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Walden University

College of Education

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Sheri Ruether

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Walden University

2018

Abstract

Barriers to Teachers' Use of Environmentally-Based Education in Outdoor Classrooms

by

Sheri Ruether

MA, Walden University, 2004

BS, University of Texas at San Antonio, 1987

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Education

Walden University

August 2018

Abstract

Numerous research studies have shown that when teachers take children outdoors to learn, children show an increase in cognitive, physical, social, and emotional skills. Few researchers have focused, however, on teachers and their decision to use the outdoors as a way of teaching. The purpose of this qualitative study was to explore whether life experiences impact a teacher's choice to not use the outdoor environment. Ham and Shuman's model of environmental education commitment and Kaplan and Kaplan's environmental cognition theory served as the conceptual frameworks for this study. The research question was designed to explore the experiences and barriers of teachers and how these experiences and barriers affected a teacher's decision to use or not use an outdoor classroom when one was available. Data were obtained using individual interviews of a purposeful sample of seven elementary teachers from a large school district in the U.S. state of Georgia who were not using outdoor classrooms at the time of the study. Themes that emerged from data analysis were lack of time in tightly controlled class schedules, lack of administrator support, lack of staff development for teachers, weather, and lack of time to research and prepare lessons. Study findings have the potential to engender positive social change by increasing insight about the barriers teachers perceive to using the natural environment in instruction. With more knowledge about such barriers, administrators may be able to encourage teachers to use the natural environment as an extension of the indoor classroom to increase academic achievement and lifelong behaviors in nature among students.

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Dedication

This study is dedicated to my parents, William and Clara Cabaniss, from whom I get my love of nature. I will always be grateful for your knowledge and support for learning about nature. You were naturalists in your time. Your love and appreciation of nature spread throughout our entire family. I also dedicate this study to my grandmother, Lera Cabaniss. She taught me a lot about the natural world around her farm. She encouraged my many explorations and supported my nature collections!

Finally, this study is dedicated to all of the teachers out there who want to get their students outside more often but are not sure how and to the students who want to be outdoors learning.

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Chapter 1: Introduction to the Study

Over the last five years, authors of an increasing number of books and educational journal articles have discussed the importance of taking students outside to learn (Hanscom, 2016; Jacobi-Vessels, 2013; Scott, Boyd, & Colquhoun, 2013). Staff of many wildlife organizations have also been developing outdoor curricula for schools to use with their students (Project WILD, 2016; Project Learning Tree, 2016; Project WET, 2016). Furthermore, the National Gardening Association (2016) and Captain Planet (Captain Planet Foundation, 2016) have programs designed to help teachers create gardens at their schools and to guide the teachers on how to maintain these gardens with their classes. The Department of Natural Resources and other government agencies have developed several programs, such as Project WILD and Project Flying, to provide U.S. teachers with information and lessons on teaching methods and content using the outdoors (Georgia Department of Natural Resources, 2018). Last, the North American Association for Environmental Education (NAAEE) promotes using school grounds for environmental studies and has created an environmental teaching certification for teachers serious about taking their students outside to learn (NAAEE, 2108). There are many resources available to learn about environment-based education both online and through books.

There are several reasons organizations why the National Wildlife Federation and the NAAEE are encouraging their teachers to use their school grounds for teaching academic content. Louv (2008) wrote about what people lose with the lack of nature contact. Louv listed some of these losses as an increased rate of myopia, diminished use

of the senses, rise in attention deficit disorders, physical and emotional illnesses, and increased amounts of childhood and adult obesity. Louv lists some of the physical and emotional problems related to the loss of outdoor nature activity while the Next Generation Science Standards(NGSS) (2016) and The National Science Education Standards (NSES) (NRC,1996) focus more on the academic nature of this loss. The NGSS and the NSES stress the importance of inquiry-based science lessons where students learn to ask questions and find the answers to these questions through hands-on activities and science projects. The National Center for Education Statistics (NCES) also recognizes the use of outdoor spaces surrounding schools as important as the classroom when teaching students:

The classroom is a limited environment. The school science program must extend beyond the walls of the school to the resources of the community...the physical environment in and around the school can be used as a living laboratory for the study of natural phenomena. Whether the school is located in a densely populated urban area, a sprawling suburb, a small town, or rural area, the environment can and should be used as a resource for science study. (National Research Council, 1996, p. 45)

The NRC recognizes the limitations of remaining inside the classroom for all science learning. The outdoor area surrounding the school building should be used as another resource for teaching science.

This interest in using the natural environment to teach academic content is called environment-based education (Ernst, 2007; Kansas Association for Conservation and Environmental Education, 2015). The purpose of environment-based education is to teach academic content “standards using a cohesive context that connects students’ new knowledge and skills to something that they can readily relate to—their local environment and community” (Lieberman, 2013, p. 38). Environment-based education is not meant to be a separate program with its own curriculum and standards. Teachers can combine state standards in all academic areas with applicable learning activities using the school grounds to create real world learning, according to Lieberman (p. 39) and Skoutajan (2012, p. 34). The natural environment provides a context for learning that cannot compare to learning in an indoor classroom, regardless of the students’ ability to gain information through use of the technology available within the classroom (Kellert, 2014).

In inquiry-based learning students are expected to choose topics that interest them and then proceed to research their topics much like a scientist would (Helm & Katz, 2011; National Research Council, 1996). This involves coming up with their own questions, planning and conducting research to find answers to their questions, and then presenting their findings to the rest of the class. In schools that promote project-based learning, the students inform others of their findings through projects they have created. During this process, students are expected to “ask questions, plan and conduct investigations, use appropriate tools and techniques to gather data, think critically and logically about the relationship between evidence and explanations, construct and analyze

alternative explanations, and communicate scientific arguments” (National Research Council, 1996, p. 105). The area surrounding the school provides a great place to conduct inquiry research, noted Constable (2012).

Students of all ages are interested in discovering things in their environment (Chalufour & Worth, 2003). “All young children have an enthusiasm and curiosity about the world...” (Heard & McDonough, 2009, p. 12). “Kindergarten students have an amazing capacity for wonder and inquisitiveness...” (Smith & Landry, 2013) Primary students are very curious about their world. They ask lots questions as they try to make sense of their world. As students get older, teachers need to urge students to keep asking these questions, according to (Chalufour & Worth, 2003). There is evidence showing that promotion of continued questions from students can be implemented using the outdoors surrounding the school (Jacobi-Vessels, 2013). The question of why teachers are not using this area has not been adequately explored, based on my review of the literature.

In this chapter, I will provide background information on the use of school grounds as a tool for teaching students academic content. I also will identify and discuss the problem statement and the purpose of this study. The research questions and conceptual framework for understanding the barriers for using the outdoor classroom will then be described. The nature of the study, important definitions, and research assumptions, including the scope and delimitations and limitations of the study, will also be identified and discussed. The significance of the study will then be considered. The chapter concludes with a summary of key points.

Background

Most teachers disregard using their school's outdoor arena for teaching (Ham & Sewing, 1988). The outdoor classroom or outdoor area surrounding the school building is the least used area for teaching students (Orion, Hofstein, Tamir, & Giddings, 1997). Even though there is substantial evidence showing the benefits for using the outdoor classroom, more research needs to be conducted to learn why teachers are neglecting these spaces in their daily lessons (Bahun, 2010; Lieberman & Hoody, 1998; Louv, 2006, 2008; Milton & Cleveland, 1995; Rickinson, Dillon, Teamey, Morris, Choi, Sanders, & Benefield, 2004). Most schools have some sort of outdoor area surrounding the school that can be used for outdoor study. With literature available that shows positive findings from research studies using environment-based education, the next step is to find out why teachers are not using these areas to teach

The use of the outdoor space to teach students about their surroundings is not something new. Parents and grandparents have used the outdoors to teach their children about the names of plants and animals in their local area. Native Americans depended on the land and nature for sustenance and survival, including their ability to identify medicinal and food plants (Nabhan & Trimble, 1994, p.25). Children have typically played outdoors, exploring the forests and deserts surrounding their homes. They were familiar with the landscapes surrounding their homes. Children knew where to find nuts and berries that were safe to eat in the wild and where animals had built their homes (Sobel, 2008, p. 35). Before modern medicine, families passed down important medicinal information concerning which plants to use and for what ailments. Today, many children

no longer spend time outdoors exploring the natural environment surrounding their homes and learning about what lives there, and parents do not spend time with their children outdoors as much as earlier generations (Lieberman, 2013).

Froebel (1903) and Dewey (1899) both noted the importance of taking children outside to learn. Froebel (1903) observed that young children had a special connection with nature and created gardens for his young students to explore and tend. These gardens were a large part of the outdoor classroom that Froebel designed for his students to use as they discovered the world around them. According to Froebel, it is important to reflect on the influence that nature and plants have on the intellect, knowledge, emotions, and spirit of children. Froebel conclude that parents should create garden spaces for their children to nurture the development of the whole child.

Dewey (1899) argued that students needed personal experience with nature to help them understand their world as well. Dewey commented on the importance of real life experience over classroom-based instruction. In his view, no amount of information dispensed by teachers can replace the actual hands-on, first-hand experiences that student have with caring for actual farm plants and animals. These experiences in nature help the student understand a concept more clearly than just reading about it in a book. Dewey considered the outdoor experience to be a lived experience. That is, children learn through hands-on experiences and these experiences transfer to permanent learning. For Dewey, the outdoors provided a host of sensory learning opportunities for children that kept children occupied learning. Greenaway pointed out that Dewey was interested in the

kinds of experiences that had the ability to arouse and strengthen and be intense, and which could stimulate and carry on in other similar experiences (Greenaway, 2008).

Even though there are many organizations such as Project WILD and Advanced Training for Environmental Education in Georgia (ATEEG) that are willing to train teachers on how to create and implement school grounds as an outdoor classroom, research shows that many teachers in the United States are not using these spaces (Ernst, 2007, 2012, 2014). Nature Explore (2016) is one such organization that has workshops and training programs for teachers. Nature Explore is a collaborative program that was conceived by the Arbor Day (2016) and Dimensions Educational Research Foundations (2016). Staff from these organizations provide design services for creating outdoor spaces for schools, workshops and training for educators, and resources needed to help children connect to nature. Nature Explore also provides up-to-date research on the use of outdoor classrooms and children. Another organization that works with schools and educators is Natural Start Alliance (2016). Over the years Natural Start Alliance has observed schools that are really doing well using their outdoor classrooms while other schools are struggling (Wirth, 2014). Wirth (2014) revealed the opportunity to visit many schools that have established outdoor classrooms has discovered that the upkeep of the outdoor classrooms has dwindled and many sit empty most of the school day (p. 1). Although the outdoor classroom seems to be gaining in popularity (Wirth & Rosenow, 2012), few studies have been conducted that focus on the teacher use and desire to use the outdoor classroom (Ernst, 2009). Based on my review of the research available, most researchers have focused on the impact environment-based education has on student use

of the outdoor classroom. These studies are important; however, it is also important to understand directly from the teachers why they decide to use or not to use the outdoor classroom. By asking the teachers themselves, researchers may begin to better understand what changes need to be made to have these outdoor classrooms activated.

Problem Statement

Leaders of many U.S. school districts and individual campuses have invested financial support and administrative time to create outdoor learning spaces. However, even when these learning spaces are readily available, outdoor classrooms have not been widely adopted by teachers and integrated into the academic curriculum (Ernst, 2007, 2012, 2014). Recent studies in environment-based education show that students who are in classes that use environment-based education outperform their peers on standardized tests (Lieberman, 2013). Researchers have also found that students learn to be curious and ask more questions when engaged with nature, which increases the students' critical-thinking skills (Ruiz-Gallardo, Verde, & Valdes, 2013). The natural world is a rich and sensory-stimulating environment which makes the environment more engaging and interesting to students (Kellert, 2014; Moss, 2012).

Many U.S. schools have exceptional areas surrounding the building that can be used to teach academic content (Constable, 2012), but the problem is these areas are not being used by teachers (Ernst, 2007, 2012, 2014). In reviewing the literature, I found very few studies with a focus solely on the study of teachers in environment-based education. Most of these studies were conducted in the early 2000s and late 1990s. More understanding of the experiences of teachers who have access to environmental areas for

teaching may make it possible to remove many of the barriers so that teachers will bring their students outdoors to learn. I conducted this research study to add current research to the research literature base in environment-based education, specifically about why teachers are not utilizing the environment surrounding their schools for teaching.

Purpose of Study

The purpose of this basic qualitative interpretive study was to understand the experience of teachers and their choice to not use available outdoor classrooms to teach academic content. As Rickinson et al. (2004) noted, research should be conducted to find out why teachers are not using the outdoors as a classroom. My goal was to identify how previous experiences may have caused barriers for some educators to using outdoor classrooms.

Research Question

What experiences and barriers influence a teacher's decision to not use an available outdoor classroom?

Conceptual Framework

I used Kaplan and Kaplan's (1982) environmental cognition theory, which is based on the authors' cognitive map theory, and Shuman and Ham's (1997) theory of environmental education commitment as the conceptual frameworks for this study. Some teachers seem extremely comfortable using a natural setting or their school's outdoor classroom while other teachers do not (Skamp, 2009). Life experiences in nature may play a role in a teacher's decision to use nature to teach, according to (Chawla, 1998). If the teacher had positive experiences in nature while growing up, he or she may be more

inclined to believe, based on these experiences, that students should be exposed to outdoor experiences.

According to Kaplan (1973), cognitive maps are mental maps that people make of their environment that come from or are based on their experiences. These mental maps are not drawn out like a highway map. A person's environmental cognitive map is that person's construct of his or her experiences in life that help him or her know his or her environment (Kaplan, 1982). Kaplan named four domains of knowledge required for developing an environmental cognitive map. These are recognition, prediction, evaluation, and action. Recognition involves recognizing objects and areas in the environment that help a person make sense of his or her surroundings (Kaplan, 1982). Prediction involves a person recognizing or being familiar with his or her surroundings and objects within surroundings that helps him or her understand what comes next (Kaplan, 1982). Evaluation and action is a person's ability to identify what is good or bad in the environment and knowing what to do (Kaplan, 1973).

Environmental Cognition Theory

Environmental cognition theory (Kaplan & Kaplan, 1982) applies to teachers using an outdoor classroom. Teachers who have had good experiences in nature may have developed a positive environmental cognitive map or environmental cognition which may lead them to see the value in using the environment surrounding the school for the teaching of academics. The reverse may also apply. Teachers with a cognitive map that includes bad experiences in the natural environment may believe using outdoor classrooms is a bad idea. For example, a teacher using the outdoor classroom will

encounter various insects within the outdoor classroom. If the teacher has had positive experiences around insects such as knowing how to handle certain insects to keep from being stung or bitten, the teacher may be more willing to take students outdoors to study. In contrast, a teacher who knows very little about insects may not know which insects bite or sting or maybe this teacher has had a negative experience with various insects. This teacher is less likely to take students outdoors to study.

Theory of Environmental Education Commitment

Shuman and Ham's (1997) theory of environmental education commitment focuses on teachers' reflection on their positive and negative life experiences in nature to make choices for using the outdoors for teaching their students. Shuman and Ham observed that life experiences can be divided up into three parts: childhood, college, and adult. In their model, they proposed that each stage independently, or in combination with the other stages, can possibly influence a teacher's decision to teach environment-based education (Shuman & Ham, 1997). This theory connects teachers' commitments to teaching environment-based education with their beliefs and attitudes and possible life experiences about teaching this form of education. I incorporated Shuman and Ham's theory in my research study because it enables an analysis of whether experiences in nature during different life stages (early childhood, young adulthood, and adult) affect the decision of a teacher to use the outdoor classroom.

Nature of the Study

For this research, I used a basic qualitative interpretive approach (Merriam & Tisdell, 2016) in which I used interviews to understand the experiences in nature of

elementary school teachers to better understand what factors lead to a teacher's choice to not use environment-based education with students. According to Merriam and Tisdale (2016), researchers conducting basic qualitative studies focus on the participant's experiences and how these experiences influence his or her world construct and what meaning the participant derives from these experiences and constructs. For this research study, seven teachers shared their personal experiences in nature. Each teacher went on to discuss his or her choice to not use the outdoor classroom at his or her school.

Definitions

Environmental education: A process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions (Kansas Association for Conservation and Environmental Education, 2015).

Environment-based education: The use of school grounds as a setting for teaching core academic subject areas and as a source for real world learning experiences (Ernst, 2007).

Environment as an integrating context for learning (EIC) model: The use of "a school's surroundings and community as a framework within which students can construct their own learning, guided by teachers using proven educational practices" (State Education and Environment Roundtable [SEER], 2013).

Inquiry-based education: Inquiry is a dynamic approach to learning that builds on students' natural curiosity about the world in which they live (Chiarotto, 2011).

Outdoor classroom: A space that brings learning outside. The outdoor classroom becomes a gathering space for teachers and students and provides an opportunity to integrate nature into school grounds (TD Friends of the Environment Foundation, 2016).

Assumptions

In conducting this research study, I had three assumptions. The first assumption was that an outdoor learning classroom is beneficial to the learning experience. This research study did not examine the impact on the student academic experience. The second assumption was based on the availability of the outdoor classroom. While a criterion for participation was the existence of the outdoor classroom, there was an assumption that the teachers at the school had equal access to the space; and if they were not using it, there was an individual choice based on some personal factors. The third assumption was that the participants were open and honest as they shared their experiences during the interview process and that teacher participants understand how these experiences impacted the use of outdoor classrooms and environment-based education in the future.

Scope and Delimitations

The scope of this research study was limited to elementary schools that have outdoor classrooms located in a school district in middle Georgia. This research study included seven elementary regular education classroom teachers who teach academic content such as math, reading, writing, and social studies. Science content teachers were not included since teaching science might be more of a motivation for using the outdoor classroom based on the nature of teaching science curriculum. Physical education, music,

and art teachers were not included because they do not normally teach academic content such as math, reading, writing, and social studies.

Limitations

Three limitations for this study included the comfort level of the participants for sharing experiences openly and honestly, the limited number of elementary schools with outdoor classrooms available, and the researcher created interview instrument. The first limitation was the comfort level of the participant for sharing his or her personal experiences. Since the research examined the experiences and barriers to the use of outdoor classrooms, some participants may not be comfortable sharing their negative reflections. The second limitation was the small number of elementary schools within this county that had available outdoor classrooms established. The third limitation was the researcher-created interview protocol which might have demonstrated any biases that I have in support of outdoor classrooms.

Significance of Study

With many research studies supporting the use of environment-based education in schools, it is important to find out why teachers are not using the available outdoor classroom. Understanding the experiences in nature of teachers may help to create programs and workshops that will better inform teachers and provide experience in teaching using environment-based education. Increasing teacher and student use of outdoor classrooms using environment-based education may promote environmental awareness. Another social factor for using environment-based education with outdoor classrooms is the potential to increase student standardized test scores. Environment-

based education has been shown to increase student standardized test scores (Lieberman & Hoody, 1998; Lieberman, 2013) This push for increased standardized test scores is a major factor behind any instructional practice at a school.

Summary

The use of environmental education has been promoted by researchers and many educators as an excellent way to integrate academic content as well to improve the academic and social growth of students (National Environmental Education Foundation {NEEF}, 2018). With research supporting the positive effects of environment-based education for students and teachers, some teachers are continuing to remain indoors with their students during the school day even when outdoor space is available. There remains very little research focused on teachers and their decisions for not using outdoor classrooms.

Using interviews, this basic qualitative research study provides a better understanding about teachers' decision to use or not to use the outdoor classroom. The interviews were necessary to learn firsthand the stories teachers have about personal experiences in nature that may contribute to his or her decision to not use the outdoor classroom. Understanding why some teachers decide not to use an outdoor classroom may provide ideas for workshops and other professional development that supports and encourages environment-based education.

In the following chapter, I provided a thorough review of the available and current literature focusing on environment-based education, the effects on students, and the implementation by teachers. Current teaching practices and a more in-depth discussion

of the conceptual framework will be articulated in chapter two. This research study adds to the literature base for environment-based education and teachers' non-use of the outdoor classroom.

Chapter 2: Literature Review

The purpose of this basic qualitative interpretive study was to understand the experiences of teachers and their decision to not use available outdoor classrooms to teach academic content. Many educators are shifting their attention to combining nature and education and using nature as a tool to teach students academic content. Despite this growing interest, little is known about teachers and their decisions to use environment-based education in an outdoor space or remain indoors (Cheng & So, 2015; Torquati, Cutler, Gilkerson, & Sarver, 2013). According to researchers, very little is known about teachers' attitudes, beliefs, experiences, and knowledge in relation to using the outdoors as a context for learning (Cheng & So, 2015; Mannion, Fenwick, & Lynch, 2013). Additional research is needed to understand the barriers preventing teachers from choosing to use environment-based education and how to overcome those barriers (Pedretti & Nazir, 2014). Research is needed to provide information for administrators and other personnel involved in training and promoting teacher use of outdoor classrooms. If the teacher barriers are known and addressed, it is possible more teachers will use the outdoor classroom.

Chapter 2 begins with a description of the strategy I used to find recent research literature concerning the use of environment-based education including the impact on students, teacher use, and outdoor classrooms. An overview of the conceptual frameworks that provided the structure for this research study and the research question is then provided. The major topics covered in the literature review, which follows, are what environment-based education is, how environment-based education impacts students, and

what teachers' experiences and knowledge of environment-based education are. Each section has been divided into smaller sections for a more in-depth review of the current literature available.

Literature Search Strategy

I conducted an extensive literature review by examining professional and research journals for the most recent research available. In conducting these searches, I focused on outdoor classrooms and teaching and used various databases including ERIC, Google Scholar, and SAGE. The search key words included *outdoor classrooms, outdoor education, nature and education, inquiry in science, science, nature, teaching outdoors, teacher beliefs about teaching outdoors, environmental education, early childhood education, developmentally appropriate practices, elementary science education, nature deficit disorder, school gardens, and place-based education*. The keywords chosen are related to the research question and the conceptual framework.

Conceptual Framework

A person's view of the world comes from personal experiences encountered throughout the person's life (Piaget, 1970). These experiences create the beliefs and attitudes that form the person's perception of the world. What a person believes and is concerned about in relation to the natural environment may come from personal experiences in the environment or the belief that a person is part of nature (Schultz, Shriver, Tabanico, & Khazian, 2004). Arcury, Johnson, and Scollay (1986) found that a person's belief toward the environment has an impact on what that person understands or knows about the environment.

If teachers develop their belief system according to life experiences, educational training, professional development, and personal teaching experiences (Ernst, 2014), then an examination of their experiences in nature may reveal connections for creating belief patterns and how these beliefs determine the choice to use environment-based education. The theory of environmental education commitment by Shuman and Ham (1997) and environmental cognition theory by Kaplan and Kaplan (1982) both focus on how a person's life experiences create his or her belief system. Shuman and Ham suggested that the life experiences of a teacher had an impact on determining whether or not the teacher values teaching environment-based education regardless of the barriers encountered for teaching. In accordance with Shuman and Ham's (1997) theory of environmental education commitment, Ernst contended that teachers who taught environment-based education did so regardless of the barriers. These teachers found ways to get around the barriers depending on their levels of commitment to teach using environment-based education.

According to Kaplan and Kaplan (1982), these life experiences and beliefs about teaching environment-based education in an outdoor setting are the result of mental maps created during nature experiences throughout life beginning in early childhood. Kearney and Kaplan (1997) studied the cognitive maps of people and noted that it is these mental maps that guide people's perceptions and decisions and their behavior towards the environment. These mental maps determine how teachers choose to teach environment-based education or use the outdoor classroom. Teachers may respond to their

environment based on his or her personal experiences and then categorize these experiences in relation to positive and negative experiences through mental maps.

My rationale for choosing both theories as the conceptual framework stems from each theory's emphasis on early experiences as forming later beliefs and practices. It follows that these beliefs and practices may form cognitive maps that direct the environmental behavior of teachers. These early experiences do not have to be related to early childhood experiences but can be early experiences in the teaching profession or at any other time. The nature experiences that adults had in early childhood appear to be related to their environmental attitudes and behaviors in adulthood (Wells & Lekies, 2006). The following sections include brief overviews of Shuman and Ham's (1997) theory of environmental education commitment and Kaplan and Kaplan's (1982) environmental cognition theory. In each section, I sought to draw out the connection between these two theories and how they related to the experiences and barriers of teachers for using outdoor classrooms.

The Theory of Environmental Education Commitment

The theory of environmental education commitment (Shuman & Ham, 1997) is similar to Bandura's (1997) theory of self-efficacy in reference to a person's life experiences and how these experiences impact a person's belief of whether or not he or she can do something, in this case, teach environment-based education outside in a natural environment. Self-efficacy beliefs, according to Bandura (1986), encompass how a person looks at his or her own competence to do a certain jobs. Bandura (1997)

suggested that what teachers believe about their own ability to teach something also affects their motivation and behavior to teach, in this case, environment-based education.

In their theory of environmental education commitment, Shuman and Ham (1997) proposed that teachers' outdoor experiences in life have an impact on choosing whether or not to teach environment-based education regardless of existing barriers. Shuman and Ham suggested that it was these nature-based outdoor experiences that served to shape a teacher's belief. It is these beliefs, according to the theory, that bring about the kinds of attitudes a teacher has for teaching environment-based education along with his or her subjective norms and normative beliefs, and how much control a teacher perceives as having in relation to teaching environment-based education. A teacher's life experiences, according to Shuman and Hamm, can be developed in any of the three stages of a person's life: childhood, young adulthood, and adulthood. Experiences that influence outdoor behaviors and beliefs can come from one or all three stages of a person's life. Shuman and Ham stated that both the life stage and life experience were important in deciding what factors are influential in determining a teacher's commitment to teaching environment-based education. Teachers who grew up with high exposure to nature experiences in comparison to teachers who became interested in using the environment as an integrating context through a workshop, for example, may have different levels of commitment to teaching and overcoming barriers to teaching outdoors.

Environmental Cognition Theory

Environmental cognition theory is based on the cognitive map theory by the cognitive psychologist team of Kaplan and Kaplan (1982). Environmental cognitive

maps are mental maps people make of their environment that come from or are based upon their experiences (Kaplan, 1973). These mental maps are not drawn out like a highway map. Cognitive maps are, according to Kaplan and Kaplan (1982), “hypothesized knowledge structures embodying people’s assumptions, beliefs, ‘facts,’ and misconceptions about the world” (p. 580). A person’s beliefs and assumptions provide the framework on how that person understands the new information and how he or she reacts to it.

Cognitive maps that a person is operating with in the present can determine how well he or she receives new information. It determines if the new knowledge is understood and how well it is received by the person (Kearney & Kaplan, 1997). A person’s environmental cognitive map is a construct of that person’s environmental life experiences that helps him or her know his or her environment. These life experiences form a person’s belief or opinion about the environment. If a person reaches adulthood with all positive experiences in nature, his or her environmental cognitive map will have opinions, ideas, and beliefs that are positive about the environment. I have noticed with our school that, even though we have an outdoor classroom, there are many teachers that decide not to use it. A teacher’s choice to not use the outdoor setting may go back to his or her environmental cognition map, i.e. his or her thinking about the school’s outdoor classroom and his or her experiences in nature, which could relate to his or her beliefs about using the outdoor classroom.

These two theories were used to develop interview questions that examined the experiences in nature of teachers to determine if barriers for using outdoor classrooms

were developed from negative nature experiences. Both theories point to a person's early experiences as helping him or her develop his or her own beliefs and actions regarding something, in this case, using the outdoors as a context for learning. Using the conceptual framework, this research study looked at how a teacher's experiences in nature may impact the choice to not use outdoor classrooms.

Without the experiences for using environment-based education, it will be harder for the teacher to "carry out the interdisciplinary approach with an emphasis on science and the outdoors" (Eick, 2012, p.799). A teacher's beliefs and experiences about using the outdoor classroom play an important part in the way a teacher organizes this knowledge and information and how it will be used or implemented later. These beliefs and experiences are essential for helping teachers understand and make sense of his or her world as he or she reflects and organize his or her knowledge (Moseley & Utley, 2008; Schommer, 1990; Taylor, 2003; Taylor & Calderelli, 2004). What teachers believe about his or her experiences affect how he or she teaches. "Teachers, like students, interpret experiences through the filters of their existing knowledge and beliefs. A teacher's knowledge and beliefs-about learning, teaching, and subject matter-thus, are critically important determinants of how that teacher teaches" (Putnam & Borko, 1997, p.1228). Research has shown that early childhood educators' teaching beliefs play a critical role in teaching, since their values or beliefs would be reflected in the instructions and passed on through children's learning" (Chou, 2013; Tien & Hung, 2011).

When looking at a teacher's beliefs for implementing environment-based education, it is essential to understand how a teacher determines the importance for using

the outdoors to teach academic content to students. One study pointed out that the experiences a teacher had as a child with the outdoors and nature have a significant impact on that teacher's decision to implement environment-based education. "Direct experiences with nature as a child through lessons passed on by a prominent adult, inspiring teachers, and memorable field trips can have a significant influence on an individual's environmental attitude and behavior" (Chawla, 1999, p.329). Some people are influenced by their life experiences while others are not. It is important to find out if life experiences are the reason many educators decide not to take their students outside. If this is the case, it is important to get students outside and use positive experiences for learning with students.

Rogoff's theory of participatory appropriation (1990) in which past experiences can be understood as influencing current beliefs and activities may come into play with teachers and their implementation of environment-based education. Blatt & Patrick (2014) discusses this theory with their findings when they state, "It follows that preservice teachers who have had positive experiences in nature which have led to their own learning, creativity, and relaxation, would want to pass these types of experiences to their students" (p.2260). Both theories go well with Shuman & Ham's theory of environmental education commitment (1997) and Kaplan & Kaplan's environmental cognition theory (1982) in which a teacher's previous experience with natural surroundings plays a part in the teacher's decisions about implementing environment-based education through the school's outdoor classroom.

The connection between early childhood experiences in nature and adults continued experiences may impact if and how the adult chooses to pass on nature experiences to students and to his or her own children. It is possible the more nature experiences a teacher had as a child may transfer to the teacher using the environment as an instructional tool with his or her students (Ernst, 2014). Earlier studies have focused on the relationship between early childhood experiences and pro-environmental behavior and have found a correlation between time spent in nature and ecological behavior (Asah, Bengston, & Westphal, 2012).

One research study that examined nature experiences and adults mentioned how their participants “often referred to and appeared nostalgic about their own experiences of the outdoors as children...” (Maynard & Waters, 2007, p.259). Other research studies support the impact that early experiences in nature may have in leading adults to continue to foster environmental stewardship with younger generations (Bruyere et al., 2012; Cheng & Monroe, 2012) Still other research studies maintain that experience is a central feature for teaching and learning using nature as the context. These experiences start in early childhood and continue into adulthood (Cutter-Mackenzie & Edwards, 2013).

Literature Review Related to Key Variables and/or Concepts

Environment-Based Education and Outdoor Classrooms

The use of environment-based education and outdoor classrooms is supported by the research literature (Lieberman, 2013; Lieberman & Hoody, 1998; Magntorn & Hellden, 2012; Eick, 2012). However, many teachers are not using the outdoor classrooms at schools that have an outdoor classroom available (Bahun, 2010; Ernst,

2007, 2012, 2014). Some studies determined that factors within the schools created barriers such as administrators or curriculum that prevented teachers from using the environment for teaching (Ernst, 2014) or lack of knowledge about the outdoors (Esa, 2010). Other studies found outside factors played a key role in determining a teacher's decision not to use the outdoor classroom such as phobias related to insects and animals or getting dirty (Bahun, 2010).

In this literature review I explored the research on the many facets of environment-based education and the use of outdoor classrooms. The first section includes research on the use of environment-based education and outdoor classrooms. This is followed by a discussion of the benefits of using environment-based education. Research on how environment-based education can be integrated into the general academic programs is next. Finally, in the last section I examined challenges concerning teacher use of outdoor classrooms. Chapter 2 concludes with a discussion of the gap in research related to teachers' perspectives in decision to use or not to use environment-based education through outdoor classrooms.

Research on environment-based education and outdoor classrooms. One innovative way to reach and teach students is using outdoor classrooms. Outdoor education or outdoor learning, also referred to as environment-based education, involves the use of natural areas outside the school building to teach academic content using the environment. Outdoor education has been defined as “an experiential method of learning by doing, which takes place primarily through exposure to the out-of-doors” (Priest, 1986, p. 13). According to Tan and Atencio (2016) schools are beginning to consider

using outdoor classrooms to promote student learning beyond the classroom walls. The main goal for using an outdoor classroom is to create an outdoor learning area that will contribute to student learning success and provide students with meaningful experiences in both nature and constructed environments, especially since technology and print are the dominant ways to transmit knowledge (Knapp, 1996; Wilhelmsson, 2012). Other studies have found the use of outdoor classrooms supported academic standards in a substantial way and had a positive impact on teacher-student and peer relationships (Burris & Burris, 2011; Mygind, 2009). Studies conducted by Fuller (2012) have led this researcher to believe taking students outside to conduct fieldwork provides a cognitive advantage for these students. The field (or outdoor environment) provides the scenario for the student to contextualize his or her learning using real life or real-world settings. It is also the place students can acquire and build life skills and learn to enjoy their environment.

Interest in using outdoor classrooms or school gardens has been increasing over the past twenty years. An interest in nature as a pedagogical choice in education is experiencing “a renaissance of sorts” (Torquati, Cutler, Gilkerson, & Sarver, p.721, 2013). In the United Kingdom, the Education and Skills Committee investigated how education outdoors impacts student learning. The committee found value in using the outdoors to teach skills and academic content (British House of Commons Education and Skills Committee, 2005). It was found the Office for Standards in Education in the United Kingdom concludes and promotes the use of outdoor classrooms and stated, “Outdoor education gives depth to the curriculum and makes an important contribution to

students' physical, personal, and social education" (Office for Standards in Education, 2004, p. 2). Other countries such as Norway and Finland promote nature-based education through forest schools. Forest schools originated in Scandinavia and are inspired by the ideas of Froebel (1895). Forest schools allow the opportunity for young children to learn and experience the outdoors in all seasons and all weather. Children are encouraged to play and explore in the natural environment. One of the aims of a forest school in England is to modify the educational curriculum to fit the learning styles of the students (Bridgewater College Forest School, n.d.). Forest schools are structured around content standards but still allow for play to be the primary way students learn in a stimulating environment (Maynard, 2007).

The concept of using school gardens is based on hands-on, constructivist learning. Students are able to apply knowledge to real life problems and situations through their work outdoors in the garden (Feille, 2013; Klemmer, Waliczek, & Kajicek, 2005). The constructivist learning approach is important as it "gives priority to the active mental life of the child in ways that children construct increasingly more adequate ways of understanding their world and of acting upon it" (Kahn, 1999, p. 213). When children are allowed to experiment and problem-solve through hands-on activities, their abilities improve to choose the activities and experiences that mean the most to them and that they will learn the most (O'Brien & Murray, 2007; Thanasoulas, 2006). The natural environment surrounding a school provides an area where students can choose what they want to learn about and work on academics at the same time.

Benefits of using environment-based education. The benefits of using environment-based education may help improve low standardized test scores, unmotivated students, high absentee rates, poor or off task behavior, and students not being able to relate what they are learning in school to the real world. Research studies have shown that even though environment-based education is ignored or discounted within schools, environment-based education offers solutions to the challenges teachers face (Ferreira et al., 2012; Lieberman, 2013). Along with the benefits previously stated for teachers, other benefits for using environment-based education are students increased ability to think creatively and critically when solving problems, a renewed interest for learning, and fewer problems with youth in the community due to student involvement in solving community problems and active and engaged citizens (Cengelci, 2013; Fagerstam, 2014; Lieberman, 2013). Research from both qualitative and quantitative studies across multiple disciplines provides much evidence about the beneficial aspects of garden programs and outdoor classrooms (Blair, 2009; Ozer, 2007; Robinson-O'Brien, Story, & Heim, 2009; Ratcliffe et al., 2010; Skinner & Chi, 2012).

Meaningful connections. One of the benefits for outdoor classrooms is the ability for students to connect what they are learning to something that is useful or meaningful. Research studies have shown using school grounds as an extension for learning has provided learning in more interesting and applicable ways for students. “Outdoor education can be understood as integrating life and learning in all educational stages” (Cengelci, 2013, p.1836). Research studies have shown the use of school grounds as outdoor arenas for learning and provide a more realistic and meaningful way to learn in

contrast to indoor, book-centered classrooms (Dyment, 2005, p.30). “One of the goals of teaching is to lead learners toward meaningful learning” (Yavetz, Goldman, & Pe’er, 2014). Students enter the classroom with their own beliefs, values, ideas, and views about their world. These understandings reflect their experiences. Using the environment as a context for learning can lead students to take these experiences and make meaning with what is being taught. Outdoor classrooms are places that have the power to engage students in meaningful activities that help them make sense of their world (Humberstone & Stan, 2012).

Earlier studies have determined that it is essential that schools and teachers realize how the environment and academic content can be integrated and provide a learning context that is rich with meaningful connections (Johnston, 2007,2009). When something is made meaningful, students will remember it. Regarding learning, people need to transfer information from short-term to long-term memory and for this to happen the new information must be meaningful in some way. If any new information that is presented cannot be made meaningful or relevant to the student, the neural networks needed to create that long-term memory cannot be formed (McGeehan, 2001). If the student cannot connect the new learning to something meaningful or of value, his or her brain will simply disregard the new learning and fail to move the new learning to long-term memory. “New input must carry emotional value and useful content, or the brain efficiently ignores it” (McGeehan, 2001, p.11).

Recent studies in neuroscience have found that the relationship between emotions and cognition is closely intertwined, and that this relationship and how it effects learning

should be taken into consideration (Fagerstam, 2014; Immordino-Yang, 2011; Immordino-Yang, Damasio, 2007). All humans try to make sense of their world by connecting it to background knowledge, personal experiences, cognitive understanding, and conditions of learning (Rushton et al., 2003). This new learning needs to be connected to something a person already knows. A study on brain-compatible learning found that “Educators who involve their students in meaningful ways with the world around them increase their students learning” (McGeehan, 2001, p.12). Using outdoor classrooms can provide meaningful contexts for learning. Taking students outdoors and using environment-based education provide opportunities for such increases in student learning (Lieberman, 2013). Students have the capability to conduct “real” research in an outdoor classroom. For schools with an outdoor classroom, students have the ability to test theories, conduct math studies, make scientific observations and collect data. The outdoor classroom changes lessons that were once conducted theoretically within a classroom and transforms the lessons into real-world and hands-on learning activities (Rye et al., 2012).

Multisensory learning. In an outdoor classroom, students can use all of their senses to create, problem-solve, and inquire about their environment. These experiences promote a learning environment that can enable students to connect their indoor classroom learning with real life. Studies have shown when people come into actual contact with plants and animals during an outdoor learning experience, they are able to recall learned material, and they are more motivated to learn (Bogner, 1998; Lieberman & Hoody, 1998; Orion & Hofstein, 1994). The results focus on the benefits of real

contact with plants and animals and learning and how this interaction with plants and animals correlates strongly with memory and, as a result, enhances the retention and recall of learned material and promotes the motivation to learn (Scott et al., 2013; Wait, 2007).

According to Wait and Pratt (2011), when using outdoor classrooms students have the opportunity to experience where things occur naturally in the outdoors as opposed to bringing artifacts into the classroom. By bringing objects into the classroom, students have the chance to handle and use some of their senses to learn about the object, but it is the experience of taking students outdoors to the actual object in the natural environment when possible that students remember and learn more. It is these outdoor experiences that promote the authenticity of an object or lesson rather than just seeing or being told about it.

The multisensory experiences students have in the outdoor classroom promote the interaction between brain areas which transfers information and new learning to long-term memory (Jordet, 2010). This same study also determined that learning is enabled when direct experiences made by the students are discussed or articulated with others, so students need to collaborate with others and talk about what they are learning or have learned to promote this transfer to long-term memory. The natural environment may enhance learning through the combination of nature and learning experiences. The combination of knowledge and experience activates all the senses when using nature to teach (Wilhelmsson, Ottander, & Lidestav, 2012). These types of learning experiences are different from the learning experiences found in a more abstract indoor classroom.

In O'Brien and Murray's (2007) study children were encouraged to use their all their senses as they explored an outdoor setting. The researchers found "the children became eager to discover things for themselves and were motivated to learn...in doing this they were able to make meaning of what they were discovering" (p.259). The researchers observed the children and stated, "the tactile nature of the woodland environment is important, and it was clear that the children enjoyed touching and feeling what they found around them" (p.259). This supports the research studies connecting emotion, motivation, and making meaningful connections to the new learning (Collado & Corraliza, 2015; Humberstone & Stan, 2012; Lieberman, 2013; O'Brien & Murray, 2007; Scott et al., 2013). According to Pearce and Chilton (1977) the natural environment is an "everlasting and dynamic stimulator because children perceive the natural world through their primary perceptions which are based on their sensory-directed experiences" (p.8). Pearce and Chilton later stated that this interaction between the child and the natural world is "natural, inseparable, and critical to the child's developing brain and intelligence" (p.8). Pearce and Chilton's (1977) study supports a study by Sebba (1991) that found children need to form "sensory connections with nature to maximize cognitive learning experiences" (p.395). It is through these nature experiences that rich sensory connections are made which are extremely important in the development of sensory integration processes in young children (Wilson, 2012).

Motivation. Additional benefits include building motivation for students who enjoy being outside and are curious about what they find in nature. One study revealed when children could interact with the outdoor environment using all their senses, the

children enjoyed learning, and this can be a major factor for motivating children to learn (O'Brien & Murray, 2007). A study supporting O'Brien & Murray indicates students were more motivated to attend college and earn a four-year degree when attending schools using environment-based education (Collado & Corraliza, 2015). These same students were more inclined to earn more merit awards and have higher grades and fewer criminal activities than students that attended schools not using the environment as a tool for teaching.

Movement. The ability to move differently can impact attention and social skills within the learning experience. Sobel (2008) and Louv (2008) discovered in separate research studies that many students today are not very knowledgeable about their local outdoor surroundings. This lack of knowledge was termed “nature deficit disorder” by Louv in 2005. Getting students outside the classroom walls will cause students’ attention levels to improve and enable students to learn more easily. “Natural environment’s numerous affordances catch children’s attention easily and learning new things is effortless” (Laaksoharju et al., 2012, p.201). Other researchers found that when students were outdoors they exhibited less boredom and fewer behavior problems among themselves and between themselves and their teachers (Mannion, Fenwick, & Lynch, 2013; Mygind, 2009).

Outdoor classrooms provide opportunities for students to move around without being confined to tables or desks. “Movement is connected to children’s physical, intellectual, and emotional development...children are able to express their emotions through movement” (O'Brien & Murray, 2007, p.259). Research conducted by the United

States Health Department (2007) found students who are obese or overweight can contribute to this lack of physical activity. This lack of activity results in little time spent in outdoor activities and increased amounts of time using technology (Arnold, 2012).

Social skills. The results of one study indicated that the garden provided opportunities to build social skills including how to behave and build friendships as well as building skills and confidence (Laaksoharju et al., 2012). A similar study found more evidence of positive outcomes of children working in an outdoor environment. The results of that study found “children demonstrated higher levels of motivation and interest in learning about the environment than children who did not have an outdoor learning experience” (Drissner, Haase, & Hill, 2010, p.47).

Behavior. When children are exposed to the outdoors and engaged with activities involving their surroundings, their behavior improves. Students have better emotional health, decreased stress, and decreased amounts of aggression (Nedovic & Morrissey, 2013; Ozer, 2007). A research study focusing on outdoor learning spaces and children found the behavior of children improved, and teachers described their students as being on task and engaged in their learning activity (Scott et al., 2013). The teachers that were interviewed in this study discussed how their students were more engaged in activities than normal. The same teachers reported that even their students who normally were off-task or were more difficult during a typical school day were engaged. Another study reported the “ability of forest schools to control anger amongst the young people with behavior problems” (Roe & Aspinall, 2011, p.6). The researchers concluded that young people with problems with behavior benefit the most by participating in activities that are

in natural settings. Parents of children with ADHD report that when their children play outside in outdoor settings, they see a reduction in ADHD symptom severity (Arnold, 2012; Taylor, Kuo, & Sullivan, 2001; Kuo & Faber Taylor, 2004). This is important because ADHD roughly affects 11% of American students (CDC, 2015), and many of these students are entering college and university classrooms. A study conducted in 2009 found “between 2% and 8% of today’s college student population registers clinically significant ADHD symptoms” (DuPaul, Weyandt, O’Dell, & Varejo, 2009, p.134).

Children who participated in outdoor learning activities felt and behaved better than students that remained in the classroom (Moss, 2012). These students worked collaboratively with others and they learned more. Moss goes on to say, “Not a bad result from simply changing the location where they are being taught” (p.9). It is believed that interaction with nature is as important to a child’s development as sleeping and eating (Elliot, 2010). Nature experiences promote the development of physical, psychological, cognitive, and sensory development and support Elliot’ claim that young children should be experiencing nature early on (Ernst, 2014).

Integration of Environment-Based Education Into Academic Settings

Environment-based education combines academic content from the traditional classroom with learning about the natural environment so that students learn how to apply their knowledge with something meaningful while learning content. Environmental education comprises of students and teachers engaged in nature and environmental issues using learning activities within school-community settings (Fazio & Karrow, 2013, p. 640). The location of the school does not matter. Teachers should consider the area

around the school as a teaching resource (Ferreira et al., 2012). In fact, Standard D from the National Research Council (1996) recommends teachers use the outdoor area surrounding their school as a “living laboratory” to support student learning. Outdoor education can be described as a “multidimensional process which presents study of constructed learning activities in outside places as community and natural settings” (Bunting, 2006, p. 1836).

By the simple act of taking students outside to teach academic content through environment-based education, teachers are providing interesting places and interaction opportunities for students to learn and apply their knowledge (Beard & Wilson, 2006; Cengelci, 2013). Teachers do not need an elaborate outdoor space that mimics the traditional classroom setup with tables and chairs. Taking students outdoors to a small patch of grass is sufficient to learn about insects, plant life, or rocks and soils. Taking students outside to see and learn about their environment is the important objective. Students will be moving around and exploring and learning how to apply their new learning in appropriate settings. Mikael, Backman, and Lundvall (2015) point out the educational value of student learning in the outdoor arena. Teachers can teach any academic content in the curriculum. The way the information can be presented is further stimulated by the fact the students are outdoors using the environment. Students are able to gain knowledge on a different level than what they would have from being inside the classroom. The teachers in the study were able to determine that students benefitted personally, socially, and intellectually through environment-based learning (Mikael, Backman, & Lundvall, 2015).

Some schools have outdoor gardens or natural areas that can be used as outdoor classrooms instead of structured or built area. The use of school-based gardens is not new to education and has been used since the creation of kindergarten. The idea to use school-based gardens for learning is founded on constructivist learning. Students can participate in hands-on inquiry and apply their learning to real life situations (Feille, 2013; Klemmer, Waliczek, & Zajicek, 2005). School gardens permit a constructivist style learning such as used by early childhood theorists as Maria Montessori (1967), Friedrich Froebel (1895), and John Dewey (1916). The use of the school garden offers teachers the opportunity to teach cross curricular using nature and the local environment (Klemmer et al., 2005; Phelps et al., 2010). John Dewey (1916) insisted that it was important to use real life experiences to connect student learning and understanding (Feille, 2013). A study conducted in Brisbane, Queensland, Australia found when teachers used the school garden as a context for learning, the students' environmental literacy over a range of learning outcomes increased (Pascoe & Wyatt-Smith, 2013). This same study found the need for more teacher backing in the use of school gardens for teaching.

Regardless of the amount of research in support of using environment-based education for academic and social achievement, it does not appear schools within the United States are implementing this practice (Ernst, 2012; Smith, 2007). It is important that teachers see and understand the importance of using environment-based education with their students. It is important for schools to make the connection between using the environment as an integrated context for learning and increased academic scores (Ferreira et al., 2012; Johnston, 2007, 2009).

Academic content. Many research studies have determined the types of subjects that can be taught outdoors is unlimited, but most teachers choose to only teach science or physical education outdoors (Dyment, 2005; Fagerstam, 2012; Sczcepanski, Malmer, Nelson, & Dahlgren, 2007). Research studies have determined that many of the skills used in social studies such as observation, social participation, use of information technology, perception of place, time and chronology, change and continuity necessitate the use of knowledge outside of the classroom (Bakanligi, 2004). Using the outdoor classroom provides a new and interesting venue to teach life skills rather than academics without real life applications. Students can take what they learn and apply it. “Based on the findings in this study, the environment’s affordances can teach useful life lessons to a child, and the information and knowledge that are attained through the senses by investigating the surroundings can be shared immediately in a group” (Laaksoharju et al., 2012, p.201). Students learn the skills of collaboration as they investigate, problem-solve, and share their findings during the inquiry-process. The natural environment provides the perfect arena for collaborative activities in which the development of knowledge, concepts, and skills from across the curriculum are entrenched within authentic, inquiry-based learning that results in purposeful and often real-life tasks (Maynard & Waters, 2007). As children build forts and dens, dam up creeks, and grow gardens, they are learning academics such as math and science. They are also learning how to collaborate with others. Large projects, like garden areas, require students to design and build from the ground floor to the finished product. These types of projects necessitate the use of

skills that cannot be developed within a classroom. Some skills may involve experiences in getting the community involved.

Earlier research studies indicated the subject a teacher taught made a difference in helping determine if teachers used environment-based education. Teachers that taught science were more likely to use the environment to teach content over teachers that taught language arts or math (Borg, Gericke, Hoglund, & Bergman, 2012). Dymont (2005) stated that “instead of seeing subjects as discreet entities, students experience first-hand the interconnections between subjects like mathematics, language arts, and science, as skills are often required from many subjects to complete a task in the outdoor classroom” (p.30). By working in an outdoor classroom, students can apply their learning to their daily lives outside of school. These experiences in the outdoor environment improve critical thinking skills, and they also provide the opportunities for ethically and sustainable action initiatives that are based on these outdoor experiences (Frances, Page, & Lloyd, 2013).

These first-hand experiences in which students are actively involved in their own learning out of doors is important in developing self-discovery skills. Outdoor experiences will provide opportunities to develop a student’s confidence in the ability to instigate the his or her own inquiry, observational and discovery skills. This will lead to students building self-efficacy beliefs about the construction of their knowledge and help students develop the skills and abilities needed to make sense of the world in which they live. Frances, Page, and Lloyd (2013) also found that when students remained inside and relied on textbooks and technology, “many of these skills remain undeveloped if they are

limited to second-hand information and virtual knowledge of ecological and environmental experiences” (p.29). Using the outdoors as an integrated context for learning may also enrich learning as it combines many aspects of learning together.

Real world learning versus virtual world learning. Research studies by Arnold (2012) and Prensky (2003) determined that students from the Net Generation do very well at researching and collaborating using web-based technology. Most students do very well using the internet to find information but not so well in creating ways to find information using their own skills. Wirth & Rosenow (2012) found “a rich outdoor learning environment allows children to connect their learning activities indoors (reading books about insects) to their experiences outdoors (observing insects). Children experience the real-world hands-on rather than as a virtual world” (p.45). By combining information from web-based technology, textbooks, and other indoor classroom tools with hands-on experiences from the outdoor classroom, students can apply their background knowledge to developing inquiry skills for future use. It has been found when students are working in the outdoor classroom, the materials are “real, open-ended, and accessible. Children can repeat self-initiated experiments and refine skills at their own developmental pace until they achieve mastery” (Bohling, Miller, & Saarela, 2010, p.64).

Inquiry-based learning opportunities. Inquiry based learning can be described as an instructional strategy where students replicate the professional behaviors of scientists to construct knowledge of what it is the students are studying (Keselman,2003). There is not a standard definition of inquiry-based learning but researchers Wu & Hsieh

(2006), developed their definition for inquiry-based learning as “a question-driven learning process involving conducting scientific investigations, documenting and interpreting narrative or numerical data, and summarizing and communicating findings” (p.1290).

Use of the outdoors has been recognized as ideal for students as it allows students to conduct inquiry and explore the world around them. Students can use their senses to learn about their surroundings in an engaging way. The natural environment surrounding schools has always been recognized as the perfect setting for children to explore and learn freely without the constraints of rules that are required for inside the classrooms (Stan & Humberstone, 2011). Students are engaged in their own learning through inquiry in the outdoor classroom.

As children make repeated trips to the outdoors to explore, they became familiar with their surroundings and begin to acquire knowledge of the plants and animals found there (Jorgensen, 2016). This leads to children developing “a curiosity about the unfamiliar things they find around them and are inspired to ask questions about them” (O’Brien & Murray, 2007, p.259). Yurt et al. (2010) stated, “...natural habitats offering children to use their scientific process skills and the opportunity of direct interaction should be used rather than the environment where structured activities for the education of environment are offered in a planned way” (p.4981). This research study found that “natural life is the place where learning is performed most rapidly” (Yurt et al., 2010, p.4981). Inquiry-based learning requires active learning on the part of the student and it

also requires the student to discover knowledge that is new to them (De Jong & Van Joolingen, 2008). Outdoor classrooms provide the elements for inquiry-based learning.

Standardized testing. Since No Child Left Behind (NCLB) legislation was enacted in 2001, the focus of education has been on increasing standardized test scores (Fuller, Wright, Gesicki, & Kang, 2007). High standardized test scores are now tied to funding and school recognition in many areas. School administrators have found creative ways to provide more time for practicing and learning content to keep their school funding and positive recognition (Spohn, 2008). One of these ways is to decrease the amount of time students spend outdoors (Louv, 2008) and recess (Minarechova, 2012; National PTA, 2006). The effect of measurable time spent indoors has led to higher incidences of behavior problems, lack of motivation for learning, high numbers of absences, lack of problem-solving ability and creativity, among other behaviors that impact learning (Barros, Silver, & Stein, 2009; Blair, 2009; Kellert, 2012). Other research studies support undeveloped or under-developed cognitive skills of students that are taught using traditional methods for teaching to tests. As new curriculum is developed that focuses on test prep to attempt to increase test scores less attention is given to garden-based instruction. “This over-emphasis on fact-based knowledge creates a weakness in a student’s processing and critical thinking skills” (Blair, 2009, p.19). Feille (2013) stated, “The garden stands as an intervention to fact and test-based teaching” (p.4).

With the emphasis on increasing standardized test scores, much of the focus has been on reading and math, with little attention placed on science, social studies, or the

arts (Minarechova, 2012). “Further, the current U.S. emphasis on state standards and testing has often resulted in teaching subject areas in isolation, a textbook-oriented curriculum, and a tendency to abandon programs that are viewed as extra-curricular despite their valuable learning opportunities” (Franklin, 2004, p. 73). This type of teaching leaves little room for going outside and allowing students to learn through hands-on experiences or being creative in problem-solving.

In 1998, the State Education and Environmental Roundtable (SEER) in California conducted a study on environment-based education and the effects on student standardized test scores. SEER found that students involved in environment-based education programs increased their standardized test scores in social studies, science, language arts, and math. These same students also increased their grade point averages and developed problem-solving, critical thinking, and decision-making skills (Lieberman, 2013). A study conducted in England by the education and skills committee supports the study by the SEER as it found that environment-based education was valuable in supporting both academic learning and social skills of their students (British House of Commons Education and Skills Committee, 2005).

Many standardized tests are computerized, so students sit in front of the computer screen taking the test. This increased computer time reduces the amount of time that students have to get up and move around. Students are not interacting socially with others during this time. It is important for young children to learn to recognize characteristics of face-to-face communication such as eye contact and pointing as they develop social skills. Pre-teen adolescents who spent time away (five days) from screens

and spent daily time interacting face-to-face had a significantly increased ability to read facial emotions over those students that maintained daily screen time use (Uhls, Michikyan, Morris, Garcia, Small, Zgourou, & Greenfield, 2014). The results of this research study regarding pre-teen adolescents and media use suggested that media use, even when using social media, could reduce the amount of time spent that is needed for developing the ability to read nonverbal facial and body cues (Uhls et al., 2014).

Research demonstrates an increased amounts of computer screen time does change the behavior and cognitive skills of humans. A study conducted by Ophir et al (2009) surveyed more than 200 university students about types of media they currently use, including print media and internet usage. The students who reported high use of multiple types of media had a more difficult time filtering out distracting information in their environment, and they were more likely to be sidetracked by unrelated information stored in their memories. These students had more difficulty switching back and forth from one task to another, or multitasking. These results were from answers that college-age students were providing. Other studies have made connections between large amounts of time spent using technology to attention problems in class, attention deficits, visual memory impairment, imagination and creativity issues, sleep problems, social and behavior problems as reported by teachers in today's classrooms (Swing et al., 2010; Kumari and Ahuja, 2010; Dworak et al., 2007). Furthermore, media devices such as computers and mobile tablets are quickly being dispersed into classrooms as early as kindergarten (Partnership for 21st Century Skills, 2009; Rotella, 2013) with little regards for the potential costs in the future development of students (Cuban, 2001).

Even though research has shown a positive relationship between environment-based education and academic success in students, teachers are not using the outdoor environment surrounding the school (Bartosh et al., 2006; Engels & Jacobson, 2007; Ferreira, Gruber, & Yarema, 2012; Stepath, 2005). Despite these findings, researchers have found that students do not have many opportunities for learning outside their classrooms (Mannion et al., 2013; O'Donnell, Morris, & Wilson, 2006; Power et al., 2009). A study conducted by Stevenson (2007) found that in schools “environment-based education is a demanding endeavor often in conflict with the dominant purposes, structures, and practices of schooling” (p.140). Stevenson’s finding was termed “Stevenson’s gap” by researchers Barrett-Hacking, Scott, and Barrett (2007, p.641). Some researchers believe Stevenson’s gap is the reason most schools do not implement environment-based education. It interferes with the traditional teaching methods commonly used in schools today (Fazio & Karrow, 2013; Saylan & Blumstein, 2011).

Challenges to Teachers’ Use of Outdoor Classrooms

The following section will examine the literature available about concerns teachers communicate for using outdoor classrooms. These concerns are grouped as four main challenges: challenges in curriculum, people related challenges, fear of things found outdoors, and training and evaluation challenges.

Curriculum challenges. Teacher resources for implementing outdoor learning activities is frequently cited as one of the barriers that prevents teachers from taking students outside to learn (Edwards-Jones, Waite, & Passy, 2016). Spence, Wright, and Castleden (2013) found teachers had problems locating appropriate content material for

teaching outdoors outside of what could be located on the internet. These teachers believed resources were available, but they just needed to locate them. Finding time to locate materials and create lesson plans posed another challenge once materials were located (Dyment, 2005; Edwards-Jones, Waite, & Passy, 2016).

Standards. State standards and specific curriculum topics were also cited as a barrier for teaching environment-based education. Teachers have a set of academic standards that are required to be taught. Research has brought to attention some of the problems of high-stakes testing in which teachers are required to align what is taught to specific goals, standards, and evaluation scores (Edwards et al., 2016; Passy, 2014; Waite & Pratt, 2011; Ball, 2003). These problems require time and planning to achieve the desired outcomes. To reach and maintain goals, standards, and evaluation scores, some schools have curriculum calendars or academic frameworks that teachers use to plan lessons. Many elementary schools require teachers to plan lessons as an entire grade level following a curriculum calendar. The purpose for following curriculum calendars and frameworks is to help teachers cover specific subjects and academic standards during a set time frame. The teachers interviewed in a study conducted by Spence, Wright, and Castleden (2013) pointed out that the students were expected to learn specified academic material during the timeframe available and teachers were supposed to cover each standard in a timely manner. This same study revealed that the number of standards to cover and the broad interpretation of the standards posed even more difficulty for implementing studies in the outdoors. A different study found one of the main barriers for using environment-based education is the structure of the curriculum. The curriculum is

already set and no one can deviate from the it (Sosu, McWilliam, & Gray, 2008).

Students are pushed through the standards using exams and levels to show their learning in core subjects such as mathematics and English (2008).

Educational policies and pre-made curriculum. Another area discussed as a potential barrier for the use of environment-based education is the educational policies and curriculum materials that are used in the schools already. These policies and materials are normally created outside of the classroom by people that are not educators, or they have not worked in a classroom in years. These policies and materials then become looked at as just another thing to do or teach in an already crowded day, so they are not given the same focus that a typical core subject would get (Spence et al., 2013; Hart, 2003; Russell et al., 2000). Other teachers pointed out the lack of time to create curricula to teach outdoors due to the need to keep up with the current curricula already required. Teachers did not feel they had enough time in the school day to create and then implement new curricula for use in the outdoor classroom even if the new curriculum would be interdisciplinary and cross-curricular (Borg, Gericke, & Hoglund, 2012).

Test scores. Many of the public schools today rely on funding that is tied to such programs as Race to the Top and No Child Left Behind. For these schools to receive funding, high standardized test scores must be maintained. “Public schools in the U.S. are driven by a back to basics push that holds students to high levels of accountability on state and national standardized tests” (Feille, 2013, p.4). Schools are being run like businesses with test scores being the final product. “Accountability is big! Our product is our test scores!” (Thorp & Townsend, 2001, p. 353). With such importance being placed

on high standardized test scores, teachers may choose to keep students in the classroom to focus only on testing material to maintain or increase test scores. Because of reliance on test scores for pay raises, job evaluations, etc., teachers have a difficult time realizing that environment-based education can be combined with classroom content to meet state standards (Ferreira, Gruber, & Yarema, 2012; Parlo & Butler, 2007). Other research studies maintain teachers frequently mention the pressure they are under to teach only content standards and what will likely be tested as a reason for not taking their students outside to teach environment-based education (Ferreira, Gruber, & Yarema, 2012; Johnston, 2009; Parlo & Butler, 2007). This leads to the point that some schools not only restrict student breaks but also downplay subjects and classes that are not tested on national standardized tests (Minarechova, 2012).

People challenges. In addition to curriculum challenges, there are challenges associate with people including the school personnel, administrators, and the students. This next section includes research on those aspects of the challenges.

School, teachers, and students. Having the involvement and support of the entire school was stated as a potential barrier to using outdoor education. Total school buy-in was “important to a more systemic instructional approach to environment-based education” (Blanchet-Cohen, Reilly, 2013, p. 28). Lack of school support in the form of other teachers, students, administration, custodial support was listed as a barrier in a study conducted by Kincy, Fuhman, Navarro, and Knauft (2016) regarding predicting a teacher’s likelihood to use a school garden. Teachers cited potential problems with child safety (Ernst & Tornabene, 2012) and behavior problems (Edwards-Jones, Waite, &

Passy, 2016) for not using outdoor classrooms. Other barriers included a home and community connection or community buy-in for student use of outdoor classrooms (Blanchet-Cohen & Reilly, 2013). These connections were looked at as being important for funding and volunteers for the outdoor classroom.

Administrators. Administrator support was found to be a very important factor in predicting a teacher's use of the outdoor classroom. Many administrators, as well as teachers, do not see the surrounding outdoor environment as an extension of the classroom with possibilities for learning. Several studies support the fact that many administrators view the playground as having little value other than for play (Bjorklid, 2005; Norodahl, Ingolfur, & Johannesson, 2016). In a study involving teachers teaching environment-based education, the researchers found a common barrier was positive administrator support. It was found the principle role of administrators in using environment-based education was to mobilize and support teachers (Blanchet-Cohen & Reilly, 2013).

Teacher beliefs. Since using the outdoor area surrounding the school is not listed as a best practice for teaching strategy, few teachers are using these outdoor areas. Norodahl, Ingolfur, and Johannesson (2016) conducted a research study about teachers' views on using the surrounding outdoor environment at different schools in Iceland. "It is interesting to note that often the outdoor environment, or schoolyard, most accessible in the compulsory school is not seen as part of the teaching environment" (Nordahl, Ingolfur, & Johannesson, 2016, p.394). Feille (2013) found "Not many teachers use the outdoors as a teaching tool" (p.4). It may be that some teachers do not believe it is

beneficial to take students outside to learn except to teach science concepts "...some educators may simply feel environmental education is not appropriate for their instructional setting or not an effective topic for teaching" (Ham & Sewing, 1988, p.18). A teacher's beliefs about teaching outdoors and using the environment as a teaching tool are intertwined with the his or her attitudes about the outdoors. How and what teachers believe have a tremendous impact on their behavior in the classroom (AL-Dajeh, 2012; Carrier, 2009; Feille, 2013; Moseley & Utley, 2008; Pajares, 1992). A teacher's belief is a "strong determinant of persistent action in the classroom" (Pajares, 1992, p.317). A person's beliefs and attitudes are basic determinants for what a teacher may choose to teach and how he or she chooses to teach it. "These beliefs and values provide the submerged "bulk of the iceberg" upon which any particular teaching techniques rests" (Pratt, 1998, p.16).

Confidence in teaching outdoors is an important factor as one study discovered. These teachers felt better and more secure teaching in their own classrooms because they felt like the experts (Scott et al., 2013). They were the experts or leaders in their classroom. When these same teachers went outside to teach, it put them on the same playing field as the students because of their lack of knowledge about the outdoors. The teachers were no longer the experts. In a supporting study regarding environment-based education researchers found teachers are directed to teach according to what they know and value (Wilhemsson, 2012).

Teacher interest and support. For teachers to implement environment-based education with students, teachers must have an interest in doing so. It is extremely

important that people are interested in connecting children and nature. Comments by researcher regarding the results of their research study found that “Genuine interest in having students exposed to nature and natural science is essential on the part of the instructors and parents” (p.338). The authors from this same study go on to make the statement, “Having this support provides the basis from which to build an effective environment-based education program and is consistent with Ernst (2007) prior work that most educators incorporate environment-based education because it’s important to them” (Bruyere et al., 2012, p.338).

Research has shown that early childhood experiences in nature influences the behavior and attitudes for later life experiences and attitudes (Maynard et al., 2013; Smith, 2007; Sobel, 2004; Waite, 2007). Regardless of the research, the amount of time children in the United States spend outside in the natural environment continues to decrease. This decrease concerns many people in relation to how this lack of outdoor time will affect the environmental attitudes of these children once they reach adulthood (Ridgers, Knowles, & Sayers, 2012; Strife & Downey, 2009; Louv, 2006). Do the early nature experiences of teachers affect their choice to use outdoor classrooms to teach students? A research study conducted by Sosu, McWilliam, and Gray (2008) concerning teachers’ commitment to teaching environmental education revealed teachers spoke about many life experiences that influenced their choice to teach or not teach using environment-based education. “The main experiences were the effect of media, childhood experiences of gardening, reading a book, outdoor experiences, and past educational experiences” (p. 184).

Another study by Bixler, Floyd, and Hammitt (2002) supports this research as they found that teachers may choose to take these early experiences and use them pedagogically in the classroom. These early experiences fall in line with Shuman and Ham's (1997) theory of environmental education commitment in which a person's previous experiences helps create his or her beliefs and future behavior. This theory is beneficial for researchers as determining why some teachers that choose to teach environment-based education differ from teachers that choose not to teach outdoors. Shuman & Ham (1997) pointed out that it is possible that early life experiences in nature, as these could be significant life experiences, could be the driving force behind teachers deciding to use or not to use environment-based education.

Teacher training and evaluation challenges. According to some of the research studies available, one of the barriers to teaching outdoors using environment-based education is teachers' lack of knowledge about or belief in their ability to teach outdoors (Kincy, et al., 2016). One research study revealed that just the thought of going outside to teach made some teachers feel less competent about teaching than if these teachers just stayed in the classroom to teach. These teachers believed they did not have sufficient knowledge or skills to teach about the outdoors (Mannion et al., 2013). "Teachers were not sure how they were supposed to teach outside" (Maynard & Waters, 2007, p.260). Two research studies that support each other point to teachers' lack of knowledge about the outdoors and environment-based learning as a reason for not using the outdoors as an extension of their indoor classroom (Ferreira et al., 2012; Tal, 2012). An additional study concluded, "Unfortunately, due to the lack of research in this area, many teacher

educators may be unaware of the rich outdoor experiences that their students (i.e. pre- or in-service teachers) may have had in their youth, also their interest in taking their own students outdoors” (Blatt & Patrick, 2014, p.2261).

This works with Kaplan and Kaplan’s (1982) environmental cognition theory since the idea behind this framework focuses on how nature can impact a person’s feelings as he or she spends time out in nature. When children spend time in nature growing up these same children may develop a comfortable mindset about nature while being outside. This can lead to adults that are comfortable spending time out of doors. As children grow up spending time outside or as adults begin spending time outside, cognitive mental maps are being created of the surrounding natural environment. These mental maps of familiar surroundings help the adult to function in the outdoor environment effectively. Being familiar with surroundings can help the adult to feel more comfortable and confident in nature (Kaplan & Kaplan, 1982). Looking at the experiences of teachers that choose not to take their students outside for learning may shed some light on this theory by sharing experiences growing up or as adults in nature.

Many teachers believe that teaching outdoors is for science or physical education courses only. Lack of knowledge and misconceptions about using environment-based education comes partly from not enough, if any, training or workshops designed for educators on implementing outdoor education throughout the school day (Bruyere et al., 2012; Cutter-McKenzie & Smith, 2003; Dymont, 2005; Ernst, 2007). Researchers in Canada discovered teachers used outdoor classrooms mostly for teaching physical education and science while language arts, mathematics, and geography were hardly ever

or never taught using the outdoor classroom (Dyment, 2005, p.35). Ham & Sewing (1988) focused on barriers to teaching outside and found “most educators tended to view environment-based education as falling primarily within the scope of science and few incorporated environment-based education into other aspects of the curriculum” (p.330).

Teacher preparation courses do not address the fact that environment-based approaches can be utilized in teaching all courses and that teachers do not need to be experts in nature literacy to teach in the outdoor classroom. Stanisic and Maksic (2014) found “Problems have occurred due to the current teachers’ basic education where environmental and health education is not still represented or developed to a sufficient extent” (p.124). Any training for teachers was left up to the teachers that were interested and at their own expense and personal time. Teachers do not understand that nature games and experiments outdoors can easily be adapted to include and teach academic standards and for all age ranges (Lieflander et al., 2013). Since teacher colleges are not providing coursework on using environment-based education, most teachers graduate from college with the lack of knowledge on what environment-based education is and how to implement it into existing curriculum throughout the school day (Ferreira et al., 2012; Johnston, 2007, 2009; Parlo & Butler, 2007). One teacher from a study reported an absence of teaching resources in which they must make or create their own resources to teach environment-based education (Blanchet-Cohen & Reilly, 2013). This points to lack of training and where to find free resources.

Teachers who are finishing schools of education are having a difficult time determining how to teach outdoors while still meeting state standards as most teacher

preparation schools focus on teaching strategies for inside the classroom (Parlo & Butler, 2007). Teachers who are taught how to teach using environment-based education are more likely to teach their students using the outdoor classroom. The absence of clear, curricular standards for teaching and advocacy skills makes it difficult for teachers to provide appropriate learner outcomes for environmental education courses (Blatt, 2015). Environment-based courses can be taught in ways that will meet state standards. What teachers learn in schools of education impacts how they teach their students. A teacher's actions and words are important and have a big impact on student learning. Hill (2012) pointed out that "what teachers do and how they do it makes a significant difference to student learning" and went on to say an integral part is "teacher professional learning and development and content knowledge" (p.22). Learning why teachers decide to use or not to use outdoor classrooms will be able to help provide information in creating teacher education programs to promote teacher knowledge for environment-based education.

The results from other research studies showed teachers cited lack of time, funds, administrative support, and training to teach environment-based education as problems that prevented teachers from using the outdoor classroom for student learning (Blair, 2009; Feille, 2013). Meichtry & Smith (2007) reviewed an environmental needs assessment of k-12 teachers. This assessment was administered in 2002 by Meichtry & Harrell. The results revealed teachers stated three greatest needs for implementing environment-based education. These three needs were: training in using outdoor learning sites, training in how to align state standards with environment-based curriculum, and

finally, how to find and use the curricula designed for teaching environment-based education (Meichtry & Smith, 2007).

Summary and Conclusions

This chapter provides a review of the literature available on the use of outdoor classrooms, environment-based education, and the challenges teacher have when using environment-based education. The conceptual frameworks of environmental cognition theory and theory of environmental education commitment provides the context for investigating the decision-making process for teachers using outdoor classrooms. Several themes became apparent from this literature review regarding possible barriers may prevent the use of environment-based education at school: teacher beliefs, administrative support, lack of training, experience, and curriculum practices. Even though research is available explaining the benefits for using outdoor classrooms most teachers do not understand the benefits of using an outdoor classroom (Ferreira, Gruber, & Yarema, 2012; Johnston, 2009; Parlo & Butler, 2007). It may be that teachers just lack basic knowledge or teaching strategies for using the environment as a teaching tool for their lack of using the outdoor classroom (Pedretti, et al., 2012).

Even though there is research available concerning academic integration of environment-based education and the benefits to using outdoor areas for teaching students, there is very little research available concerning teacher decision-making process (Kincy, Fuhman, Navarro, & Knauff, 2016). There are few studies that focus on teacher beliefs and teaching behaviors as it relates to using the natural setting of outdoors (Ernst, 2014). This study used teacher interviews to learn personal stories about why they

decide to use or not to use the outdoor classroom available at their school. “An understanding of influences and obstacles can inform the development and delivery of teacher training and other capacity building efforts related to environment-based education” (Ernst, 2012, p.75). The natural environment plays an important role for teachers but continued research from an educational perspective is needed to increase the knowledge concerning the pedagogical outcomes and teaching strategies that are effective (Wilhelmsson, Lidestav, & Ottander, 2012).

This research study will add to the body of research literature available that focuses on teachers’ experiences in relation to environment-based education and outdoor classrooms. This research will examine information from the experiences of teachers with available outdoor classrooms or teach environment-based education in schools. The following chapter will discuss the methods that will be used to examine the experiences of teachers.

Chapter 3: Research Method

The purpose of this basic qualitative study was to understand the experience of teachers and their choice to not use available outdoor classrooms to teach academic content. Using a basic qualitative research design with interviews, I sought to determine whether a teacher's experiences influence his or her decision to not use an outdoor classroom when one is available for use.

In this chapter, I described the research method and design and provided a rationale for my use of both. In addition, I discussed my role as the researcher. I also explained the methodology used for this research study, including participant selection and data collection procedures, followed by a description of the data analysis process. The chapter concludes with a discussion of the ethical procedures used in the study and issues of trustworthiness.

Research Design and Rationale

The research question for this study was, What experiences and barriers influence a teacher's decision to not use an available outdoor classroom? I based this research question upon the conceptual frameworks of Shuman and Ham's (1997) theory of environmental education commitment and Kaplan and Kaplan's (1982) environmental cognition theory. A supposition of Shuman and Ham's theory of environmental education commitment is that a person's experiences in nature have an impact on how committed the he or she is as an adult for appreciating and teaching others about the environment.

I used a basic qualitative study design using interviews to explore elementary school teachers' decision to not to use available outdoor classrooms. A researcher using this type of design examines a person's experiences to understand how these experiences are interpreted, how meaning is derived, and how this meaning influences decisions (Merriam & Tisdell, 2016). In this research study, I looked closely at the experiences of teachers who decided not to use the outdoor classroom available to examine their choices to determine if these choices were made because of past experiences. Miles, Huberman, and Saldana (2014) pointed out that, by using qualitative data, the researcher can "preserve chronological flow, see which events led to which consequences, and derive fruitful explanations" (p. 4). Using a basic qualitative study allowed me to examine a teacher's past experiences to see which events, if any, led to his or her decision to not use the outdoor classroom.

For this research study, I interviewed seven teachers about their outdoor experiences to ascertain if any of these experiences influenced their decision to not use outdoor space available for teaching. Merriam and Tisdell (2016) stated that "qualitative researchers are interested in understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world" (p. 15). It is also the job of the researcher to provide the context in which participants believe they can answer the questions truthfully and thoroughly regarding their beliefs and points of view pertaining to their experiences (Patton, 2002).

I chose to use a qualitative approach because the focus of my examination was on the experiences of teachers, how teachers interpreted these experiences, and if these

experiences impacted a teacher's decision to not use outdoor classrooms. Other research traditions were considered including quantitative, case study, and phenomenological. Because I wanted to explore the personal experiences of the teachers and their decisions, I concluded that quantitative research which focuses more on numerical data would not be appropriate. Using a quantitative approach would not allowed the teachers who participated in the study to have their own voice. Additionally, a case study was not selected because the additional data collection of documents like lesson plans would not have provided the insight to teacher's decision making on outdoor classroom use. Finally, a phenomenological study approach was not chosen because it was not expected that the teachers' decisions were based on deeply lived experiences.

The goal of this research was to understand teachers' choices to not use their school's outdoor classroom. The focus of the study was to examine a teacher's experiences to understand his or her decision-making process and possible barriers to outdoor classroom use. Chawla (2015) pointed out that significant life experience research aims to identify the experiences that affect adult decisions, values, and behaviors toward nature. In this research study, I sought to determine what significant life experiences may have influenced teachers' choice to not use the outdoor classroom as a teaching tool.

Role of the Researcher

My role as researcher for this study was to conduct one-on-one interviews, transcribe the interviews, and analyze the data. Because I was the only person who collected and analyzed the data for this study, it is important to note a potential for bias.

To prevent bias from entering the research process, it was important to remain aware of my experiences and views on using outdoor classrooms to make sure these remained separate from this research study. My experience with outdoor classrooms and environment-based education includes workshops and certifications for teaching environment-based education including teaching in elementary schools for 18 years in the state where this study was conducted. I addressed any potential issues of bias resulting from these experiences through the use of member checking. I did not have any relationship with any of the schools and/or teachers who participated in this study. I worked with three of the teacher participants over five years ago but no longer work with them. I never worked in the school district where this study took place. I did not have any supervisory positions over any of the teacher participants involved in this study.

Methodology

In this section, I focus on the methodology used in this study. The selection of participants and how they were chosen are also discussed. In addition, I discussed the instrument and the protocol used for data collection. Procedures for recruitment, participation, and data collection follow. I concluded the section with a discussion of the data analysis plan.

Participation Selection Logic

Teacher participants were recruited from six elementary schools in a large school district in Georgia with established outdoor classrooms. Participants were recruited for data collection based on purposeful sampling. Purposeful sampling is used when the researcher wants to “discover, understand, and gain insight and therefore must select a

sample from which the most can be learned” (Merriam & Tisdell, 2016, p.96). A sample size of seven regular education teachers from this school district were interviewed. The importance for choosing purposeful sampling is the researcher must have a purpose in mind in which the participants can answer the research questions and provide valuable data for the research study (Merriam & Tisdell, 2016; Creswell, 2007).

The purposeful sampling was based on criterion-based sampling. The criteria for selection was: (a) teacher participants must work at a school with an outdoor classroom, (b) must be a regular education teacher from any grade level K-5, and (c) they self-identify as not using the available outdoor classroom. Qualitative research usually involves a small number of participants that are found in their setting and can be studied more fully (Miles, Huberman, & Saldana, 2014; Patton, 2002). For this study seven participants volunteered to provide rich information about the experiences and barriers being studied from the research question. After talking directly with teachers about their experiences, rich information regarding their experiences and potential barriers for using the outdoor classroom was provided. The triangulation of data through the teachers at different schools will help fully understand possible barriers to outdoor classroom use and ways to overcome those barriers. Although there is not an exact number of participants for any research study, I will know that the point of saturation has been reached during data collection when I “begin hearing the same responses to” (Merriam & Tisdell, 2016, p.101) the interview questions repeatedly.

Upon receiving IRB approval # 08-14-17-0017684 from Walden University and cooperation from the school district’s human resources department, an email was sent

with an invitation to participate in research study to the elementary teachers. The email explained the research study and asked for volunteers who met my selection criteria as stated above. Once responses from seven teachers were received and a point of saturation began to show up in the interviews, the sample was satisfied.

Instrumentation

The primary instrument was a researcher-developed, open-ended interview protocol (see Appendix A) designed specifically for this study. The interview was a semi-structured interview with 16 questions and additional probes. Each participant was asked the same open-ended questions with probes added in appropriate places during each individual interview. Each participant had different stories and answers to the interview questions, so it was difficult to assign probes ahead of time for the interview. Probes are dependent on the information provided by the participant, so it is impossible to pre-determine probes before the interview (Merriam & Tisdell, 2016). The interview questions are considered open-ended because each participant will be able to respond in his or her own words with any thoughts, comments, and insights (Patton, 2002). A set of 16 interview questions were used to encourage the teacher participants to talk about their previous life experiences in nature. These questions were aligned with the conceptual frameworks (see Table 1).

Table 1

Alignment of Semi-structured Interview Questions to Framework

Interview Question	Environmental Cognition Theory: Life	Environmental Cognition Theory:	Environmental Cognition Theory:	Theory of Environmental Education Commitment:	Theory of Environmental Education Commitment: Lived outdoor	Theory of Environmental Education Commitment:
What does nature mean to you?		X				
Describe 1 or 2 of your best experiences in nature.	X		X	X	X	
What made this/these experiences the best?		X				
Describe 1 or 2 of your worst experiences in nature?	X		X	X	X	
What made this/these the worst?		X				
Tell me about your interest in nature growing up?	X		X	X	X	
How did you express that interest?	X		X	X	X	
Tell me about your experiences in playing outside when you were growing up. What types of activities did you do?	X		X	X	X	
When you were not playing outside, what types of indoor activities did you participate in?	X		X	X	X	
Describe any experiences you had as a student learning outside?	X		X	X	X	X
If you participated in learning outside what kinds of activities did you do?	X		X	X	X	X
Describe outdoor activities that you participate in now as an adult.	X		X	X	X	X
How would you assess your knowledge about nature?		X				X
Where do you think you have learned the most about nature?		X				

(table continues)

Interview Question	Environmental Cognition Theory:	Environmental Cognition Theory:	Environmental Cognition Theory:	Theory of Environmental Education	Theory of Environmental Education	Theory of Environmental Education
What does environment-based education mean to you?		X				X
What types of educator training have you had concerning environment-based education?						X
How would you describe the effect that training has had on your knowledge about environment-based education?	X	X	X	X	X	X
Tell me about your decision to not use the outdoor learning space available. What key factors influence your choice?		X				X
Is there anything else you would like to share regarding your experiences outdoors or your decision to not use an outdoor classroom?						

When creating the interview questions, the research question was divided into two parts: Nature Experiences and Barriers. The interview questions focused on one or both parts. These two parts also tied in with both conceptual frameworks. This allowed interview questions to be asked that provided the participants to give rich descriptions. The questions were open-ended and allowed the teacher participant to give personal narrations rather than answer yes or no. The interview questions were reviewed by a panel of peers teaching in a school with outdoor classrooms and the dissertation committee for appropriateness and alignment to the research questions.

Procedures for Recruitment, Participation, and Data Collection

In this section an explanation of the recruitment, participation, and data collection process was discussed. This included the process for getting approval from the district and contacting participants as well as data collection, analysis, and storage of data.

Recruitment. A large school district in Georgia was chosen based on having active outdoor classrooms. Once Walden University IRB gave conditional approval for the research study, the district's associate superintendent of teaching and learning provided a letter of cooperation. The letter of cooperation was submitted to Walden University's IRB for full approval. After the full IRB approval was granted, I sent an email invitation to the district's K-5 teachers. I sent the email to prevent the appearance of district coercion of teacher participants. The email invitation included the purpose of the research study and that only K-5 regular classroom teachers who do not use their outdoor classroom were invited to participate in a one-time 45-60 minutes face-to-face interview that was set up after school hours at their school. The teachers self-identified that they met the criteria for the study by replying to my invitation. These interviews were held in the teacher's classroom, an empty classroom, or teacher conference room at their respective schools.

To the teachers who volunteered to the invitation I emailed the informed consent for participation. The participating teachers returned the signed consent before I contacted them to arrange for the interview. The informed consent indicated that they could withdraw from the study at any time with no penalty and that by participating, they would receive a \$5 gift card as a thank you. Once I received the signed consent

form, I contacted the teacher to set up a day, time, and place for their interview. At the beginning of the interview the teacher participants were informed that they will receive a copy of their interview to review it and check for any errors in transcription or interpretation.

In the case of a shortage of teacher participants, the recruitment of schools and teachers would have been duplicated for any new research site. This research study did not have a shortage of teacher participants. Exactly seven teachers participated in this research study.

After emails were sent out for participant volunteers, it took about three weeks to begin getting responses and recruits. Bill (pseudonyms used for all participants) was my first volunteer participant. At the end of our interview session, Bill was able to provide three more teacher participants names. These teachers volunteered for this study as well (Melody, Daphney, and Laura). Daphney, Laura, and Melody were from other schools all over the county. I did not know these teachers before the study. The final three participants (Carol, Alma, and Tricia) were contacted through school emails and were former colleagues that I had worked with at least five years earlier in another county. I learned these colleagues were teaching in this county through conversations with colleagues about my research study. Each participant signed consent forms through email to participate. I did not have any type of supervisory role over any teacher participant.

Interview data collection occurred during the months of November and early December 2017. Each of the seven interviews were after hours at the school where teacher participants worked. Six participants requested to be interviewed in their

classrooms while one participant chose to be interviewed in a school conference room. Each interview lasted approximately 45 minutes and was recorded with multiple handheld digital recording devices for redundancy. I used TranscribeMe.com to transcribe the interviews. Transcription copies were emailed to each participant to review for corrections or additions and returned.

Data collection. An interview protocol (see Appendix A) guided the one-on-one interviews with seven teacher participants. Each interview was audio-taped with two recorders. Handwritten notes were taken during each interview to note any questions for probing during individual interviews and information that may help with transcribing once the interview was completed. Each interview took place at the participant's place of work at previously agreed upon dates and times. The interviews took place after school hours.

The participants had already signed their consent forms before setting up the interview. At the beginning of each interview, participants were reminded that all information is confidential, and the information will not have any identifiable information that can be traced back to them. Participants were told that they would receive a copy of the transcript of their interview to review before I continued with the analysis to allow participants to verify the accuracy of the interview record and to provide any additional information they thought about since their interview. Telling the participants at the beginning of the interview process that they will get a chance to review the transcription of their interview before the data was analyzed helped to build trust at the beginning of the interview process. Trust or lack of trust can affect the quality of a participant's

review of the transcription. I offered a copy of the results to the participants if they wanted one at the end of the study. Participants were provided a \$5 gift card as a thank you for their participation in the study.

All information relating to data collection, transcription, and analysis has been stored on a hard drive of a laptop computer that is password protected. Handwritten notes were scanned into this same computer and the hardcopies of the notes were shredded using a paper shredder. The USB drive with the data and notes remains stored in a locked cabinet in my private office.

Data Analysis Plan

Once data was collected, the tape recordings were transcribed and checked for errors. I hand coded all data for analysis. For first cycle coding I divided my research question into two parts: experiences and barriers. I went through each of the seven transcripts and color coded (with a single color) all experiences in nature. I went back and color coded (a different single color) all barriers teachers shared for not using the outdoor classroom. Through second cycle coding I resorted the answers into themes, causes, and explanations related to experiences or barriers. I wrote notes about thoughts and findings in a research journal.

I analyzed the data using the frameworks of Shuman and Ham's theory of environmental education commitment (1997) and Kaplan and Kaplan's environmental cognition theory (1982) to understand how these nature experiences may have influenced the decision about use of outdoor classroom or barriers that lead them to not use the

outdoor classrooms (see Table 2). Once all data had been analyzed, I summarized, as reported in Chapter 4, and interpreted the results of the findings in Chapter 5.

Table 2

Initial Coding Based on Conceptual Frameworks

Conceptual framework	Initial codes
Life Experiences in Nature	<ul style="list-style-type: none"> • PO: Parents and Outside Play • TU: Technology Use • CV: Creativity • FT: Family Trips • NE: Negative Experiences
Barriers	<ul style="list-style-type: none"> • TT: Teacher Training • KN: Knowledge • AD: Administration • TM: Time • WT: Weather • OB: Other Barriers

I did not have any discrepant cases. All participants completed their interviews and returned reviewed transcripts.

Trustworthiness of Data

As the research data collector, it was important for me to maintain the credibility of the research study. Patton (1990) stated, “The credibility of qualitative inquiry is especially dependent on the credibility of the researcher because the researcher is the instrument of data collection and the center of the analysis process” (p.461). Care was taken as data from each of the participants was collected and explored to create rich descriptions of their experiences in nature growing up. Triangulation of data was through interviews with multiple people in differing experiences, transcript reviews, and audit

trials with my notes. When participants evaluated their transcripts, accuracy, completeness of the information, fairness, and perceived validity was improved. Credibility of the research study was maintained through saturation of the data. Saturation occurs when no new information is being repeated during the interview (Merriam & Tisdale, 2016). This was reached once multiple teachers began reporting the same or similar experiences related to their decisions to not use outdoor classrooms.

Transferability

Looking at transferability, the provision of thick, rich descriptions in a research study will allow a solid study for other researchers interested in comparison (Merriam, 1998). Using interviews, teachers provided thick, rich descriptions of their experiences in nature that are reported in results Chapter 4. The interview process in basic qualitative research allows for the researcher to gain thick descriptions of personal experiences of the participants. According to Merriam and Tisdell (2016), using interviews is necessary when the researcher is not able to observe behavior and feelings or how a person makes sense of their world.

Dependability

Appropriate strategies were used to establish dependable and reliable research. During the interview process, I audio-taped the interviews and took handwritten notes. I checked the transcripts to make sure mistakes were not made during the transcription process. I used triangulation to maintain dependability of data through interviews with multiple teachers, transcript review and verification, and an audit trail with my notes. According to Merriam and Tisdale (2016) “Reliability of documents and personal

accounts can be assessed through various techniques of analysis and triangulation” (p.251). To monitor for reflexivity, I used a researcher’s journal to describe the research process from beginning to end including a description of my own bias regarding environment-based education and how this bias may have influenced my interpretation of the data.

Confirmability

As a classroom teacher that uses the outdoor classroom myself, it was necessary for me to be careful not to add my personal views into the equation. I am very interested in learning why some teachers remain inside the classroom instead of using the outdoor classroom as a teaching strategy. I see it at my own school and I have been very curious to find out the reason behind this.

Ethical Procedures

This qualitative study followed all required protocol from Walden University IRB # 08-14-17-0017684 and the participating school district. After receiving IRB approval from Walden University and the school district, I contacted school principals by email to tell them about the study and the teacher participants needed. I explained the study was totally voluntary and no students were to be involved. After the principals were contacted, teachers were then contacted through email to explain the study and ask for volunteer participants. The email explained the purpose of the study, the need for teacher volunteers, the criteria for participation, and that all information would be confidential. Once the teacher volunteers were identified, an email containing the letter of consent was sent to each asking for the teacher volunteer to sign. This letter of consent explained the

purpose of the study, the steps that will assure confidentiality, and that they may drop out at any time. After receiving the letter of consent back with the teacher volunteer's signature, the teacher was contacted to set up a day, time, and place to meet and conduct the interview. The interviews were held after school at the school where participant worked.

All participants remained anonymous throughout the entire study. Where direct quotations were used the names of the participants and schools were changed to maintain anonymity. All participants could withdraw from the study at any point, though none did. The data collected remained locked in a cabinet when not in use. Transcriptions of the interviews were not marked with the name of the participant, but anonymous names of the schools were used to keep track of which participants were from which schools. All the data will remain stored on a USB drive and personal laptop computer that is secured with a password for five years.

Summary

This chapter explained the methodology that was used for this research study. This basic qualitative study sought to determine experiences of teachers related to their decision not to use a provided outdoor classroom. Seven regular education teachers were interviewed. The classes these teachers taught have both English as a Second Language and Special Education Inclusion students. Regular education teachers were specified because these teachers teach all academic subjects during the school day. The seven regular education teachers participated in the researcher-designed, semi-structured, open-ended interviews. To maintain dependability of the data I used interviews, transcript

verification, and audit trails of my notes. All data remains kept in a secure location on a personal laptop that is password sensitive and a USB drive that will be kept in a locked cabinet. All data will be kept for five years in the same secure locations. Ethical procedures were maintained by following the rules and guidelines established by Walden University IRB and the school district's Human Resources Department. Chapter 4 includes the results of using the methodology discussed in this chapter.

Chapter 4: Results

The purpose of this qualitative interpretive study was to understand the experience of teachers and their choice to not use available outdoor classrooms to teach academic content. The participants were seven elementary (K-5) teachers who had access to, but did not use, the outdoor classrooms at their schools. These schools were in a large school district in the middle part of the U.S. state of Georgia. Each teacher participant was interviewed using a researcher-designed, semi-structured, open-ended interview instrument. In this chapter, I provide information on the setting, demographics, and data collection and data analysis procedures. Evidence of trustworthiness and results follow.

Setting

This study took place in a school district with 21 elementary schools in middle Georgia. Most of the county is suburban or rural with a small section bordering a large city. The further north one drives the more rural the county becomes. Data included interviews with seven teachers working at six different elementary schools in one county. The elementary schools were spread out across a large portion of the county rather than in a small cluster. The names of each elementary school have been changed to protect participant privacy. The teacher participants taught in kindergarten through fifth grades. Each elementary school had a working outdoor classroom that consisted of garden plots, bird houses, fruit trees, and open spaces. Some had tables or benches for students to use. One school, Evergreen ES, had chickens and a chicken house where the students could gather eggs. The science teacher oversaw caring for the chickens. This school was the only school that had live animals in the outdoor classroom. Three schools, Mossy Point,

Evergreen, and Mountain View, had fruit trees along with a few garden plots. See Table 3 for a breakdown of each school's outdoor classroom.

Table 3

Outdoor Classrooms Settings by School

School	Garden	Chickens	Fruit trees	Tables and benches
Pine Mountain	X			
Oak Creek	X			
Mossy Point	X		X	X
Evergreen	X	X	X	X
Mountain View	X		X	X
Silver Creek	X			

Demographics

Participants of the research study included one man and six women. All participants were veteran teachers with five or more years of teaching experience. All names have been given a pseudonym to protect the privacy of each participant. The school names have been changed as well. A description of each participant follows.

Bill at Pine Mountain Elementary

Bill was an English as a Second Language teacher at Pine Mountain Elementary who teaches all academics for K-5. He was a veteran teacher and had been teaching for approximately 20 years. He loved his job and had a passion for getting his students

involved outdoors in their outdoor classroom. He had many reasons to share about why he did not use the outdoor classroom often. Bill was instrumental in recruiting three other teachers from various schools to participate in this research study. One recruit was Melody. She worked with him at Pine Mountain. The other two were colleagues he worked with in the past at other schools.

Melody at Pine Mountain Elementary

Melody was a third-grade teacher at Pine Mountain Elementary. She was in her 40s and had been teaching almost 20 years. When she found out about this study she was also eager to share the barriers that prevent her from getting her students outside to learn. Both Bill and Melody were leaders in encouraging the use of the outdoor classroom at their school; however, even they struggle to use the outdoor space at their school.

Carol at Oak Creek Elementary School

Carol taught third grade. Carol was in her mid-30s and had been teaching for the past 10 years. Although Carol said she loved the outdoors she admitted that her class rarely used the outdoor classroom.

Daphney at Mossy Point

Daphney, a 24-year teaching veteran, taught third grade at Mossy Point Elementary. Daphney was an avid gardener and tried to get her students involved in gardening whenever she could. She reported having come across barriers that prevented her from accomplishing this goal. Daphney was also considered the environmental leader for her school. This research study interested her because she has had difficulty getting teachers to use the outdoor classroom at her school. Daphney was able to provide insight

on what problems teachers were facing to be able to use the outdoor classroom at Mossy Point.

Alma at Evergreen

Alma was a fifth-grade teacher. This was her 14th year of teaching. She and her family participate in outdoor activities often. Although Alma stated that she believes that students should be going outside more to learn, she does not use the outdoor classroom at her school very often.

Laura at Mountain View

Laura was in her 26th year of teaching. Laura taught kindergarten. She started the outdoor classroom at her school and had been a key player in getting it built and going. Laura tried to encourage other teachers to use the outdoor classroom. She planned the activities, recruited volunteers, and tried to help in any way that she could. Laura provided information from what she heard and saw as problems that prevented teachers from using their outdoor classroom.

Tricia at Silver Creek

Tricia was in her 50s and had been teaching for 25 years. Tricia grew up in a large household full of brothers and sisters that spent hours outdoors playing. Tricia taught fourth grade at Silver Creek. In her interview responses, she shared her outdoor nature experiences and discussed what prevented her from using the outdoor classroom very often.

Data Collection

An interview protocol was used to guide the one-on-one interviews of seven teacher participants. Each interview was audiotaped using two recorders. Handwritten notes were taken during each interview to note any questions for probing during individual interviews and information that would help during the transcription process once the interviews were completed. Each interview took place at the participant's place of work at previously agreed upon dates and times. All interviews took place after school hours. It took three weeks to complete all interviews.

Data Analysis

The interviews were transcribed using an online company called Transcribe Me. This company was recommended by the qualitative software company, NVivo. Each participant was then sent a copy of their transcription for review.

Data analysis was aligned to the research question: What experiences and barriers influence a teacher's decision not to use an available outdoor classroom? At the beginning of analyzing the data, all interviews were divided up into either experiences or barriers. The next step examined the experiences to find patterns. Coding was used during analysis. The initial codes that were used were broken down into two parts according to conceptual framework based on experiences or barriers (see Table 4).

Table 4

Final Coding

Conceptual Framework	Final Codes
Life Experiences in Nature	<ul style="list-style-type: none"> • PO: Parents and Outside Play • TU: Technology Use • CV: Creativity • FT: Family Trips • NE: Negative Experiences
Barriers	<ul style="list-style-type: none"> • TT: Teacher Training • KN: Knowledge • AD: Administration • TM: Time • WT: Weather • OB: Other Barriers

The codes were the same as the initial codes. After completing the coding and theme identification for experiences, the same process examined the barriers of each participant to determine any patterns among the seven participants. During the evaluation of each transcript, references to both Conceptual Frameworks: Kaplan & Kaplan (1982) Environmental Cognition Theory and Shuman & Ham's (1997) Theory of Environmental Education Commitment for coding data were used. Transcripts were coded according to factors ranging from love of the outdoors to negative experiences outdoors for Environmental Cognition Theory. Transcripts were reexamined using the theory of environmental education commitment to determine administrative support, the amount of time available for teaching, and other potential barriers for using the outdoor classroom.

Evidence of Trustworthiness

The following is a discussion of how trustworthiness was maintained within this research study.

Credibility

Credibility of the research study was maintained through saturation of the data. This was reached as teachers began reporting the same experiences that had an impact on their decision to not use outdoor classrooms. By the seventh interview, teachers were repeating very similar stories of life experiences and barriers for not using the outdoor classrooms at their schools.

Transferability

During each interview, the teachers provided thick, rich descriptions of their experiences in nature. The interviews were necessary since the researcher was not able to observe each participant's feelings and behavior regarding how his or her life experiences outside of work may influence his or her choice for not using outdoor classrooms. The teacher participants shared lots of information regarding the barriers they face for using an outdoor classroom during the interview process.

Dependability

Appropriate strategies were used to establish dependable and reliable research. During the interview process, I audio-taped the interview and took handwritten notes. I checked the transcripts to make sure there were no mistakes made during the transcription process. I used triangulation to maintain dependability of data.

Confirmability

As a classroom teacher that uses the outdoor classroom myself, it was necessary for me to be careful not to add my personal views into the equation. I am very interested in learning why some teachers remain inside the classroom instead of using the outdoor classroom as a teaching strategy. I see it at my own school and I am very curious to find out the reason behind this.

Results

The following section explains the results of this basic qualitative research study. The first section examines the life experiences of each teacher participant and is broken down into themes that showed up during data analysis. The second section focuses on the barriers teachers shared that prevented the use of the outdoor classroom. Each section is also divided into themes that were revealed during analysis.

Life Experiences

The first section of the interview focused on questions built upon the environmental cognition theory to understand early outdoor experiences and beliefs about teaching environmental education. Five themes emerged from the interviews.

Parents and outside play. All seven participants discussed a love for the outdoors. They grew up playing outside with friends and family. Daphney, Laura, and Tricia mentioned their parents would make them go outside early in the morning right after breakfast. They would play all day, usually not returning home unless they needed something, or it was getting dark. Daphney stated, “Mom would put you out the door in the summer at probably after breakfast, and you played until dark.” Tricia came from a

large family and stated, “There was no reason we weren’t outside. I mean, if you were inside, my parents kicked you out.” Laura stated similar experiences growing up. She said, “We were outside all of the time. I mean, you weren’t allowed in the house. You came home when the street lights came on.”

Technology use growing up. Each participant commented on the fact they did not have the types of technology that kids have today. Laura stated, “Well, I didn’t grow up with technology, for sure, TV was very limited.” The biggest piece of technology for most was a television and the youngest participant, Carol, talked about having an Atari computer gaming system. Most participants were not interested in nor allowed to stay inside and watch television during the daytime, weather permitting, growing up. Tricia commented on the fact that it was a “different way of life.” She went on to say, “we didn’t have computers to sit down and we didn’t have computer games and that kind of stuff.”

Creativity. Bill and Melody commented they did not do a lot of indoor activities growing up. Most of the activities participants said they engaged in while playing outdoors growing up were: playing in the rain, playing in creeks and streams, playing imaginary games like cops and robbers or pretending to be on a spaceship. Other activities discussed were riding bikes, skateboarding, climbing trees, and playing with pets. Being able to use their imaginations and being creative was a big theme running through all seven participants. Laura stated it best when she said, “The kids always just played outside with what you had. You didn’t have something, you made it. So it was kind of nice.”

As Laura continued to talk about her early childhood experiences outside growing up she looked back on how they used their imaginations:

I had three brothers, and so they always wanted to play cops and robbers or cowboys and Indians, so I grew up playing those kinds of things, too, where we just made things up as we went and chased each other along. We made playhouses underneath the roots and we made food out of the leaves and we had—everything was made from nature. We made dolls out of Kleenexes and stuffed leaves inside or used twigs for arms and stuff like that.

Family trips. As for the best nature experiences growing up and into adulthood, several participants referred to being away from everything and getting to see animals in an environment they normally would not see. For example, Carol talked about a vacation trip to California. She and her family were investigating tide pools when one of them noticed whales off the coast. Carol shared:

John (pseudonym) happened to see a whale come up out of the water, and we pulled over and we stood there, I don't know, maybe an hour or so and just watched these enormous, majestic whales coming out of the water. And it was magical and it's something that could never happen again in our lifetime, and to know that we were there and saw it was monumental.

Other participants talked about the importance of being away from everything and experiencing family time. Tricia stated her best experiences were “just with my family outside and just swimming in creeks and swinging on ropes and jumping into water.”

Daphney had a similar answer when she said, “So I think most things that are best for me have to do with experiences that I’ve had with other people that make them stand out.”

One participant cited being able to participate in new outdoor experiences such as spelunking or kayaking make the best experiences for them. Bill talked about his favorite experiences as “Probably the first time I went caving. It was such a new experience and the first time I successfully shot some waterfalls in my kayak and pulled it off.”

Another participant points out the best experiences for her were the opportunities she had for seeing animals and plants in their natural habitat. Laura stated, “When I go camping or kayaking and I get to see so much more of the animals that I would not see normally and the plants as well that are in their natural environment, their natural habitat.” The best experiences for most participants were social with family or friends and/or the actual nature experiences. The act of sharing these experiences with family and friends had a positive impact on each experience. These adventures came in the form of outdoor activities such as camping, hiking, and kayaking.

Negative experiences. Camping tended to provide the worst experiences in nature. Several talked about how the weather impacted their trip in a negative way.

Laura recalled a camping experience:

I had a camping experience where a rainstorm came up, we were camping in the mountains and the tent pole fell on top of me and in the middle of the night, and we’re trying to get out of the tent, and lightning storms, and I was afraid the tent poles were going to electrocute me or something.

Another participant recalled catching fire. Daphney stated, “It was a bad night, and we were camping, and I wound up putting my feet really close to the fire. And I wound up burning my blue jeans up!” On another camping trip Daphney recalled setting up camp on the side of a hill:

... I kept sliding down almost out of the thing (sleeping bag and tent). So I put a big rock at my feet to keep me from sliding down, and when I woke up the next morning, I was wrapped around it.

A second negative experience mentioned involved snakes. Only two participants, Tricia and Melody, talked about experiences involving snakes. Neither participant had ever encountered a snake while camping. Just the thought of snakes being around made them uncomfortable. Tricia referred to her worst experiences in nature as running into snakes outdoors. “when I was out camping and running into snakes for whatever reason because my dad always told us to be weary of snakes because if you were weary of them, you are not going to get bit.” Tricia said that her dad never taught her to be afraid of snakes but tried to teach a healthy respect and to leave snakes alone. He used rhymes to help teach identification of some snakes. Tricia stated “He would try not to make me scared of snakes, but he did. He made me terrified of snakes.” Melody has a fear of snakes, too. Melody stated, “I just don’t like to even see snakes.”

Barriers

The following is an examination resulting from the second section of the interview. These questions focused on knowledge about nature and environment-based

education, administrative and teacher support, and preparation for teaching environment-based education in the outdoor classroom. Six themes emerged from the interviews.

Environmental-based teacher training. What teachers really know and understand about environment-based education is important. Each participant was asked to define environment-based education or describe what they thought it was. Teachers were asked about any training they had participated in that involved learning about environment-based education. For teachers that participated in a workshop or program, how was the new learning disseminated to the students or was it shared with others at all?

Teacher participants were asked what they thought environment-based education was. The definition of environment-based education is using the school grounds as a setting for teaching core academic subject areas and as a source for real world learning experiences (Ernst, 2007). Two teachers, Carol and Laura, showed their understanding of what environment-based education is with their definitions. Carol stated she thought environmental education “is building lessons around the environment as opposed to having a lesson and then seeing how I can bring in the environment.” Another participant, Laura, stated she interpreted environment-based education as “you use the natural environment to teach all kinds of skills as well as lessons on habitats.”

Several teachers were not able to give an accurate answer. Participant answers ranged from lessons having to do with recycling to the source of information for a lesson came from environmental perspective. One participant gave an insightful answer for what environment-based education was not. Daphney stated, “Environmental education

isn't taking the kids out and having them sit under a tree and do their work. If that's all it was, we'd have lots of environmental education."

Teacher training is listed as a barrier since teacher participants shared that most colleagues did not have any training regarding the use of outdoor classrooms. The participants that shared their training experiences said he or she had to go out and find his or her own training and pay for it themselves. Once he or she received his or her training, he or she was not able to implement his or her new knowledge. Teacher training becomes a barrier since schools are not providing staff development for their teachers regarding outdoor classroom use. If teachers want to learn more about how to use outdoor classrooms or teach using environment-based education, the teachers must search for classes and workshops. The teachers must then pay for these workshops out of pocket and take the course on their own personal time. For teachers that do take part in environment-based learning workshops on their own time, another barrier showed up when the teacher participants explained how he or she was not able to use what they had learned from these workshops.

There was a wide range of training teachers have had regarding using outdoor classrooms or environment-based education. These training sessions came usually in the form of workshops. Teachers found these workshops and took the initiative to attend them on their own time and with their own money. Only one teacher participant was provided a teacher scholarship to cover cost of participating in his workshop that lasted seven days. Table 5 provides a breakdown of teacher participants and the training they have had in environment-based education.

Table 5

Environment-Based Teacher Training

Teacher	Training	Recommendation and time	Paid by
Carol	Project WILD/Project Learning Tree Workshop	Personal choice off hours	Self
Tricia	Project WILD/ Project Learning Tree Workshop	Personal choice off hours	Self
Melody	Arts Now Workshop	Personal choice off hours	Self
Alma	Master Gardener Program	Personal choice off hours	Self
Daphney	Master Gardener Program	Personal choice off hours	Self
Bill	Paddle Georgia Workshop	Off hours	Scholarship
Laura	No training	No training	No training

Two participants, Carol and Tricia, went through training with the Department of Natural Resources. They took the Project WILD and Project Learning Tree workshops. These courses introduce and teach environment-based education, including how to integrate environment-based education in academics throughout the school day. Teachers leave the courses with a certificate and a book filled with lessons that can be incorporated throughout the school day.

Two teachers, Alma and Daphney, are certified Georgia Master Gardeners. This program is provided by the University of Georgia's Cooperative Extension office. This is an extensive course that provides training for people interested in creating, growing, and maintaining gardens for food or flowers. Master Gardeners are required to devote many

volunteer hours helping others with their gardens, including outdoor classroom/school gardens.

One teacher, Bill, participated in a week-long workshop about four years ago. He participated in the Paddle Georgia Workshop that is part of the Upper Chattahoochee River Keeper Program. Bill spent time canoeing and kayaking down several of Georgia's rivers learning about plants and animals in and along the rivers. He also spent a day with a biologist and a day at a water treatment facility learning about water treatment. Bill was the only teacher that received a teacher scholarship to pay for his workshop.

Melody took a teacher workshop called ArtsNow. This workshop focused on teaching teachers how to implement art through using the outdoor classroom. This was a 2-day workshop. Teachers were provided lessons and ideas for implementing music and art work (journals, paintings, etc) using the Georgia academic standards in an outdoor classroom.

One teacher participant, Laura, did not have any formal training at all regarding outdoor classrooms and their use. This teacher said she looked up things or asked friends that had environment-based training for any information she needed. One of Laura's friends is a Georgia Master Gardener and former principal. Another friend is a Georgia Master Naturalist.

Each of the seven teachers stated they never received any type of training or coursework in college. It was also mentioned that school administrators did not pay for or offer any staff development opportunities for learning how to use the outdoor classroom. All workshops and programs were paid for by the teachers themselves except for Paddle

Georgia. Bill was able to secure a teacher scholarship for that workshop. Also, all program participation was completed on the teachers' own personal time which were either weekends or during summer break.

Teachers were asked if they were able to use anything they learned from these workshops in their own classrooms for using outdoor classrooms. Bill completed the Paddle Georgia Workshop. He stated, "It gave me knowledge, but it just didn't—no, there's nowhere to use it. So I gained knowledge, but I haven't been able to follow up on it."

Carol and Tricia talk about how Project WILD provided lessons using math, science, reading and show how to integrate them but for Tricia, she felt she needed something more specific for Common Core. Tricia stated, "I don't feel it was a waste of time because I had gone through all of my books... With Common Core being so specific, that this is what you need to learn, I need lessons I can teach Common Core." Carol did not think the workshops helped increase her knowledge about certain topics as much as it gave her ideas on incorporating the environment to make the lessons flow better. It helps lessons become less disjointed and broken into parts such as math and science. Carol stated, "It could really be science and math and writing, and you could read and those kinds of things opposed to just sprinkling it here and there."

Melody loved what she learned in the workshop she attended. She has tried to use what she learned in their outdoor classroom on several occasions but was not able to do so very often. She talked about taking students outdoors to look at the different patterns found on leaves for an art lesson. She said she has taken her "kindergarten students

outdoors in the fall to look at the different colors and shades of colors found in the tree leaves for lessons on colors.” She talked about not having enough time or help when taking her students outside to their outdoor classroom to do any activities.

Daphney felt like her Master Gardening Workshop helped her bridge the gap between the outdoor classroom and teachers. Teachers will often come to her for advice on how to grow certain plants or how to handle certain gardening problems. This helps take the fear of gardening for those teachers that don’t have a “green thumb.”

Knowledge about nature. Several teachers shared about the importance of having an adult that served as a mentor that taught them a lot about nature growing up. At the time, they did not realize that this adult was acting as a mentor but just someone they looked up to that liked nature and shared what they knew with them. Tricia talked about how her dad and her older brothers were always very interested in nature. Tricia credited herself with just average intelligence on knowledge about nature such as plant and animal names. She credited her older brothers and her dad for teaching her what she does know about nature.

Other teachers gained their knowledge through friends that share the same nature interest. Bill stated, “I have no choice but get a fair amount because the people I go out with are just walking encyclopedias.” Bill laughed as he shared a quick example of the banter that goes on in a nature group he is a member of. “It always gets a little involved like, “Yeah, yeah. Look, it’s got two wings. It’s got a beak. It’s a bird.” But no, “It’s a yellow-crested this and that!”

Daphney talked about how she knows the area and habitats surrounding where she grew up in New Mexico but coming out to the southeast, she has a more difficult time identifying plants and animals. She has had to rely on friends and books to help her identify specimens. Daphney stated, “I can tell you the different kinds of pine trees and things like that because that is what I was raised around. I have had to learn a lot more to be able to help her.”

Six of the seven teachers felt they were “pretty knowledgeable” about nature. Only two teachers referred to a mentor growing up in the form of a parent or friend. All seven teachers are continuing to learn about nature, mostly through friends and books or internet resources. No one had taken any type of college course work or workshops other than the Project WILD, ArtsNow, or a Master Gardening Program to learn more about nature.

Administrators. Administrators were listed as someone that could be a barrier or support for using outdoor classrooms. This section examines some of the things administrators are focused on at schools with outdoor classrooms. Teacher participants shared their experiences of what happens to the outdoor classroom when there are changes in administration.

Teachers agreed that administration gave support for using the outdoor classroom in word only. The administration did not fully support the use of outdoor classrooms due to other factors such as a focus on getting test scores up. The administration would send out an email regarding concerns for the outdoor space to certain teachers they knew were interested in maintaining an environmental stance within the school. One teacher talked

about teachers were expected to use the outdoor classroom at least once a month, but no one ever checks to see if it was happening. Carol summed it up well in her statement:

I think other than saying, we should be planting in the garden, or we should be using the outdoor classroom because we spent a lot of money on it, there's not a whole lot, I think, of emphasis placed on dissolving the walls of our classroom.

She believed administrators felt that by keeping students and teachers inside the classroom walls, it was much easier to control what is happening than "stretching us beyond them in order to connect on a bigger, grander scale."

Tricia felt their school did not have any administrative support because the focus was only on increasing test scores. Tricia stated:

If you look at schools today, that's why you're keeping these kids in. They have to learn how to pass these Common Core tests. You have to know how to sit down and pass this milestone for you to move on. And you can sit there and say whatever you want to say but that's the bottom line. And teachers know that.

A change in administration can create problems for teachers using or wanting to use the outdoor classroom. Teachers may have support from the old administrator to use the outdoor classroom with their classes but as soon as that administrator transfers out and a new one in transfers in, the support often goes away. Bill provides another scenario, "There was a principal previously that wanted to start a program for farm-to-table and then utilize the stuff, but then the new principal came in and said the community here would never accept it, so that got shut down." Daphney pointed out the importance of having administrators who supported outdoor classrooms and outdoor

learning. In her years of teaching, she found the administrators that had their own personal gardens, loved to garden, or grew up in farming families were the ones most supportive of having and using outdoor classrooms.

Daphney went on to discuss that just getting an outdoor classroom does not end there but the expense of keeping up the garden continues. Administrators need to understand and support this. A teacher mentioned that using the outdoor classroom was not “part of the school culture.” Bill believes that this is a big problem. He said, “It’s not supported by the administration or the coaches. Administrators may say that they support the use of outdoor classrooms but when it is said and done, teachers should be inside their classrooms and on schedule.

Time. All participants shared time was a big factor in not using the outdoor classroom. Teachers pointed out there just wasn’t time in the daily schedule. Everything has a scheduled time. Unless outdoor classroom activities are on the schedule or integrated somewhere in the lesson plan and daily schedule, it will not be used. Melody said she would use the outdoor classroom more if she had more time with her students. She has a limited amount of time to take her students outside and still remain on schedule and following the school curriculum. Bill talked about how every minute of the day is scheduled at his school. “We’re given specific schedules of what you’re allowed to do. This doesn’t really include much else.” If you have students that are being pushed in or out of your classroom, you must be on schedule and in your room. Tricia stated, “I don’t think there is an extra hour in the day or an extra hour in the week that I can go ahead and devote to, like you’re saying, environmental learning.”

Daphney talked about the need for teachers to be well prepared and build in the time to get to the outdoor classroom and back. “You have to build in time to get there, to get out there, to do what you’re going to do, to get back in, to clean up, to do all that kind of stuff. And that’s not part of that lesson plan.” Daphney also talked about how teachers cannot change their schedule to include outdoor classroom use because everything is required that is on the schedule. “You cannot take away from other parts of the daily schedule because everything else is protected, including recess.”

Tricia had 29 students in her class this year. She pointed out that it is a struggle to get that many students organized and to the outdoor classroom and back while teaching a lesson in the time allotted. “There’s not been a school that I’ve got more than really half of an hour or 40 minutes tops at a time to use my science.” Tricia also went on to discuss the importance of the time factor in planning effective lessons. She needed time to do research and confer with colleagues about good lessons to use in the outdoor classroom and collect the materials to do the lesson. Laura shared the same complaint regarding coming up with lessons to use. She did not have enough time to find the resources and information needed to create effective lesson plans. It also took time to adapt lessons used in other grades. She stated, “Trying to adapt something when you have such limited amounts of time...” You need to include everything including transitions to and from the site, time needed to get everyone settled down for the lesson and teach the lesson.

Weather. Weather was mentioned by several teachers as being a barrier for using the outdoor classroom. Some teachers did not like cold weather and did not want to take their students outside during the winter. Other teachers talked about rainy weather as

being a factor for not using the outdoor classroom. Laura talked about how the weather, cold and/or rainy, would prevent her from taking students outside to learn. She said, “When it’s too cold like this, you’re not going to get many lessons happening outside, so you can’t use it when it’s cold and wet.”

Weather effects Alma’s classroom a little differently from many others. She had a paperless classroom, so every assignment was completed using a laptop. Alma runs into the problem of not being able to take laptops outside if there happens to be any type of precipitation outside. “If it’s nice I’ll go there. I figure because I’m a paperless classroom, so I have devices. So, I do have to think about them getting wet and dirty.”

Daphney also commented that one of the reasons teachers told her they did not use their outdoor classroom because it involved weather conditions such as if the weather was rainy or cold outside. Daphney stated, “There’s just more resistance to it, and those are the kinds of excuses that—weather, not just having enough time in the schedule...” Cold and rainy weather seemed to produce the most resistance over hot weather for not using the outdoor classroom.

Other barriers. There were a few other barriers mentioned by teachers that came up (see Appendix B). One was the fact that schools use a lot of technology these days. Most classrooms have at least 10 laptop computers for students to use. One teacher would like to see a way to set up Wi-Fi in the outdoor classroom. She stated she would use it more.

Another barrier mentioned concerned classroom management and behavior of the students. Laura discussed the routines and procedures for teaching students at the

beginning of the school year and how difficult it is to keep large classes regardless of grade level from wandering around and stepping on plants or something they don't need to be stepping on. Melody was concerned with the safety and management of getting her students to and from their outdoor classroom. They are required to cross a parking lot to get to the outdoor classrooms.

Bill talked about how students are not used to going outside and using the outdoor classroom. He said, "So when they go out there they just lose all control for a little bit, and then they're excited and, yeah, they want to explore their freedom." This presents a problem when a teacher is trying to get a lesson in during a certain amount of time. Bill commented on how the students are not visiting the outdoor classroom enough to change their behavior and settle down for a lesson.

Lack of training and education on how to use the outdoor classroom was cited as a barrier for Melody and her view why too few teachers are using the outdoor classroom. Melody talked about how much money was spent on creating an outdoor classroom but administrators did not spend any money for training teachers on how to use it. Melody said, "They put a lot of money into it but do not put any money into teaching us how to use it."

Summary

Results from this study focused on the research question: What experiences and barriers influence a teacher's decision to not use an available outdoor classroom? Themes were developed from two parts of this research question: experiences and barriers.

Looking back at the interviews the participants had a lot of nature experiences growing up. All participants were continuing to participate in outdoor nature experiences as an adult through hiking, swimming, boating, camping or other outdoor types of activities. Each participant continued to share their own growing up outdoor experiences with their own families through participating in outdoor activities.

Each participant talked about how they grew up playing outside. They did not spend a lot of time watching television and only one talked about playing games on a technological device. Most pointed out they did not have a computer to play games or view the internet while growing up.

All participants made the point of telling how they were made to use their imaginations while playing outside. Each participant was excited to talk about how they created their own games with their friends and family members. They reminisced about how they played in the rain or in creeks for hours at a time. They talked about how they created many of the toys they needed for games or playhouses out of things they found.

Trips with family and friends was very important in the positive experiences participants shared. Discussions about getting away from everything and being able to spend time alone with family and friends was an important aspect of trips that involved camping or hiking. It was mentioned by several participants the ability to see first-hand, many different plants and animals in their natural habitat instead of through books or from the internet. Another positive experience resulting from these types of trips was being able to challenge oneself and build confidence by participating in activities that

required some risk. The act of sharing these nature activities helped create bonds with family and friends.

Most of the worst experiences teacher participants talked about had to do with camping and the weather. The weather was either too cold or it was very stormy. Only two participants focused on snakes as being part of their worst experience in nature. Neither participant had been bitten by any type of snake. They stated they feared snakes and just did not like seeing them. The following section examines the barriers teacher participants shared for not using the outdoor classroom.

The barriers that showed up include things that are beyond the control of individual teachers such as weather, lack of time in an already tightly controlled schedule, and lack of support from an administrator. Some other factors that contribute as barriers are testing, curriculum requirements, lack of understanding what environment-based education is and how to implement it (see Appendixes B and C). The only barrier listed that could not be controlled by a person was the weather. Most other barriers were controlled by administrative decisions.

The results of this study show that early experiences do not have an impact on teacher choice for using an outdoor classroom. The participants shared many wonderful experiences that influenced their decisions to continue participating in activities outdoors with their own families. Even after unpleasant outdoor experiences these participants have chosen to continue to take their families on hiking or camping trips. These choices to involve their own families in outdoor activities comes from having the ability to control or have a say in what they do.

Chapter 5 will provide more details about the results of this research study.

Recommendations for future research will be discussed. Implications for social change will be explored.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of the study was to understand the experience of teachers and their choice to not use available outdoor classrooms to teach academic content. I used a basic qualitative research design with interviews. The participants were seven elementary (K-5) teachers who had access to outdoor classrooms at their schools. These schools are part of 21 elementary schools located in a school district in middle Georgia. Six of these schools had teachers volunteer to participate in this qualitative research study. I interviewed each teacher participant using a semi-structured, open-ended interview instrument I developed. Two conceptual theories provided the framework for this research study: environmental cognition theory (Kaplan & Kaplan, 1982) and the theory of environmental education commitment (Shuman & Ham, 1997).

Interpretation of the Findings

The key finding of this research study was that a teacher's lived experiences in nature did not seem to appear to impact the teacher's decision to not use the outdoor classroom as a tool for teaching students as much as one would have expected. Kaplan and Kaplan's (1982) environmental cognition theory and Shuman and Ham's (1997) theory of environmental education commitment were used as the framework to examine a teacher's experiences and how positive environmental experiences promote a teacher's choice to use the environment, like an outdoor classroom, to teach. This research study revealed that teachers had the desire to use the outdoor classroom to teach because of experiences growing up and into adulthood, but that this desire was hindered due to many barriers beyond the control of the teacher. Most of the common barriers brought up by

teacher participants were tightly controlled schedules, lack of administrator support for use of outdoor classrooms, or lack of staff development for teachers who had never had training or very little training. This is not to place blame on administrators; however, but many decisions such as tightly controlled schedules, lack of administrator support for use of outdoor classrooms, or lack of staff development provided to teachers for using the outdoor classroom are not decisions teachers are allowed to make. Other prominent barriers included weather and lack of time for planning lessons and storing materials needed.

Life Experiences

Drawing from environmental cognition theory (Kaplan & Kaplan, 1982), I surmised that life experiences and beliefs about teaching environment-based education come from mental maps created during outdoor experiences beginning in early childhood. These experiences and beliefs guide a person's perceptions, decisions, and outdoor behavior. This leads to an environmental map that the person constructs regarding his or her natural environment. The first section of the interview focused on questions based on the environmental cognition theory to understand early outdoor experiences and beliefs about teaching environmental education.

Most teachers in the study shared personal stories of spending hours at a time outside with neighborhood friends and family. Teachers reminisced about how their parents sent them outside to play when they were finished with breakfast. They talked about all the things they would do and how it would usually be dark when they came home. The teacher participants said that it is important to get children outside, so they

can be active in their natural surroundings. These teachers involved their own families in many outdoor experiences. Each teacher shared how the belief that going outdoors early on was important in their growing up and how they would like to see more students involved in outdoor activities including student learning activities. Most participants stated that it was almost impossible to involve students in learning activities outdoors during school hours due to the climate and culture of public school systems today.

The negative outdoor experiences teachers shared focused mostly on weather-related issues. Two teachers talked about snakes but never had been bitten. One teacher had injuries due to an accident from a sporting event. These negative experiences had not deterred any teacher participant from continuing his or her outdoor activities today.

Although six of the teachers who participated in this study had some form of environment-based training, most teachers were not able to provide an answer to what they thought environment-based education was. One teacher, Daphney, gave an insightful answer for what environment-based is not. Her statement focused on just taking students outside to sit and read under a tree. Most teachers talked about environment-based education as teaching about the environment and taking care of the environment.

Most teacher participants had an adult who shared knowledge about the outdoors with them and encouraged them to be outside when they were younger. Teacher participants were willing to use the outdoor classroom and believed it was important to share their knowledge of the outdoors with their students, but they chose not to use their school's outdoor classroom for various reasons. In the following section, the barriers

teacher participants stated that prevented them from taking their students outside to learn will be examined more closely.

Barriers

The number one barrier for not using the outdoor classroom according to the teachers interviewed was lack of time in a tightly structured daily class schedule. The lack of administrative support and lack of teacher training followed as barriers for not using the outdoor classroom. The final two barriers identified were weather and lesson planning (including collecting and storing supplies). These are the top five barriers most often mentioned as preventing teachers from using their outdoor classroom. Two participants mentioned other barriers in addition to those previously analyzed, but these barriers were not something that most teachers agreed upon as being a major barrier that prevented them from using the outdoor classroom. These barriers include lack of volunteers for upkeep during the summer month, lack of seating, lack of funding for maintenance, and lack of Internet connections outdoors.

Structured Daily Schedule

Teachers stated lack of time in an already tight and a very structured schedule as the number one barrier that prevented them from using the outdoor classroom. The daily schedules were set by the administration due to student specials and pull-out programs. Teachers were not allowed to set their own class schedules. Every minute was scheduled throughout the day. This included time within each subject to ensure that teachers were teaching the same thing on the same day. Hirschi (2015) found “With the minutes of the school day so tightly scripted, the time it takes teachers to transition their class to the

outdoor learning garden, even when it's right outside the classroom, can pose a challenge" (p. 40). Most teachers had large class sizes that require time to set up and go to and from an outdoor classroom. The amounts of time it takes depends on the location of the outdoor classroom. With a tightly run daily schedule, the teachers shared the difficulty getting everything organized and students ready to visit the outdoor classroom and still teach the lesson without going off the schedule.

Administrator Support and Training

Lack of administrator support and lack of teacher training on how to use the outdoor classroom or teach environment-based education were the two second most common complaints as a barrier. It is important to note that the administrator oversees creating schedules and providing staff development. These barriers are supported in the literature regarding teacher use of outdoor classrooms. In a study involving teachers teaching environment-based education, the researchers found a common barrier was positive support. Without positive support, teachers were less likely to use the outdoor classroom. It was found the principle role of administrators in using environment-based education was to mobilize and support teachers (Blanchet-Cohen & Reilly, 2013).

Support. If the administrator does not support the use of outdoor classrooms most teachers are not going to use them. Five teachers mentioned they felt the only thing administrators were focused on were improving student standardized test scores. These test scores impact school funding and teacher evaluations. Although these schools had outdoor classrooms teachers were not using them. One teacher, Bill, shared how his school's previous administrator was promoting the use of the outdoor classroom for a

program called Farm-to-Table and was encouraging teachers to use it. When the new administrator took over, this person shut everything down and told the teachers that the community would not support it, so nothing was ever done. Teachers do not use it.

Training. Even though each school had an outdoor classroom, teachers shared how schools were not providing training on how to implement academics into outdoor classrooms. If this training is not included in professional development for teachers, the teachers must find and pay for their own training (Hirschi, 2015). Alma shared that during teacher workdays the teachers are usually given choices on professional development workshops (at the school) they would like attend but a workshop regarding the use of the outdoor classroom has never been offered. The teachers that had taken workshops such as Project WILD or Master Gardener did so at their own expense and on their own personal time.

Weather

Weather was discussed about temperature and rain for outdoor classroom use. Teacher participants stated that most teachers will not go outdoors if it is too cold or too hot. Although teacher participants shared experiences in nature that involved poor weather conditions, these teachers claimed that they would still use the outdoor classroom in these types of weather conditions, but they knew their colleagues would not.

Weather was also discussed in relation to using computer laptops outside. One teacher has a paperless classroom. This teacher requires students to complete all assignments on their laptops. Weather presents a problem on days that include a lot of

moisture such as snow or rain. Students would not be able to take their laptops outside to the outdoor classroom.

Lesson Plans

Another time factor is having everything prepared that the students will need so teachers can make the most of the limited time the students may have outdoors. Teachers discussed the time needed to locate resources and collect the materials to use for each lesson as a barrier. Teachers were unsure where to locate information regarding lesson plans. Storing the necessary equipment used for lessons such as clip boards for writing, garden tools, and miscellaneous items for different lessons posed as part of the problem with creating lesson plans.

Limitations of the Study

The first anticipated limitation was the comfort level of the teacher participants for sharing their personal experiences. However, the teacher participants were eager to share their personal experiences. There was a concern that teachers would be hesitant to share their experiences openly and honestly for not using outdoor classrooms due to administrators finding out who they were. They were very passionate about sharing their experiences including barriers for not using outdoor classrooms.

The second potential limitation was the number of elementary schools that had outdoor classrooms. However, this did not impact this research study since I was able to meet with teachers all over the county instead of just a small community within the county. I was able to meet at six different schools located in the suburbs to schools located in mountain communities.

The third and final limitation was the researcher-created interview protocol. This interview protocol might demonstrate any biases that I have in support of outdoor classrooms. The questions were created and peer-evaluated before using to determine any potentially biased questions. Probes were added during each individual interview to dig deeper into a participant's answer. Transcripts of interviews were sent to the participating teacher for review. Teachers could clarify or make corrections for anything they believed was incorrect. I did not have any teachers make any corrections.

Recommendations for Future Research

As the barriers included things out of the teachers control, future research is important to find out more about the administrator's role in outdoor classrooms. The atmosphere in most elementary schools today is a focus only on improving test scores. Future research interviewing administrators should focus on what they know and understand regarding environment-based education.

More research is also needed regarding student learning and how the outdoor classroom influences learning. Studies confirming the positive impact that outdoor classroom use has on increasing test scores have been conducted (Lieberman, 2013). Future research should focus on how the use of outdoor classrooms impact different learning styles and intelligences. Does the use of outdoor classrooms to teach skills and academics have more of an impact on some students when compared to other students?

Finally, more research is needed in teacher preparation. Why aren't teacher colleges and universities offering more courses regarding environment-based learning for their future teacher graduates? Since studies have shown that environment-based

education has a positive impact on students and student test scores, shouldn't environment-based education courses be required alongside other teacher education courses? One of the barriers looked at teacher knowledge and training. The teacher participants were not very knowledgeable about what environment-based education is. The teacher participants also had to seek out and pay for their own training to learn about using the outdoor classroom.

Implications

With many research studies supporting the use of environment-based education in schools, it is important to find out why teachers are not using the available outdoor classroom. The results of this study show that it is not necessarily the experiences of teachers that are preventing the use of the outdoor classrooms but factors beyond the teacher's control. Even though teachers had positive outdoor nature experiences, environmental training, and the desire to include their students in outdoor learning experiences, they still did not use the outdoor classrooms. Instead of prior experiences, current experiences and culture within the schools are the barriers: Testing focus, lack of control of daily schedule, lack of support, lack of understanding of what environment-based education is and how to implement it.

Training administrators and teachers on what environment-based education is and the impact it has on student learning is important. As more administrators realize the positive influence using outdoor classrooms has on student test scores and student behavior, the more administrators will begin to promote and support using outdoor classrooms. Teachers that understand what environment-based education really is and

have the training to teach using environment-based education will use the outdoor classroom more with the support of administrators that share this understanding.

A positive social impact for increasing teacher and student use of outdoor classrooms using environment-based education is it would promote environmental awareness. Students would be able to get outside and learn about the environment as well as learn academics and life skills. Another positive social impact would be an increase in student standardized test scores. A healthy lifestyle generated by a love of and participation in outdoor activities will have a positive social impact on entire families.

Conclusion

The research question for this study was “What experiences and barriers influence a teacher’s decision to not use an available outdoor classroom?” The results of this study found that it really is not the experiences that teachers have in nature that influence their decision to not use an outdoor classroom. Each teacher participant shared their belief that nature experiences were important as they grew up and believed students should be gaining their own experiences. All teacher participants shared their desire to use outdoor classrooms and were eager to discuss reasons why they chose not to. Many of the types of barriers teachers presented for not using the outdoor classroom were barriers that were beyond their control such as tightly controlled schedules, lack of administrator support, little or no training for using outdoor classrooms, weather, and creating lessons. Other types of barriers such as not having internet connection, lack of seating, and lack of volunteers for upkeep of outdoor classroom during summer varied from teacher participant to teacher participant and did not receive a lot of comment.

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Appendix A: Interview Questions

Teacher Questions

1. What does nature mean to you?
2. Describe 1 or 2 of your best experiences in nature.
 - a. What made this/these experiences the best?
3. Describe 1 or 2 of your worst experiences in nature?
 - a. What made this/these the worst?
4. Tell me about your interest in nature growing up?
 - a. How did you express that interest?
5. Tell me about your experiences in playing outside when you were growing up. What types of activities did you do?
6. When you were not playing outside, what types of indoor activities did you participate in?
7. Describe any experiences you had as a student learning outside?
 - a. If you participated in learning outside what kinds of activities did you do?
8. Describe outdoor activities that you participate in now as an adult.
9. How would you assess your knowledge about nature?
10. Where do you think you have learned the most about nature?
11. What does environment-based education mean to you?
12. What types of educator training have you had concerning environment-based education?

13. How would you describe the effect that training has had on your knowledge about environment-based education?
14. Describe any interest in mentoring from others or support from the administration.
15. Tell me about your decision whether or not to use the outdoor learning space available. What key factors influence your choice?
16. Is there anything else you would like to share regarding your experiences outdoors or your decision whether or not to use an outdoor classroom?

Appendix B: Barrier Importance Analysis

Barrier	Carol	Tricia	Melody	Alma	Daphney	Bill	Laura	Total
Lack of administrative support	1	1	1		1	1		5
Lack of teacher training		1	1	1		1	1	5
Weather			1	1	1		1	4
Lack of time in schedule		1	1	1	1	1	1	6
Lack of resources & lessons	1	1			1		1	4
Student testing focus		1			1	1		3
Very structured daily schedule		1	1	1	1	1		5
Lack of funding – maintenance					1	1		2
Collecting and keeping up with supplies for lessons outside	1	1			1		1	4
Overgrown gardens	1							1
Teacher evaluations tied to student test scores		1						1
Not being able to use laptops				1		1		2
Lack of outdoor knowledge				1				1
Lack of funding - training					1			1
Lack of volunteers for upkeep of gardens					1	1		2
Amount of time to get approval to make improvements					1			1
Change in administration from supportive principal to non-supportive principal					1	1		2
Lack of seating to complete assignments			1	1				2
Teacher resistance					1		1	2
Focus on technology						1		1
Amount of time for preparation	1				1		1	3

Appendix C: Experience and Barriers Comparison Matrix

Teacher	Experiences		Barriers
	Positive	Negative	
Carol	<ul style="list-style-type: none"> • Family trip resulting in surprise whale watching • Investigating tide pools • Camping with family for the weekend 	<ul style="list-style-type: none"> • Fishing in pouring rain and being so cold • Outside playing, lost glove in snow and almost getting frostbite 	<ul style="list-style-type: none"> • Lack of administrative support • Collecting and keeping up with supplies for lessons outside • Overgrown gardens
Tricia	<ul style="list-style-type: none"> • Family camping trips • Swimming in creeks and swinging on ropes and jumping into the water 	<ul style="list-style-type: none"> • Camping and running into a snake 	<ul style="list-style-type: none"> • Lack of time in schedule • Lack of administrator support • Lack of teacher training • Lack of resources & lessons • Student testing focus • Teacher evaluations tied to student test scores
Melody	<ul style="list-style-type: none"> • Having dinner in the evenings on our boat • Hiking trips with my family 	<ul style="list-style-type: none"> • Camping trips that involved running into snakes 	<ul style="list-style-type: none"> • Lack of time in schedule • Lack of administrative support • Weather • Lack of training • Lack of seating to complete assignments
Alma	<ul style="list-style-type: none"> • Watching students become excited as they explore the outdoor classroom 	<ul style="list-style-type: none"> • Camping without access to showers • Rafting and the fish were biting my toes 	<ul style="list-style-type: none"> • Weather • Very structured daily schedule • Not being able to use laptops • Lack of training • Lack of outdoor knowledge
Daphney	<ul style="list-style-type: none"> • Family trips to see natural places such as Pacific Ocean or Grand Canyon (the shared experiences) 	<ul style="list-style-type: none"> • Camping trip where teacher was sitting too close to fire and actually caught fire • Camping trip where teacher was sliding down the hill during the night • Camping trips in bad weather 	<ul style="list-style-type: none"> • Lack of administrative support • Lack of funding - training • Lack of funding - maintenance • Lack of volunteers for upkeep of gardens • Amount of time to get approval to make improvements • Very structured daily schedule • Weather • Teacher resistance
Bill	<ul style="list-style-type: none"> • Caving • Shot some waterfalls in kayak and pulled it off 	<ul style="list-style-type: none"> • Kayaking accident resulting in shoulder injury • Camping in freezing weather 	<ul style="list-style-type: none"> • No time in schedule • Lack of administrative support • Change in administration from supportive principal to non-supportive principal • Lack of funding - maintenance • Focus on technology • Focus is on test scores
Laura	<ul style="list-style-type: none"> • Camping with family and friends and being able to observe animals and plants in their natural habitat • Kayaking trip and encountering a family of manatees up close 	<ul style="list-style-type: none"> • Camping in cold weather • Camping in bad weather (severe thunderstorm with lightning) 	<ul style="list-style-type: none"> • Weather • Lack of lessons and resources • Lack of teacher training • Amount of time for preparation