place-based education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science and other subjects across the curriculum" (p. 6). I plan on using the outdoor space on our school grounds as a learning environment for students to teach about our local landscape, environment, and culture. Like Sobel (2004) stated, this is a multidisciplinary teaching approach. In alignment with Sobel's ideas, I plan on having all discipline areas able to use my proposed outdoor classroom as they see fit. It can be difficult when researching terms for place-based learning because different organizations, groups, and individuals can use different terms for the same pedagogical practice. "Place-based education has been referred to as 'community-oriented schooling,' 'ecological education', and 'bioregional education' " (Woodhouse & Knapp, 2000, p. 2). In all of these terms, the focus is on understanding and feeling connected to one's community. The emphasis of these terms is to have people understand that they are a part of their local ecosystem and are important in its function. A sense of place creates a pride and caring for the environment they are

interacting with, and helps promote environmental education. Terms and definitions in this pedagogical area all derive from students learning outside.

Outdoor education, environmental education, and place-based learning are all very similar in their learning goals and definitions. Outdoor education is "the instructional use of natural and built areas to meet student learning objectives in a variety of subject-matter disciplines through direct experiences" (Outdoor and Environmental Education, Defining Terms, ¶ 2). Similarly in their interaction with nature, environmental education is defined as "a process in which individuals gain awareness of their environment and acquire knowledge, skills, values, experiences, and also the determination, which will enable them to act - individually and collectively - to solve present and future environmental problems" (Environmental Education, Defining Environmental Education, ¶ 1). Another definition of environmental education defined by Stapp (1969) is "Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution." (p. 34) All of the definitions provided for place-based learning, outdoor education, and environmental education have learners interacting with the outdoors. They are all multidisciplinary and holistic in nature as well. The next section will discuss how education outside the classroom is a whole student approach.

Whole Student Approach

Another major rationale to having an outdoor classroom is that it addresses the need to teach the student as a whole. This means that teachers who use an outdoor

classroom develop lessons that not only advance and activate their cognitive learning, but also grow and nurture their social skills, physical abilities and overall bodily health, emotional health, and the moral aspects of oneself. As defined by Dr. Kathleen M. Quinlan; "The notion of holistic student development encompasses academic learning and the development of skills such as problem-solving and analysis while simultaneously recognizing other aspects of students as people who are growing and maturing affectively (emotionally) and morally" (2011, p. 7). As a teacher, I see how each of my students is complex and recognize the value of not compartmentalizing their learning. An outdoor classroom provides opportunities for students to grow and learn independently and creatively. It provides a setting for students of all abilities to be successful (Harte, 2013). Students are also able to interact physically with their learning environment.

Another definition of holistic learning from Miller (2000) states that ". . . [holistic learning] is done, not through an academic 'curriculum' that condenses the world into instructional packages, but through direct engagement with the environment" (A brief introduction to holistic education, Holistic education, ¶ 2). As stated, part of the holistic approach is to have students outside, which parallels with the definitions of environmental education and education outside the classroom. Both environmental education and education outside classroom have many benefits to a student as a whole. Some of these benefits include a sense of place, critical thinking, and cooperation.

Environmental education focuses on taking students outside to learn about their surroundings to develop their content knowledge and sense of community and place. This in turn addresses the students needs in totality. Ernst and Monroe (2004) note that

not only does a student grow in the previous areas stated, but environmental education was also shown to improve critical thinking skills in high school students. A study by the American Institutes for Research (2005) also showed that students who participated in an environmental education program had significantly higher gains in cooperation, conflict resolution skills, self-esteem, ability to focus, physical activity, motivation to learn, and positive environmental behaviors. As their research shows, learning outside improves students in a holistic approach. This is important to me as a teacher because students will need these skills to be successful adults in the workplace. One of my goals as teacher is to provide students with the tools they need for their futures.

As I stated, this is a holistic approach that addresses all the needs of a student. There are many educational approaches and philosophies that have the same or a similar definition to holistic education. According to Quinlan (2011), the similar terms to holistic education could include "character education, values education, moral education/formation, educating for citizenship, affective education, and educating for social and personal responsibility" (p. 7). Holistic teaching does not focus on one area of a student's development, but understands that these areas interact and affect each other. For example, if a student has poor social skills, they may find it difficult to work with others on a group project and receive a poor score, even though cognitively they can complete the work. Understanding and addressing the needs of a student as a whole can be accomplished through education outside the classroom and is aided if the design of the space is strategically planned. There are factors, stated in the attention restoration theory,

that can impact a student's ability to pay attention and impact their growth and learning as well.

Attention Restoration Theory

Kaplan's Attention Restoration Theory (ART) suggests that mental fatigue and concentration can be improved by time spent in, or looking at nature (Kaplan, 1995). Kaplan built his theory upon the work of William James. James thought that there are two types of attention, voluntary and involuntary. Voluntary attention is when a person has to focus on a topic at hand. Involuntary attention requires no conscience effort on a person's part, such as paying attention to the elements in their environment, like object movements (Kaplan, 1995, pg. 169). Kaplan (1995) states that over time, our brains get tired from directed or voluntary attention and become fatigued. Directed attention fatigue can have negative impacts on a person's problem solving skills, impulse control, perception, long-term thinking, and controlling emotions (Kaplan, 1995). These negative impacts can greatly affect a student's performance. If the goal of a teacher is to have students think critically and the student is experiencing directed attention fatigue, the student will most likely underperform according to Kaplan's theory. If fatigue impacts students' cognitive abilities so greatly, what can teachers do to help restore directed attention? Studies show that spending time outside can help restore their directed attention.

Kaplan (1995) states that exposure to nature activates our involuntary attention and gives our brain a cognitive break. To make the outdoor experience the most restorative, Kaplan (1995) found three key characteristics to the natural experience; being

away from the cognitive task physically or perceptually, the setting seems fascinating and different than ones normal setting, and thirdly, the setting allows one to do what is comfortable and natural to them. If students are given the opportunity to experience nature periodically throughout the day, Kaplan's (1995) research support the idea that they would be able to cognitively function better on directed attention tasks. There is a connection between spending time outside, a student's ability to pay attention, and their level of engagement, therefore, spending time outside would benefit students.

Nature Exposure & Student Engagement

In a study conducted by Juliane Chapman (2017), it was found that students' level of engagement increased when lessons were taught outside. Kuo, Browning, and Penner (2018) also found an increase in student engagement from spending time outside. Their study showed that student engagement was increased when they were indoors after the class had spent time outdoors learning. Kuo, Browning, and Penner's (2018) study used third grade students as the test subjects. They found that the number of redirects, when a teacher has to stop the lesson to get a student back on task, was almost cut in half when the lesson was taught outside compared to the counterpart lesson that was taught solely inside. Not only did the teachers in the study notice an increase in student engagement, but students also noted that they felt more engaged when the lessons were taught outside. Spending time outside had a positive impact on student learning. These studies are important because only 25.6% of Minnesota 8th grade students stated that they pay attention in class all of the time in the Minnesota Student Survey Reports from 2013-2016 (Minnesota Department of Education, 2017b). Teachers could use an outdoor

classroom to increase engagement and attention, therefore, increasing the learning outcomes of the students. Some students, however, have medical diagnoses that affects their level of attention and engagement as well. Can being outside also help these students? Studies show that spending time outside can impact a student's ability to pay attention.

Nature Exposure & ADD/ADHD

Attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) diagnosis can decrease a student's ability to focus on the lesson and task at hand, which decreases their success in the classroom. "On average, every classroom of 30 students has 1 to 3 children with ADHD" (ADHD by the numbers, 2018, ¶ 8). A study conducted by Taylor, Kuo, and Sullivan (2001) found that current medical treatments are not effective towards students' long term improvements in social and academic areas and noted other side-effects of ADD/ADHD medications, such as depression. This study hoped to contribute information and research on using a natural setting as an alternative treatment for students with an ADD/ADHD diagnosis. According to their research;

> children function better than usual after activities in green settings and that the "greener" a child's play area, the less severe his or her attention deficit symptoms. Thus, contact with nature may support attentional functioning in a population of children who desperately need attentional support (Taylor, Kuo, and Sullivan, 2001, p.1).

Parents who participated in this study noted that their child's ADD/ADHD symptoms were not worsened when their child spent time outside before an activity that required their prolonged attention, they actually saw that their child's symptoms were decreased after spending time outdoors (Taylor, Kuo, and Sullivan, 2001). If lessons are taught outside, this study supports that students may increase their level of attention and engagement, while reducing ADD/ADHD symptoms. The result for students is often achievement overall in the classroom. Students who cannot pay attention may also feel stressed when they fall behind during class. There is research that supports being outside can reduce the amount of stress students feel.

Nature Exposure & Stress

Bratman et al., (2015); Taylor and Kuo, (2009); and Triguero-Mas et al., (2014) found that nature experiences decreased stress, depression, anxiety, and obsessive thinking. A decrease in a student's amount stress is important because students who are worried about their home or social life may experience difficulties paying attention at school. Li and Sullivan, 2016, conducted a study involving high school students and the research showed showed that even a small view of vegetation from a classroom window decreased student heart rate and self-reported stress. Their data indicated that classroom views to green space accelerated recovery from stressful events, which in tern can lead to better performance on tests and increased attention to tasks at hand. Kaplan's research also supports that nature exposure reduces stress, and therefore increases cognitive function (Kaplan, 1995). Some stress in a child's life is okay, but the issue becomes more serious when they are under continual stress without the support of a caring adult.

According to the Minnesota Department of Health (2017), Adverse Childhood Experiences (ACEs) can lead to toxic stress, prolonged and adverse stress. Toxic stress negatively impacts parts of the brain associated with learning and memory and keeps these children in a constant state of fight-or-flight. According to Harvard University's Center on the Developing Child;

> Extensive research on the biology of stress now shows that healthy development can be derailed by excessive or prolonged activation of stress response systems in the body and brain. Such toxic stress can have damaging effects on learning, behavior, and health across the lifespan (Toxic stress, 2017, ¶ 1).

If students with a higher ACEs score could spend time outside learning, this may decrease their level of stress. Lowering their stress level will help them improve academically, as well as improve their physical and emotional health. The outdoor space for my project needs to be designed in a way that all students can grow in all aspects of their lives, so understanding students needs and the factors that impact their learning will help me improve the outdoor classroom design process.

Design Elements

As it is a priority for my project to have as many teachers spanning a wide variety of subject areas using the outdoor classroom space, the design and functional elements are vital to make the space useful. According to the Boston Schoolyard Initiative Outdoor Classroom User's Guide (2013), some possible design elements could include a gate and perimeter fence, seating for the entire class and smaller groups, pathways, native plants, work surfaces, armature supports for teaching materials, whiteboard or

chalkboard, natural materials, measurement equipment, animal habitat, signage for rules, a sitemap, plant and animal identification, displays, planting beds, and a water source. A space that provides adequate and applicable resources for teachers will be more likely utilized to promote students' overall learning and growth. A good design can help overcome barriers that may prevent use.

Inclusion of all students is important in the design of an outdoor classroom. One way to be able to include students of all abilities is to consider universal design. According to Harte (2013), "Universal Design for Learning (UDL) is a framework that helps educators to remove barriers and provide supports while also challenging students" (p. 18). Harte (2013) provides some strategies that can accommodate and think about the learners needs. Some students may have low muscle tone, use a walker, wheelchair, or powerchair, have a small stature, or have hearing or visual problems. Being able to address these requirements in the design can help students with special needs feel safe and comfortable to learn in the outdoor classroom. Barriers for students with special needs are not the only barriers as to why teachers do not use the outdoors as a classroom. The next section will discuss these additional barriers.

Barriers to Outdoor Learning

A good design is important to promote the use of an outdoor space. If teachers have any perceived or real barriers, they are less likely to use the space. If I can identify the barriers of outdoor learning, then I will able to help teachers overcome them. Dyment (2005); Powers (2004); and Hanna (1992) identified that the three most common barriers for teachers to teach outside the traditional classroom are time, safety, and a lack of

confidence to teach outdoors. Teachers do not feel like they have time because of the curriculum requirements they are required to get through in a year. Safety was another concern because they do not want students to get hurt while using an outdoor space. Teachers also stated they felt a lack of competence and knowledge about nature to be able to teach students about plants, insect, etc.

Other barriers identified by Dyment (2005); Powers (2004); and Hanna (1992) are; curriculum leaves little time for outdoor education, lack of resources and equipment, lack of administrative support, large class sizes, student aversion to being outside, limited incentive to take students outdoors, knowledge of outdoor plants and terrain, money, and an available space for an outdoor classroom (Dyment, 2005; Powers, 2004); and Hanna (1992). Now that the common barriers have been identified, I can address ways to possibly overcome them.

One way to address the issue of a lack of time is to incorporate the outdoor classroom into the already pre-existing curricula (Hanna, 1992). The House of Commons Education and Skills Committee (2005) also agrees with Hanna's statement and says that "Learning outdoors lends itself to an interdisciplinary approach and could be effectively incorporated into a range of traditional discipline areas in the school curriculum" (Education Outside the Classroom, 2005, p 110). By using the outdoor space for what teachers are already teaching, this could alleviate the lack of time barrier. If a teacher wants to add new material to their curriculum, they can save time by using premade curriculum from various resources. Trying to fit additional expectations into a pre-existing curriculum may seem like a large challenge for teachers. How should one go

about accomplishing this task? There are pre-packaged curriculum and resources available that can help teachers incorporate environmental education and outdoor learning into their discipline. Two examples of these pre-packaged providers are the Jeffers Foundation and Edutopia's webpage, Outdoor and Environmental Education: Resource Roundup. These pre-packaged resources provide teachers with the tools and information to be able to teach the lesson, even if they have limited planning and preparation time or content knowledge.

Student safety is of the utmost importance. The Jeffers Foundation (n. d.) is a strong supporter of outdoor education and teaching with nature. To help reduce safety risks and concerns, The Jeffers Foundation advices teachers to do the following;

- visit the outdoor location prior to your class visit,
- establish, model and practice expected behavior in the outdoor classroom using many of the same rules that you have established in your indoor classroom,
- have volunteers to help monitor student movement and behavior,
- have a first-aid kit available and a phone for emergencies,
- and notify the office, and parents if needed, of your location. (The Jeffers Foundation. n. d. slide 10)

Having safety measures in place may help to increases a teacher's confidence. This is important as lack of confidence and competence was also identified as a major barrier to the use of outdoor classrooms.

Another way to increase a teacher's confidence and competency level is to provide teachers with opportunities to "learn and lead outdoor and environmental content

and processes" (Hanna, 1992, p. 78). The House of Commons Education and Skills Committee (2005) aligns with Hanna's idea that teachers need training and states that;

> Teacher training in subjects which have a fieldwork dimension and outdoor education is essential to provide a coherent curriculum, high quality outdoor education teaching and to ensure that more pupils are able to access outdoor learning experiences (as recommended in the Ofsted report) (p. 110).

Once teachers are exposed and taught the material, they should feel more comfortable and confident in being able to teach it themselves. My undergraduate teaching program did not provide any information or techniques about outdoor classroom teaching methods. From other teachers I have talked with, I surmised that many other general education teaching programs do not provide outdoor classroom teaching methods either. If teachers are not trained in their educational experience on outdoor classrooms, identifying this as a barrier would make sense. Providing content information, modeling of how to conduct your class outdoors, and quality training opportunities for teachers may decrease this as a potential barrier. To be able to provide teachers with a space and opportunity to go outdoors, you must gain colleague and administrative support for an outdoor classroom. The way the material is presented can make a difference in colleague and administrative support and approval.

Best Practices for Presenting a Proposal

The design of the presentation makes an impact on the effectiveness of the presentation. Garr Reynolds' suggests, in his Top Ten Slide Tips (2016), these tips to make the design of the presentation the most effective;

- Keep it simple.
- Limit bullet points & text.
- Limit transitions & animations
- Use high-quality graphics.
- Have a visual theme, but avoid using pre-made templates.
- Use appropriate charts.
- Use color and fonts well.
- Use video or audio.
- Break the presentation topics into small segments.
- Have a logical order to the progression of the presentation.

Reynolds (2016) reminds presenters that the presentation is not the star of the show and with less clutter on the slide, your visual message will be more apparent. Text should be limited on the slides because the presentation is there to support the speaker, not have listeners read off of it. The presentation should not be useful to a viewer unless you are there to explain the information on the topic. Lengthy animations and slide transitions are perceived as boring to viewers, so these should be kept to a minimum. Low resolution pictures and cartoons can be viewed as unprofessional by the listeners, so it is best to use your own high resolution pictures and pictures of people to make the audience feel an emotional connection. Pre-made templates are also discouraged because the audience has probably seen those templates before and want an original presentation from the speaker. Presenters also need to make sure they are using charts that are appropriate for their data set, such as using a pie chart to show percentages of a whole. Data tables

are a good side to side comparisons, but charts are visually easier to see differences. Reynolds (2016) suggests using cool colors for the background, because it seems to be fading away, and warm colors for the text, because it seems to be coming at the viewers. It can also be difficult for viewers to see the text if you pick to light colors or two dark colors for the text and background. Presenters should use the same text font throughout the presentation as well. Using videos and audio can enhance your examples and the cognitive learning of the viewers. The video clips can make the examples you are using more concrete and relatable to the viewers lives. Making the information presented into smaller segments with help with viewer comprehension. Presenters should break up large topics into multiple slides. The last suggestion is to make sure the slides have a logical sequence. By doing this, viewers can make connections from the last slide to the current slide, therefore increasing their understanding of the topic (Top Ten Slide Tips, 2016). Not only does the design of the presentation matter in getting approval, but what you do before and during the presentation matter as well.

According to Amy Gallo (2010), the approval of an idea is more based on how you present the idea than the idea itself. Gallo (2010) recommends these tips to increase your chances of idea approval; get initial support from the people giving the green light, prepare yourself for questions, orient the presentation to show the benefits of the proposed idea to the people approving it, keep the presentation simple, and answer audience questions with confidence. Before scheduling a meeting to give the presentation, the presenter should informally talk to the people who will approve the idea. The presenter can see if the approvers think it is a good idea and what questions or

concerns they have about the proposed idea. The more the presenter understands the audience's interests and concerns, the better they will be able to get support for their idea. This also means that the presenter should anticipate audience questions and prepare confidant and honest answers. The presenter not only needs to anticipate questions, but also consider what the approver has to gain from the proposed idea. Typically, people will back an idea if it benefits them personally. If the presenter can align the presentation to show these benefits, the chances of approval will increase. Gallo (2010) also suggests keeping your main idea to one or two topics. The presenter should not overwhelm the audience with facts and information to prove how much they know about the topic. The audience also has a limited amount of time they can stay focused on your presentation, so keeping it simple and to the point is best. Lastly, the presenter should answer questions with confidence. If the presenter anticipated questions and prepared thoughtful answers, this will help increase their ability to sound confident. If the questions asked are off topic or derailing, the presenter can answer a question they wish the audience member asked instead, which is referred at as dodging a question. Gallo (2010) says that people do not like when their question is dodged, but they rarely notice it. Dodging derailing questions can help get the presenter's main points across. These tips can be helpful, but you also needs to consider the verbal and nonverbal communication you do during a presentation to make the presentation successful.

Wilbert J. McKeachie (2018) provides tips on a presenters verbal and nonverbal communication during a presentation. McKeachie (2018) states that "if you cannot communicate in a way that is both comprehensible and interesting to your students, their

learning will be greatly reduced" (McKeachie, 2018, ¶ 1). Not only does his advice relate to students, but to adults as well. McKeachie (2018) suggests that a presenter visit the space they are presenting in prior to the presentation to orient themselves to the size, layout, and available resources. This allows the presenter to prepare to be able to move around the space to engage and interact with the audience. However, the movements around the room should have a purpose so that the presenter does not seem to be aimlessly wandering around. The presenter should practice what they are going to say, when to point at pictures, where to stand, and any transitions. Interest and approval easily diminishes with an scattered presentation and a lack of confidence in the presenter's voice. McKeachie (2018) also recommends mentally preparing by telling themselves that they are excited and looking forward to the presentation. Presenters should make sure to speak louder than their normal talking voice and use a microphone if needed for those with hearing loss. The audience can not understand and accept your idea if they cannot hear it. Practicing what to say will help with clarity and fumbling over words. Speakers also need to make sure they are varying the tone in their voice and using appropriate pauses. They should avoid filler words such as 'um', and instead use a pause before the next phrase. Facial movements and hand gestures can be used to emphasize points. A presenter should also be aware of any movements for facial expressions that may be perceived as distractions by the audience as well, such as clicking a pen. To avoid doing these distractions, the presenter can record themselves or have a colleague observe their presentation and give suggestions. Passion and enthusiasm should be portrayed in the presenter's voice. If the presenter is not interested

in the topic, then the audience will not likely either. The presenter should also speak towards the audience and not read off of their notes or slides, if they do the audience will lose attention and engagement. The last piece of advice McKeachie (2018) provide is that a presenter can use humor occasionally to make the presentation more enjoyable for the audience.

Summary

In conclusion, there are many methods and terms used for learning outside the traditional classroom. All of these methods helped me understand my capstone question, "What was the rationale and a design for an outdoor classroom at my school for grades five through eight?". All include the use of nature as the learning platform. Using nature and an outdoor classroom can help a student grow as a whole. Students have shown to increase in multiple areas when they learn outdoors, as well as decrease ADD/ADHD symptoms and stress. Outdoor classrooms also need to be designed to consider the needs of all students and how to increase their level of engagement. Understanding learners needs and the barriers teachers face can help me design an outdoor classroom that is used by all students and academic disciplines. Lastly, how you present a proposal can also increase the chances for acceptance. Chapter Three will discuss my project proposal and presentation, setting and participants, school demographics, and the timeline of my project. Chapter Four will be a discussion of my conclusions and reflections of my project.

CHAPTER III

Methods

Chapter Overview

This chapter describes my plan for addressing my capstone project question, "What is the rationale and best design for an outdoor classroom at my school for grades five through eight?". I am exploring this question because of my interest with Quinlan's research (2011). I am encouraged that this research indicated that students who are able to learn in an outdoor classroom have shown improvements in whole body health; physical, social, emotional, and cognitive areas. These are the same types of improvements that I want to see for my students. In addition, my review of the research literature creates a strong case for using an outdoor classroom to help student's sense of place and engage with their natural environment. This project is important because the elementary school in the school district where I work has an outdoor classroom that the Pre-kindergarten use, but it is not designed for students in grades five through eight to utilize. I want to build an outdoor space for students in grades five through eight to gain an appreciation for nature, and to grow in all domains of their life.

The major sections of this chapter include a description of my project proposal, the setting and participants of my project, possible funding sources, design elements to include in the outdoor classroom, a link to my presentation, and a timeline for addressing completion of my project. My project description will provide the steps and goals for my project. The setting and participants will give information about my school district and the participants. Alternative funding sources are important because the school district

itself will not likely have the money needed to build my proposed outdoor classroom, especially with an extensive building renovations that is starting this year. The funding sources I found can also be used by other teachers as a resource for funding for their projects. In addition, I have included links to my proposal and presentation I will give to my department, administrators, and school board to gain their support and approval for my proposed project. This proposal and presentation can also be used by other teachers to gain support and approval for an outdoor classroom at their school. The timeline provides dates for the completion of the project's steps and goals to stay on track for the submission process. First, however, it is important to define the goal of the project to begin the design process.

Project Description

The goal of this capstone project is to create an outdoor classroom for teachers and students at my school. While my initial focus for the outdoor space is for grades five through eight, all grade levels will be welcome to use it as well. The first step of the project was to contact my science department members and let them know I wanted to present my project idea to them in April to gain their support. Next, I notified administrators that I want to present my idea to them in April to gain their support and approval of the project as well. The next step was to put a outdoor classroom design together in order to receive approval for a specific location on the school grounds. The design is focused on the science discipline, but it is my hope that all disciplines will find a use for the space. Based on research of barriers that inhibit teachers from using an outdoor space, these barriers were considered during the design phase to make certain

that the space is user friendly. The budget and cost was estimated from previous designs from the Pre-Kindergarten outdoor classroom construction in our district, estimates from outdoor classroom design contractors, and projects completed by other schools in Minnesota.

Setting and Participants

The elementary school houses grades Pre-6 and the high school consists of grades 7-12. The two buildings are connected with a hallway. In the high school there are 458 students and the elementary school has 536 students. The student to teacher ratio in the high school is 15 students to one teacher. Seventeen percent of the high school's student body is in special education. For the economical demographics, 24% of students are on free and reduced lunch.

According to state assessments that can be obtained from the State Department of Education's website, 57.4% of students are proficient in science. One of my professional goals is to support improvement our school's science achievement and student engagement. The creation of an outdoor classroom is one part of my plan to reach this goal. In addition, the outdoor classroom could also positively impact reading and math achievement scores. In being able to reach my goal, it is important to identify the participants and direct my efforts to this group.

My target audience is students in grades five through eight. There are a total of 342 students in grades five through eight for the 2017-2018 school year. There are approximately 30 teachers who interact with fifth through eighth grade students each day. I typically have 20-30 students per class in 8th grade. The design of the outdoor space

was created to accommodate up to 30 students, as this is the maximum number of students we typically have per class.

The construction site and setting for the outdoor classroom will be on our school grounds. This will increase the accessibility of the space for use by staff and students. I am planning to have it on the back side of the school because of limited amount of space in front of the school. The backside of the high school is mostly used. There is a bare square of concrete in the back that is currently not being used for anything. It was originally created to be used for an outdoor classroom for the Agriculture department at my school, but did not see fulfillment. I have planned to use this space and incorporate the concrete slab into the design, instead of paying to remove it. The school grounds are characterized by mowed grass with some trees. Although this space will be accessible to all students, in particular, my design will be for grades fifth through eighth with a focus on science. Pictures of my proposed site can be found in Appendices C-F. To be able to build the outdoor classroom, it will require funding.

Possible Funding

The Minnesota Department of Natural Resources offers funding for schools. The program is called the School Forest Program and received a grant from the Environment and Natural Resources Trust Fund (ENRTF) to complete projects at 60 School Forests. The goal of this program is to to give schools the boost needed to improve their outdoor classrooms to be better environments for outdoor learning (Minnesota Department of Natural Resources, 2018b). The project ends on June 30th, 2019 with applications being

accepted through May 1st, 2018 (refer to Appendix G). This program could help me plant and manage the trees on our school property for the outdoor classroom I am planning.

The Department of Natural Resources also has a grant called the Conservation Partners Legacy (CLP) Grant Program. The funding for the CPL grant program comes from the Outdoor Heritage Fund, which receives donations from the residents of Minnesota. This program's goal is to fund conservation projects that restore, enhance, or protect forests, wetlands, prairies, and habitat for fish, game, and wildlife in Minnesota. This funding could be used to restore native prairie on our school grounds to be used as a learning environment and tool for students as a part of my outdoor classroom design. The 2019 grant applications will be opened up around August 1st (Department of Natural Resources, 2018a).

The Scotts Miracle-Gro Foundation (2018) provides funding to green spaces through their GRO1000 grant. This grant is open to 501(c)(3) organizations for up to $1,500 for community gardens and greenspaces. Schools are not automatically considered to be 501(c)3 organizations, but the school can apply to be considered a 501(c)(3) Organization. Applications need to be submitted by February 19, 2018 for this year to be considered for acceptance (refer to Appendix G).

Lowe's Small Toolbox for Education grant program provided by Lowe's Charitable and Educational Foundation (LCEF) offers funding for grassroots community and school projects in the communities where Lowe's does business (Lowe's Toolbox For Education, 2018). The application form for this grant is closed for this school year, but can be taken advantage of if it is offered next year.

Seeds for Education Grant Program offered by Wild Ones: Native Plants, Native Landscapes, is a grant that provides funding for schools to buy native seeds. This can help attract birds and insects, as well as provide hands-on learning for biology and ecology classes. These native green areas can also help in stormwater runoff. I could apply for this grant to create a native prairie area to enhance student learning in my outdoor classroom design plan. The application for this year is closed and opens up in October, so I can apply for funding next school year (Wild Ones, 2018).

Friends of Acadia to support more youth engagement with Acadia National Park provide grants for schools to build outdoor classrooms. Grants are available for early learning centers through grade 12 schools. Two requirements for the grant is that the outdoor classroom must be on school grounds and provide a curriculum link to Acadia National Park. Since I want to have the outdoor classroom on our school grounds, this particular grant works well for me. As with all curriculum standards, teacher can be creative in how they meet the standards with their chosen activities, so I will be able to include Acadia National Park into the curriculum. Schools may apply for the grant throughout the year (refer to APPENDIX 7).

Otter Tail Power Company is our local energy provider and has a grant with a mission to "connect with our rural communities to support young minds, invest in our current and future workforce, create vibrant culture and vital communities, improve health and human services, and protect our natural resources" (Otter Tail Power Company, n. d. ¶ 1). The committee that meets to decide on the applications meets on

March 15, June 15, September 15, and December 15. All application requests must be received two weeks prior to the meeting (refer to Appendix G).

"The Runestone Electric Association Community Trust is a state chartered, non-profit, 501c3 Corporation that administers the funds from Runestone Electric Association's Round Up program" (Runestone Electric Association, 2017, ¶ 1). This company is another energy company for our local area. The committee that decides on applications meets quarterly in February, May, August, and November (refer to Appendix G).

The local Shopko provides grant money through the Shopko Foundation. Their website states that "our focus is narrow to maximize impact: the health and wellness of citizens of all ages and the educational needs of students" (Shopko, 2018b, ¶ 2). Grant money may be given to applications for "Programs that enhance education are eligible to receive support from the Shopko Foundation" (Shopko, 2018a, ¶ 1). Applications are reviewed on a quarterly basis in January, April, July, and October. Grants need to be submitted by the end of the prior months previously mentioned to be reviewed and considered (refer to Appendix G).

The Bladin Foundation "seeks the blend of educational attainment, economic opportunity and broader inclusion in rural Minnesota communities, so all residents have greater opportunities to prosper" (Blandin Foundation, 2018, ¶ 2). If the grant application is over 50,000 dollars, the application is due March 15, June 15, September 15, December 15. If grant requests are under 50,000 dollars, then there is not deadline (refer to APPENDIX 7).

There is a local school foundation in the district where I work that provides grant money. They are a group of parents, alumni and community members who work with the West Central Initiative to enhance and sustain the quality of education for citizens of all ages participating in programs of the district in which I work. This could be another source of funding for this project.

Public donations can also be accepted for funding. When the Pre-Kindergarten was building their outdoor classroom, they sent out flyers to community members with information about donating and held public information meetings and presentations on their proposal.

CERTs Seed Grant Projects is run through the Clean Energy Resource Teams. This grant could provide possible funding for renewable energy projects or activities for my outdoor classroom design (refer to Appendix G). Renewable energy was something my department members felt was important to incorporate into the design. Our school is also partnered with a high school in Saerbeck Germany to work together on renewable energy. Having renewable energy activities and instruments for data collection would be a great resource for this partnership. Each region awarded around $20,000 and we are located in the central region.

The Minnesota Energy Resources Grant provide funding for schools within its service area. Unfortunately, my school district is not in this service area, but hopefully this information will be helpful to other schools (refer to APPENDIX 7).

The United States Agriculture Department is accepting applications for the Rural Energy for America Program (REAP). Their website states the funding is available for

agricultural farmers and small businesses (United States Department of Agriculture Rural Development, n. d.). This may be a source of funding for the school since we are in an eligible area. I would have to contact the program coordinator for our area for more information.

CenterPoint Energy provides funding for applicants within their service area and the applicant's objectives correspond with one or more of CenterPoint Energy's program's three focus areas, education, community development, and health and human services. My proposal would fall under the education focus area. Proposals need to be submitted from May 1 to May 31 for possible inclusion in the next calendar year budget. Information on the grant funding stipulations and where to send an application can be found on their website (refer to Appendix G).

Proposed Design Elements

Nature Explore is a company the creates unique designs for outdoor classrooms and spaces (Nature Explore, 2017). This is the company that the Pre-Kindergarten program contracted to make the design for their space and then to oversee its implementation. I am interested in using this company as well. I contacted Nature Explore for designs and costs. They provided an example design with the costs of the materials (refer to Appendices H-J). My contact at Nature Explore stated that a budget around $60,000 to $70,000 was an appropriate budget for most of their previous sites. This company provides many services in the planning and implementation phase (refer to Appendix K).

After talking informally to my science department colleagues, they provided me with some design elements they would like to see incorporated, as well as their real and perceived barriers to using the outdoor space. Some design elements that I would like to include into the design after speaking with my department would include the following;

- natural, and local if possible, building materials
- natural seating, such as stumps or landscaping rock
- shade structure, such as a pergola
- Standing height lab tables
- native perennial plants
- native trees
- water access, such as a sink, spicket, or rain barrels
- outdoor chalkboard
- leveled, stadium style seating
- renewable energy learning stations
- rain garden
- a rock garden with the types of rocks labeled
- storage shed

Project Proposal & Presentation

To help other teachers provide a rationale, design elements, and a budget for an outdoor classroom for grades five through eight at their school, I have put together a proposal for an outdoor classroom that they can use as they see fit. The proposal includes the following sections; Project Proposal Name, Project Details, Project Rationale,

Advancement of Environmental Education, Proposed Design, Projected Costs, Possible Funding Sources, Strategic Plan, Maintenance and Green Design, Teacher Interest, and Student and Teacher Benefits. The link to my proposal can be found here: https://docs.google.com/document/d/1PsI-fYNgn5UxBb0jmBrbzsfMBcAkmjRhVZ9QXKjmwQc/edit?usp=sharing

I have also created a Google Slide to help educators present the outdoor classroom proposal. The presentation can be used in combination with the proposal as a handout. The presentation provides the rationale for an outdoor classroom, the reasoning behind the design choices, the proposed design, the cost, and funding sources. An elaboration of each slide can be found in the footnotes. The link to my presentation can be found here; https://docs.google.com/presentation/d/1IdbUOkRggvCZyb1Q9D0utX__bkhHg9J9xZ1Vb49dQqA/edit?usp=sharing

Timeline

I have the information from our Pre-Kindergarten's design and proposals for reference on the design process and costs. Now that I have a preliminary design, I have put together a cost estimate. I have contacted Nature Explore and received designs and costs for their projects Now that I have a design and an estimated cost, I have created a proposal and presentation to give to the science department and administration to support my project for an outdoor classroom. I have found grant funding options if the school does not have money for the projected costs. I have gathered a list of grants for which I can apply when I am ready for the construction phase. After I have departmental and

administrative support, I can present my idea to the school board next year for approval. Hopefully, the school board would approve my project and we can start the design process and construction of this project.

On February 12th, I have all the steps to complete my project proposal compiled. The design and proposed cost for the project was completed by March 7th. My revised Chapters One through Three and my draft of Chapter Four was done by March 26th for the peer review process. I will present my project proposal to the science department at the end of school year or during the following year. My final revision of Chapter Four is completed on April 16th and I got feedback from faculty and peer reviewers. Finally, I will turn in my Capstone Project for grading on May 1st.

Summary

In conclusion, an outdoor classroom at my school should provide students with a space to grow in a holistic manner. The proposal and presentation I have created to address my capstone question ,"What is the rationale and best design for an outdoor classroom at my school for grades five through eight?", will help other educators make their case for an outdoor classroom at their educational center. The space will be designed for the science disciplines for students in grades fifth through eighth as the target age group, but other grades and disciplines will be able to use the space as well. Securing funding for the project will be of the utmost importance for the creation of the outdoor classroom. My design, proposal, and presentation was completed in March in order to be able to turn in my final work in May. Chapter Four will be completed by April and provide a reflection and conclusion of my project.

CHAPTER IV

Conclusions & Reflections

Chapter Overview

In this chapter, I will reflect on the learning made towards my research question,"What is the rationale and design for an outdoor classroom for grades five through eight?". I intend to discuss what I learned through the capstone process, a revisitation of the literature review, my project's implications and limitations, and how I will communicate my results, which includes suggestions for future projects. The benefits of an outdoor classroom to the teaching profession will be addressed in this chapter as well.

What I gained through the research and writing process, as well as my literature review will be addressed. By completing my literature review, I discovered the rationale for creating and using an outdoor classroom. The outcome of completing this process was learning how to create and present a proposal.

In the revisit of the literature review, I reflected upon what information impacted me the most and what areas I knew the least about. My research on ADA guidelines and universal design gave me insight on how to design my outdoor classroom. I had very little prior knowledge on this topic and the guidelines greatly impacted my thought process in developing the design of my outdoor classroom.

The implications of this project will help educators understand the importance and need for learning in nature by providing them with the rationale for creating an outdoor space and design elements of an outdoor classroom. There are limitations, such as

funding, that influences the strategic plan of an outdoor classroom. In addition, it can also be difficult to find partners in the design and construction processes. Another limitation maybe that other school projects being planned or in currently in progress can take precedence when proposing the creation of an outdoor space.

I will communicate my capstone project results by presenting my proposal to science department members, administrators, and the school board. The proposal and presentation I have created will also be put on Hamline's digital commons for other educators to edit and use as they see fit. I intend to continue my research and develop improvements once the outdoor classroom is created. A focus on recording student engagement when utilizing the outdoor classroom is recommended for future projects conducted by educators.

There are many benefits to students and teachers when they are able to utilize an outdoor classroom. These benefits include all domains of a student's life; health, social-emotional, and academic are stimulated and encouraged to develop and grow. The creation of an outdoor classroom also advances the environmental education movement.

What I Learned

Through this capstone project process, I have grown as a researcher, writer, and as a professional learner. As a researcher, I learned how to use Hamline's online library system to locate journal articles that pertained to my capstone question. I also discovered how to use Google Scholar's filtering capabilities to find peer reviewed journal articles related to learning outside the classroom. As a writer, I grew in my ability to utilize transition sentences to create smooth reading from paragraph to paragraph. The

formatting of my references from various sources was difficult at first, but I was able to use the resources on Hamline's website and their writing center to learn how to format them correctly. The Hamline writing center service was a new resource to me, which I utilized often throughout this process.

The basis behind my capstone question was the idea of creating an outdoor classroom at the school where I teach. After researching this topic, I learned the benefits applied not only to the students, but also teachers. Both benefit when they have the opportunity to learn outside a traditional classroom. Students benefit from spending time and learning outside. Research has shown that student's level of engagement and directed attention is increased when they have access to the outdoors. A decrease in students' stress level and ADD/ADHD symptoms have been linked to time spent outdoors, as well as social, emotional, and physical health. To be able to attain these benefits, it will require a securing of funding for the outdoor classroom.

To get support and funding for an outdoor classroom, I also needed to learn how to create a design, budget, and develop a proposal. The first step in creating an outdoor classroom was to ask my colleagues what they would want to have in this space in order to get some insight on what to include into my design. The biggest task in this process was the budget. To start this process, calls were made to local companies who have materials to construct an outdoor classroom, as well as to schools who have already established outdoor classrooms. Collaborating with organizers from other school was very insightful into the creation of my project. I also had to put all of the information I have learned into a business proposal to be able to present it in an easy-to-read manner to

gain support for this idea. Through my research, I learned that there are many formats for business proposals. Going forward, I asked my content expert for her opinion because she helped write a proposal for the Pre-Kindergarten outdoor classroom. She thought what I had put together looked good and helped edit it.

Revisitation of the Literature Review

One topic that I did not originally think about was researching how I can make the outdoor classroom inclusive for all students. This lead me to research Universal Design for Learning. There are many obstacles for children with physical and cognitive differences, and their being able to learn outside should not be another obstacle. During the design phase of my outdoor classroom, I researched ADA guidelines to make the outdoor classroom accessible to students in wheelchairs. At our school, we have some students that are in power chairs and I want to give them the opportunity to go outside with their class. I mostly looked into providing a pathway for students in a wheelchair or power chair to get to the gathering space and lab area. Some areas of focus in the guidelines include the gradient of sidewalks, width of sidewalks, the height of objects having overhead of a sidewalk. The Minnesota Department of Transportation provides the guidelines for designers and construction workers. These are national regulations, and the Missouri Department of Transportation also had a website that was helpful to me and provided pictures to assist in understanding the rules.

Project Implications and Limitations

In my research of outdoor classrooms in Minnesota, I found that a majority of the outdoor classrooms have been developed for Pre-Kindergarten or Elementary schools. I

found very few that were designed for grades five through eight. After a search was conducted online, I found nine schools in Minnesota that have an outdoor classroom and include one or more grade of fifth through eighth grades. There is one at Minnetonka Public schools for grades K-5, but it is geared more towards 3-4 year old. Murray Middle School students planned and created a pollinator plot to engage in experiential learning in 2016. Washburn Elementary school has created an outdoor classroom that can be utilized by grades Pre-5. Duluth Middle Schools initiated a farm to school program where the middle school students planted and maintain school gardens. The Susan B. Anthony Middle school also created a school garden and use it as part of their project to sell produce to a local pizzeria. Murray Jr. High School students take advantage of Como Woodland Outdoor Classroom and conduct citizen science projects. Golden Lake Elementary School has an outdoor seating area with a shade structure over it for grades Pre-5. Chisago Lakes Middle School has been constructing an outdoor classroom and the Chisago Lake High School is helping build benches for the space. Kennedy Secondary School, with the assistance of Partners for Fish and Wildlife Voluntary Habitat Improvement Project, restored prairie gasses and plants on their school property as an outdoor classroom. I was unable to find an outdoor classroom solely for high schoolers. I found it interesting to discover through my online research that there were many outdoor programs for Pre-Kindergarten aged students, a few for middle school aged students, but zero for high schools in Minnesota. Since there are many outdoor classrooms and programs for younger students, much of the research is directed towards this age group.

A link between outdoor learning and the benefits for younger students has been widely documented. As for benefits for middle school and high school students, there is less documentation. However, research for the benefits of the outdoors for adults was commonly found. I noticed a gap in the research related to the benefits for middle school and high school aged students. I am curious as to why this gap exists in the documentation for these age groups when there is research for younger children and adults. This made me wonder if the benefits that children and adults get from spending time and learning outside be the same benefits for middle and high school aged students. I would assume yes, but their developmental and cognitive stage is different than young students and adults. There is a need for outdoor classrooms for middle and high school students so that research can be directed toward this age group.

Even though there is a need for an outdoor classroom for middle school and high school aged students, a limitation for creating an outdoor space would be the funding of the project. Securing funding for such a project can be difficult. Since there is limited research on the benefits for middle and high school aged students that supports the benefits for this type of learning, then funding may be allocated to other areas. However, I was able to find many grants that project coordinators or schools can apply for to help in the financial burden for an outdoor classroom project. In speaking with the coordinator of Washburn Elementary's outdoor classroom project and one of the coordinators for the outdoor classroom at Morris Area Schools Pre-Kindergarten's outdoor classroom, they stated that most of their funding came from private donations from citizens and businesses. They also stated that grants were a source of funding, but

they felt it was time consuming to file for a grant, write it, and then wait to see if they got accepted.

Our school is starting a renovation project this year. This project will be a major focus for the school board and administors for the next couple years. I saw this as another limitation for securing funding and the construction an outdoor classroom. Asking them to support an outdoor classroom on the high school grounds at this time would likely lead to a tabling of the issue until a future time. The school is also working on the roof of the building and will have construction equipment on the proposed outdoor classroom building site. Since the science classrooms are also being remodeled, our department has been focusing on the steps and completion of this project, and not on creating an outdoor classroom.

Through this process, I also encountered difficulties when trying to get the design and budget from people experienced in these areas. I contacted Nature Explore design company for help with the design and cost of my project, but they required a substantial fee to come out to create a specific design with a cost estimate. Since this is my capstone project, I did not have any funding to do this. I also contacted SULIS: Sustainable Urban Landscape Information Series, the Jeffers Foundation, Green Teacher, Ecoscapes, the West Central Research and Outreach Center, HOP Design, Riverview Construction, Morris Lumber and Millwork, Minnesota Department of Natural Resources, Center for Green Schools, the National Wildlife Federation, Students for Design Activism, Juniata College, Master Gardeners, and the Minnesota Landscape Arboretum. None of these organizations or businesses were willing or able to assist me in the design and cost

estimate of my plan. Many of them required an initial fee for consultation or cited a lack of time and knowledge. This initial consultation fee would be something I would need to secure in the future when starting this project. I was was able to contact one of the outdoor classroom project coordinators from Washburn Elementary school and she was very helpful in suggesting a budget. Her suggested budget aligned with the budget provided by Nature Explore.

Communicating Results & Related Projects

Communicating the results of my research and proposal is an important step in this process to be able to see this project come to fruition. I am planning on presenting my proposal to my department members when our school's building project is complete and they can devote more time and thought towards this project. After I have gained support from my department members, I will ask administors for their support. Once I have departmental and administrative support, I will present this proposal to the school board.

I will provide my outdoor classroom proposal and presentation on Hamline's digital commons for their reference to communicate my results to other educators interested in a similar project. Providing this proposal and presentation to the educational community is of the utmost important to advance the construction and implementation of outdoor classrooms. This will help advance the movement for environmental education.

Future project coordinators can select from the design elements I have provided to make the space fit their needs. Smaller projects could include just a rain garden or just a

seating area. An outdoor learning space can be a simple as a mowed grass area. The main goal of education outside the classroom is to bring learning experiences outside.

Since there is limited research on the benefits to students' learning and health when utilizing an outdoor classroom for middle school and high school students, I would recommend that future projects should be directed in researching these benefits. I would want to research my students level of engagement when using the planned outdoor classroom compared to conducting the same lesson in my traditional classroom. It would also be interesting to collect data on students stress level and distractibility when they are outside for lessons. One of the concerns brought up by my colleagues was that students would be more distracted outside than inside. According to my research, teachers in the study recorded less redirects when they conducted their lesson outside compared to inside. I would want to further research into this topic to continue to build support to teach lessons outdoors.

Benefits to the Profession

Through my project, I intend to provide teachers and other educational professionals with the resources they need to provide the rationale for an outdoor classroom, a variety of design elements, and an estimated budget. Having this project as a resource should make the process easier for other project coordinators in their efforts to create an outdoor classroom. Instead of trying to find all the required information they need, I have gathered the information into one place. Project coordinators can also edit and use my proposal and presentation to fit their needs.

This outdoor classroom proposal and presentation also advances the Environmental Education movement and awareness. Environmental education started when people and environmental groups saw that society was moving towards urbanization. A majority of adults and kids were and are spending less time outside and working with the land. In the 1970's, there was also an environmental movement to create the first Earth Day. Groups of people were concerned about the amount of pollution going into the environment and the degradation to ecosystems. These informational sessions during Earth Day helped to create the National Environmental Education Act of 1990. This Act made environmentalism and stewardship a part of every student's education (McCrea, 2006).

The 2009 Revision of the Minnesota Academic Standards in Science included the introduction of environmental education concepts. "Each of the content strands of the standards (physical science, earth science and life science) now has a substrand on "human interactions". These substrands have standards on human interactions with the environment. These are closely tied to the content concepts in that grade" (Minnesota Department of Natural Resources, 2010). There are also engineering concepts that have been added that can be applied to environmental education. Educators can refer to the website of the Department of Education for the science standards to view the standards related to environmental education and human interactions with the environment in order to incorporate the standards into an outdoor classroom.

Since science teachers are required to teach about environmental education, having an outdoor classroom can help teachers accomplish this task. Outdoor classrooms

help advance environmental education. Outdoor classrooms do not have a specific design or elements. They can be a forest, field, alleyway, or garden. This allows educators to use what they have available to them, which makes outdoor classrooms versatile. Since outdoor classrooms provide an opportunity for students to grow in all domains of life, it is important for teachers to bring their students outdoors. Another important goal of outdoor classrooms is to nurture students' environmental appreciation and stewardship. Since prevention is a better strategy than trying to figure out solutions after the fact, teaching students how they impact the environment would be a step towards prevention. Student's can also develop a sense of place and connection to their community through an outdoor classroom. Students can participate in civic projects and develop stronger environmental attitudes. All of these learning outcomes resonate with the goals of environmental education and advance the environmental education movement.

Summary

Through this capstone project, I now understand my capstone question, "What is the rationale and best design for an outdoor classroom at my school for grades five through eight?". I have learned about the rationale for creating and using an outdoor classroom in an educational setting. I have acquired more knowledge in the area of outdoor spaces and how to create an inclusive area. Through creating a budget based off my design, I learned about the limitations as a project coordinator. It can be difficult to find partners in the project and cost estimates, but it can be done with hard work and persistence. Due to the limited amount of research on outdoor classrooms for students in

grades five through eight, I recommend that myself and other educators continue the research and discussion on outdoor classrooms and student benefits, with an emphasis on engagement.

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Appendix A:
Fern clothes as kids

Appendix B:
Mounds of soil from cattle walking that we called bogs

Appendix C:
Looking South towards entrance/exit door #1

Appendix D:
Looking North towards the highway

Appendix E:
Looking Northeast, conifer trees

Appendix F:
Looking North, conifer trees

Appendix G:
List of grants

The Minnesota Department of Natural Resources: School Forest Program
http://www.dnr.state.mn.us/schoolforest/outdoor-classrooms.html

Department of Natural Resources: Conservation Partners Legacy (CLP) Grant Program.
https://www.dnr.state.mn.us/grants/habitat/cpl/index.html

Scotts Miracle-Gro Foundation: GRO1000 grant.
http://www.surveygizmo.com/s3/4061373/2018-GRO1000-Grassroots-Grant-Application

Lowe's Small Toolbox for Education
http://toolboxforeducation.com/

Friends of Acadia Grant
https://friendsofacadia.org/wp-content/uploads/2015/08/Outdoor-Classroom-Grant-Application.pdf

Seeds for Education Grant Program
https://www.wildones.org/seeds-for-education/sfe/

Otter Tail Power Company Grant
https://www.otpco.com/about-us/donations-and-grants/online-application-form/

Runestone Electric Association Community Trust
http://www.runestoneelectric.com/wp-content/uploads/2017/11/Application-form.pdf

Shopko foundation
http://www.shopko.com/content.jsp?pageName=Education

Blandin Foundation
https://blandinfoundation.org/articles/blandin-leadership-program-grant-application/

CERTs Seed Grant Projects
https://www.cleanenergyresourceteams.org/rfp

Minnesota Energy Resources Grant
https://accel.minnesotaenergyresources.com/company/grant_application.aspx.

United States Agriculture Department: Rural Energy for America Program (REAP)
https://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency

CenterPoint Energy
http://www.centerpointenergy.com/en-us/InYourCommunity/Documents/Charitable%20Contributions.pdf.

Appendix H:
Nature Explore's example design

Appendix I:
Nature Explore's cost estimate for furnishings

Expires	Exp. Close	Project	Order Memo	Web Reference	Shipping Method
10/2/2015	9/2/2015		Furnishings		Shipping

Orders containing two or more items may be delivered in multiple shipments.

Item	Description	Quantity	Rate	Amount
3912	Marimba, Short (please allow up to four weeks to ship)	1	2,695.00	2,695.00
6990	Creativity Table, Short (please allow up to four weeks to ship)	1	1,695.00	1,695.00
6952	Art Panel (please allow up to four weeks to ship)	1	1,295.00	1,295.00
6930	Composite Discovery Table, Small (please allow up to four weeks to ship)	1	795.00	795.00
3917	Redcedar Log Steps, Set of 4 (please allow up to four weeks to ship)	1	399.00	399.00
6989	Composite Storage Cabinet (please allow up to four weeks to ship)	4	1,895.00	7,580.00
4271	Raised Planter Bed 4'L x 2'W x 22"H (please allow up to two weeks to ship)	4	349.00	1,396.00
6893	Small At-Ease Bench - 12"H (please allow up to four weeks to ship)	2	149.00	298.00
4258	Large At-Ease Bench - 12"H (please allow up to four weeks to ship)	7	189.00	1,323.00
3911	Large At-Ease Bench - 18"H (please allow up to four weeks to ship)	1	189.00	189.00
4260	Stump Stool - Short, set of 2 (please allow up to four weeks to ship)	2	199.00	398.00
6919	Rustic Arbor (please allow up to four weeks to ship)	1		795.00
4870	Building Area Wooden Sign	1	29.00	29.00
3930	Climbing Area Wooden Sign	1	29.00	29.00
5554	Dirt Digging Area Wooden Sign	1	29.00	29.00
5551	Garden Area Wooden Sign	1	29.00	29.00
3908	Gathering Area Wooden Sign	1	29.00	29.00
3905	Messy Materials Area Wooden Sign	1	29.00	29.00
3906	Music & Movement Area Wooden Sign	1	29.00	29.00
3907	Nature Art Area Wooden Sign	1	29.00	29.00
5553	Sand Area Wooden Sign	1	29.00	29.00
5552	Water Area Wooden Sign	1	29.00	29.00
4275	Rustic Sign Post (please allow up to four weeks to ship)	10	94.00	940.00

Order Memo			
		Subtotal	20,088.00
		Shipping Cost (Shipping)	2,410.56
		Total	$22,498.56

Appendix J:
Nature Explore's cost estimate for loose parts

Expires	Exp. Close	Project	Order Memo	Web Reference	Shipping Method
10/2/2015	9/2/2015		Loose Parts		Shipping

Orders containing two or more items may be delivered in multiple shipments.

Item	Description	Quantity	Rate	Amount
5210	SlapBoxx, Standard w/ Snare (please allow up to two weeks to ship)	1	259.00	259.00
6920	Cactus Rain Stick, Small	3	10.00	30.00
3914	Cactus Rain Stick, Large	3	17.00	51.00
4618	Dancing Scarves, set of 12	2	26.00	52.00
6923	Wooden Frog Instrument	1	18.00	18.00
3929	Pods, Cones & Botanicals	2	25.00	50.00
4277	Seashells	1	29.00	29.00
6954	Magnetic Wooden Blocks, set of 42	1	110.00	110.00
3935	Barkless Tree Blocks, set of 36	1	49.00	49.00
6911	Bamboo Blocks, Set of 42	1	39.99	39.99
6913	Geometric Blocks, set of 20 Rectangle & 40 Square	1	74.00	74.00
4846	Mini-Bricks, set of 50	1	49.00	49.00
3936	Giant Tree Cookies (10" Dia.), Set of 10 (please allow up to four weeks to ship)	1	119.00	119.00
6957	Giant Tree Cookies (6-8" Dia.), Set of 14 (please allow up to four weeks to ship)	1	119.00	119.00

Order Memo			
		Subtotal	1,048.99
		Shipping Cost (Shipping)	125.88
		Total	$1,174.87

Appendix K:
Nature Explore's design process and services

Outdoor Classroom Design Process

Includes

- Pre-planning, coordination, and preparation for site visit including mailed resources and conference call
- Two-day on-site visit by both a Nature Explore Landscape Architect and Education Specialist
  - Presentation of research-based design principles
  - Visioning session
  - Walk site and create basemap
  - Develop concept plan and present to team
  - Discuss implementation steps
- Black & white concept plan
- Watercolor rendered color concept plan
- Construction material quantity estimate
- Custom Nature Explore natural product estimate (sample budget of items in Resource Guide)
- Implementation Guide
- Project Summary