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Encouraging Prekindergarten Children's Learning in a Head Start Program through Outdoor Play

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Abstract

This action-research study was designed to discover how to encourage teachers to use outdoor learning environments to prepare prekindergarten children for kindergarten by helping them gain skills described in a framework of learning outcomes designed for Head Start. The framework described five areas of skills needed for success, which included communication skills, book knowledge, writing, physical coordination, general knowledge, mathematics, the ability to attend and engage in new learning, interacting with peers and adults, and controlling and understanding emotions. The study of a Head Start Program included teachers to help determine if outdoor learning environments could help teachers embrace an inquiry-based learning format for their students and reduce behaviors by the children that impede learning. Participating teachers addressed the specific barriers to outdoor play the program had identified by developing strategies to address those barriers, implementing the strategies, and evaluating the experiences after the implementation phase. Data were gathered through close observation, teacher interviews, and daily journals to detect if the teachers intentionally planned to use outdoor learning environments, how they implemented those plans, and how they interacted with the children during outdoor playtime once the barriers to outdoor play were removed or diminished in accordance with the strategies developed. This study was designed to actively search for solutions to encourage teachers to employ the benefits of outdoor play, especially as it pertains to preparing children for kindergarten using a framework designed for Head Start.

Keywords: Head Start, Early Learning Outcomes Framework, natural outdoor learning environments

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Chapter 1: Introduction

Introduction to the Problem

Since 1965, Head Start programs served millions of children below poverty level by providing early education combined with health care, nutrition, and family-engagement services (About Us, 2017). Children in the Head Start program are given access to medical screenings to assess their physical and mental health, educational support to help prepare them for a successful academic career, and family support to help their parents learn how to advocate effectively for their needs (About Us, 2017). However, these children are at risk of entering kindergarten with lower academic skills than children from higher socio-economic levels (Puma et al., 2012). Consequently, Head Start programs seek to provide equitable educational services to the most vulnerable members of our society. However, Friedman-Kraus, Raver, Neuspiel, and Kinsel (2014) noted that many Head Start teachers experience child behavior problems in their classroom which cause teachers to feel stressed about their role as early childhood educators and their ability to provide quality educational services to the children they serve. Could encouraging teachers to use outdoor learning environments meet the needs of the children and assist teachers in meeting their responsibilities?

Many of the children entering Head Start programs need to learn how to function in an environmental setting other than their homes. Parents struggling to afford the basic essentials for their children lack the knowledge and skills to provide normal routines and continuity of care that support healthy and normal development (Isaacs, 2012). As a result, many children in the Head Start program begin the year lacking the necessary skills to regulate their emotions, interact with other children, and take directions from other authority figures. Quite simply, they need to learn how to develop positive relationships with other adults and children. While this problem is

typical for most 3-to-5-year-old children, it is difficult to remedy if they have had little structure in their lives and are now expected to act differently. The behaviors of these children tend to challenge the teachers to safely manage their classrooms (Friedman-Krauss et al., 2014), and teachers find it difficult to accomplish all the expectations placed upon them while dealing with these disruptive behaviors and trying to meet Head Start Performance Standards.

Head Start teachers are responsible for providing quality education to low-income children and can be overwhelmed by the responsibility of managing each individual child's needs as well as satisfying all the Head Start Performance Standards. Friedman-Krauss, Raver, Neuspiel, and Kinsel (2014) collected data through questionnaires in which teachers expressed their frustration with fulfilling all the requirements of adopted curriculums and managing child behavior problems, such as aggression and the inability to control strong emotions. Since Head Start program teachers feel as though more children are entering their classrooms with increased displays of aggression, an inability to focus their attention, and lower social skills necessary to interact positively with others, these teachers need to help many children adapt to the social situations in the classroom, not just a few (Snell, Berlin, Voorhees, Stanton-Chapman, & Hadden, 2011).

Additionally, the office of Head Start recently changed the performance standards, now emphasizing using the adopted curriculum with fidelity, which means teachers must use inquiry-based learning since we adopted this into our policy and procedures a few years ago (Head Start, 2016). Furthermore, teachers must provide children with lessons and activities that promote growth in the areas of social and emotional development, gross-motor and fine-motor development, cognition, language, literacy, and approaches to learning, meaning children's ability to attend and engage in learning. Addressing children's physical health is also a focal

point because Head Start administrators believe in addressing the needs of the whole child, not just academic needs (Head Start, 2016). Administrators, managers, and teaching staff have been searching for a way to address the complexities of educating the children in a Head Start program that reduces teachers' stress and frustration (XXX, personal communication, May 10, 2016). Outdoor play may provide the answer to these complexities.

Background, Context, History, and Conceptual Framework for the Problem

The National Center on Quality Teaching and Learning developed a framework of effective practice to help Head Start teachers focus on the skills and knowledge they should be cultivating in the children enrolled in their program (Effective Practice Guides, 2017). This framework is shaped like a house and lays a foundation of engaging interactions and environments that support and encourage critical thinking in young children. Two pillars are erected from the foundation: the first pillar focuses on research-based curricula and teaching practices, while the second pillar focuses on child assessment. These two pillars work together to ensure the curricula are effective by assessing them often to gauge the progress children make throughout a school year. The roof of the framework represents the individualization of each child, meaning teachers create individual goals for each child in their classroom and subsequently produce lessons and activities that will support each child's goal. In practice, the teacher creates an environment rich in learning materials and positive interactions between peers and adults, uses a research-based curriculum to develop highly effective lessons and activities, develops individual goals for each child, and finally, assesses each child on his or her goals frequently throughout the school year. All the components of this framework join together to help children get a head start on their learning and development, which in turn helps them transition into kindergarten ready to learn in a more structured learning environment.

Embedded in the framework of effective practice is another framework called the early learning outcomes framework, which was the conceptual framework for this study (Administration for Children & Families, 2015). The early learning outcomes framework is a comprehensive description of the skills and knowledge children should acquire beginning at birth and continuing through age five to help them succeed when they enter kindergarten. It covers five different domains: social-emotional development, language and literacy development, physical development, approaches to learning, and cognition. This framework should be used by Head Start teachers to identify developmental milestones of the children they serve in order to design their classroom environment to promote engaging interactions between teachers and children, create individual goals for each child with their parent, plan lessons and activities to support those goals, and assess the progress made on those goals. The experiences and skill levels of the children entering a Head Start classroom will vary and may pose a challenge for teachers, as they support each child according to the child's needs (Friedman-Krauss et al., 2014). Head Start offers an ideal method of addressing all five of the domains in the early learning outcomes framework through nature-based learning (Nature-Based Learning and Development, 2011).

In an effort to support the conceptual framework of this study and nature-based learning, it was important to understand the works of nature theorists Louv and Kellert. Louv (2008) believed that children do not play outside as often as their parents did, and the lack of outdoor experiences results in children being physically unfit and displaying problem behaviors such as aggression, an inability to focus, lack of persistence, and increased agitation. Louv's conceptions coincided with Kellert's (2005) theory regarding humans' emotional connection with nature. However, Louv stressed the need to be in natural settings, whereas Kellert believed

that while direct exposure was best, symbolic representation of nature through art could still be valuable. Finally, Sobel (2005) seemed to concur with the theories of Louv and Kellert but added that children must experience nature first-hand using all their senses in areas known to them on a daily basis. If these theories are true, then encouraging teachers to use an outdoor learning environment may solve their problem of spending more time on correcting children's challenging behaviors in the classroom and help them focus their attention on the lessons being taught. What is not known is how to encourage teachers to use outdoor learning environments on a daily basis with intentional learning objectives. This is the core of this researcher's research.

Educators and parents do not provide children with opportunities to play outside in natural environments (Laird, McFarland-Piazza, & Allen, 2014). People born between 1961 and 1981 spent their childhood days outside building forts, chasing butterflies, and daydreaming (Louv, 2008). They would stay outside most of the day, only coming home to eat before going back out. Although these children enjoyed days filled with outdoor adventures, they grew up to become parents who fear for their child's safety outdoors (Louv, 2008). According to Louv, children are not allowed to go outside unsupervised because of fear of strangers, injury, or mischief that may result in a lawsuit. Schools have removed several types of playground equipment for fear of injury to the children; it is difficult to find tall slides, merry-go-rounds, and swings on school playgrounds (Hanscom, 2016). Louv further stated children do not know what to do when they are outside because of all the restrictions placed on them. They are not allowed to play in certain areas, nor are they allowed to create spaces that permit them to construct elaborate play schemas. Some cities require building permits for children to build treehouses or

forts in their backyard. As a result, children opt to stay inside to watch television or play video games. This inactivity diminishes brain development (Karabulut, 2013).

Louv (2008) and Kellert (2005) believed nature has a profound effect on learning and development. Many of the physical and mental health problems developing in children today stem from playing inside more than outside, causing what Louv (2008) termed *nature-deficit disorder*, meaning a lack of attachment or exposure to nature resulting in physical or mental problems. Kellert (2005) explained how humans have an emotional connection with nature, and this connection requires exposure to nature. Kellert (2005) recognized different types of exposure to nature, ranging from direct contact to pictures of nature, and understood children's optimal physical and emotional development relies on their experience of nature. The author believed that humans will work better, learn better, and be more at peace when they are surrounded by natural elements. Louv (2008) believed children need direct contact with nature whereas Kellert (2005) recognized the attraction and the benefits nature has on humans whether through direct or indirect contact. Either way, they both agreed that nature is an important aspect of human life, and it affects the way children develop. In addition to these theories, Sobel (2005) stated children need to learn by using all of their senses, which can only be done if they have physical contact with the subject they are learning. Playing outdoors provides many benefits to learning and developing that fall within the scope of the early learning outcomes framework created by the Office of Head Start (Administration for Children & Families, 2015).

Statement of the Problem

Head Start administrators support nature-based learning, but many teachers do not use outdoor play as an intentional learning opportunity. The Early Childhood Learning and Knowledge Center (ECLKC) provided Head Start programs with a report from Muñoz (2009),

sharing several literature reviews on the benefits of exposing children to nature and outdoor play. ECKLC emphasized the research supporting outdoor play should be an added value of Head Start programs because of the health benefits and motivation for learning (Nature-Based Learning and Development, 2011). Further, it suggested ideas to teachers, describing ways to play in nature and how nature play can enhance their lesson plans, an added bonus since the research and activities reflect the early learning outcomes framework. Nature-based learning and development may be an effective way to help teachers prepare children for kindergarten; however, it is evident teachers do not apply this knowledge to their teaching.

Louv (2008) acknowledged access to nature and the outdoors as a common problem with children today. This lack of access to nature and the outdoors has caused many children to suffer from sensory issues, bodies that are uncoordinated, and the inability to focus and calm themselves (Hanscom, 2016). Children who play outside tend to be more physically healthy, have improved cognitive ability, and do not exhibit challenging behaviors (Bell, Wilson, & Liu, 2008; Fjørtoft, 2001; Louv, 2008; Sobel, 2005). Teachers can recognize the importance of the outdoors and ensure children have access to it on a daily basis; however, it is not known how to eliminate the barriers and encourage teachers to use the outdoors in a more meaningful way to educate children.

Purpose of the Study

The purpose of this study was to conduct an action-research project to explore how teachers identify, eliminate, or replace barriers to using outdoor learning environments in order to minimize children's difficult behaviors and develop kindergarten readiness skills, as described in the Head Start early learning outcomes framework. Research has demonstrated the benefits of outdoor play (Fjørtoft, 2001; Hanscom, 2016; Louv, 2008; Nedovic & Morrissey, 2013;

Tremblay et al., 2015). This study, using the early learning outcomes framework as a guide, determined how to remove concrete and perceived barriers to encourage teachers to create outdoor learning centers to foster children's development. Teachers were invited to participate in the study to assess how they were currently using outdoor settings, what prevented them from using them, and what may inspire teachers to use outdoor settings more often. Together, each teacher and this researcher decided what were concrete barriers or facilitators to outdoor play and what were simply perceptions. Once specific barriers and facilitators were identified, the teacher and researcher planned ways in which the barriers could be removed or broken down, implemented the plan, and evaluated the plan's success or failure.

Each teacher in the study executed the plan devised on breaking down a barrier to outdoor learning environments. The teacher had a total of 6 weeks to implement the plan; however, she met with this researcher at 2-week intervals to assess the plan's implementation and made any necessary adjustments. Included in the assessment of the plan to remove the barrier, the teacher and researcher examined whether children were given an opportunity to develop skills in language, literacy, mathematics, science, social and emotional development, and physical development. Once the allotted time has passed, the teacher and researcher reconvened and discuss the results of data collected for accuracy. As each teacher was executing the plan, she kept a daily journal of her experience to discuss in the meetings with the researcher.

In addition, participating teachers examined if they were able to use inquiry-based learning strategies with more ease while they used outdoor learning centers. The administrators of Head Start program chosen for this study encourage teachers to use an emergent curriculum that emphasized creating lessons and activities that are based on the interests of the children in their class. Inside the classroom, teachers felt they tended to plan more teacher-directed

activities in a controlled environment. When children play outdoors, the environment is unpredictable such that they never know if a creature will wander into the play space or how the fauna may be changing as the seasons change. Because of this unpredictability, children may become curious about a new discovery they find in the world in which they live which may prompt them to ask teachers questions about their discovery (Perry & Branum, 2009). This is the essence of inquiry-based learning. Together, the teachers and researcher discovered new ways to embolden colleagues to use outdoor environments more often.

Research Questions

In order to discover what might encourage Head Start teachers in one particular program to use outdoor play as intentional learning time, a focus group comprised of participating teachers and the researcher was formed. The focus group asked what was our specific problem, how can we solve it, and how can we make the change. Therefore, the research questions were the following:

R1 How will barriers to outdoor play, such as weather conditions, safety concerns for the children, and accessibility to materials, be removed or diminished to encourage teachers to use outdoor learning environments to foster language and literacy skills; approaches to learning; physical, perceptual and motor skills; cognition; and social-emotional skills, as outlined in the Head Start early learning outcomes framework?

If barriers can be removed for outdoor play, teachers may use outdoor learning centers more often to help children prepare for kindergarten. The benefits of outdoor play may help children remain calm and focus their attention on learning.

R2 If the barriers to outdoor play are removed or diminished, how will teachers intentionally plan activities for outdoor learning environments and use inquiry-based learning strategies?

If teachers begin using outdoor learning environments, it will be important for them to intentionally plan activities and set up their environment to help individual children meet the goals their parents and teacher set for them. Teachers in this Head Start program have been directed to use inquiry-based learning; however, most tend to plan teacher-directed lessons and activities. The research suggested inquiry-based learning was more conducive in outdoor settings; therefore, if outdoor learning centers were being used, this researcher wondered if teachers would find it easier to plan child-led activities in the outdoor setting rather than teacher-led activities (Perry & Branum, 2009).

R3 How do teachers perceive natural outdoor settings as learning environments that could help prepare children for kindergarten by helping the children develop skills in the five domains established in the Head Start early learning outcomes framework?

If teachers perceived natural outdoor settings as learning environments, they may be more apt to use them to help prepare children for kindergarten.

Rationale, Relevance, Significance of the Study

If this study could determine how to break down the barriers of taking children outside to explore nature as a way to reduce children's challenging behaviors and gain kindergarten readiness skills, then teachers may be more inclined to use outdoor learning centers on a daily basis. Children will reap the rewards of outdoor play, and Head Start teachers may discover they are able to meet the required Head Start performance standards because playing outside may

naturally reduce challenging behaviors and give teachers time to actively engage with the children to guide their learning.

Previous research conducted on outdoor learning environments revealed the benefits of children's outdoor play, analyzed types of outdoor play and settings, and recently, teachers' perceptions of outdoor play (Bell, Wilson, & Lieu, 2008; Ernst & Tornabene, 2012; Fjortoft, 2001; Ihmeideh & Al-Qaryouti, 2016; McClintic & Petty, 2015). Little research has been conducted about how to encourage teachers to take children outside more often. Therefore, on a larger scale, this study could be a starting point to additional action research that explores how early childhood programs may encourage more outdoor play within their curriculum. Using action research will help this particular program reflect upon current practices and creatively investigate a way to systematically develop a planned change that solves problems, changes perspectives, and improves the delivery of early childhood education.

Definition of Terms

Nature-deficit disorder: a condition caused by lack of access to nature that results in physical and behavioral problems. It stems from parents' fear of the outdoors, declining natural parks, restrictions on outdoor play, and interest in electronic entertainment devices such as television and video games. This phrase was coined by Louv (2008) and is not meant to be a medical diagnosis.

Nature-based learning: learning that includes nature and natural elements to help children maintain a connection to nature. Teachers may incorporate nature-based learning into their pedagogy by bringing natural items into their classroom to be used as learning materials or by studying nature to naturally encourage children to be curious and investigate the world around them (Nature-Based Learning and Development, 2011).

Place-based learning: the idea that children learn by experiencing the world in which they have immediate access. Children need to use all their senses when they are learning, so being able to study the local culture and physical attributes of the *place* they live helps their learning be more authentic (Sobel, 2005).

Head Start: federally funded comprehensive program that serves low-income families by providing early childhood education including nutrition, health, dental, mental health, and parent involvement for children aged birth to 5 (Office of Head Start, 2015).

School readiness or kindergarten readiness: the obtained skills necessary to be successful in kindergarten including domains in social-emotional development, language and literacy skills, approaches to learning, physical development, and cognition (Administration of Children & Families, 2015).

Approaches to learning: how children approach learning by being curious, persistent, engaged with others, and motivated to learn (Administration for Children & Families, 2015).

Force field analysis: the idea that every situation has forces that facilitate and hinder your desired state (Schmuck, 2006).

Inquiry-based learning: learning that tends to be child led in which the teacher follows the interests of the children by posing questions that will encourage investigations to obtain an answer (Malone, 2008).

Assumptions

Teachers from one Head Start program were invited to participate in this research study to seek solutions to a common problem. Head Start teachers volunteered; therefore, it was assumed that they wanted to actively participate in every aspect of the study including discussions, planning, testing out the plan, and evaluating the data after implementation of the

plan. As they gathered data, it was assumed that participants would be truthful about their experience. This was validated by having a researcher observing the teacher as she interacted with the children and compared the researcher's observation notes to the teacher's daily journal entry. Their experiences and the researcher's observations were shared with the focus group as an attempt to fully understand the problem and evaluate solutions after they were implemented. The participation of the teachers and group discussions were confidential, with the process and the results presented as a group. Individual experiences were shared only when given explicit permission from the individual.

Delimitations

This study included one specific Head Start Program to determine if teachers with a similar program philosophy could be encouraged to use outdoor learning environments more often. Teachers had to be willing to meet with the researcher a minimum of six times; twice for the focus group and four times individually with the researcher. The number of teachers participating was limited to 10 so that this researcher could meet with each teacher to discuss her perspectives on outdoor play, understand barriers to providing outdoor experiences, and create strategies with each teacher that would overcome or reduce those barriers to encourage the use of outdoor learning environments.

The time limit for the study was 6 weeks in order to give a broad overview of the viability of the strategies developed to eliminate or reduce barriers to outdoor play. Participants were asked to keep a journal of their experiences; therefore, this added another responsibility to their daily work. By limiting the study to 6 weeks, participating teachers were able to fulfill their commitment of being active participants in this study without prolonging their workload.

Further studies may be conducted to determine if the strategies developed in this study to overcome barriers and encourage outdoor play can be sustained over time.

Limitations

The limitations of the study included participating teachers and site locations. Teachers were invited to participate in the focus group; however, not all chose to participate. The six participants were white females; no males volunteered nor teachers from different ethnic backgrounds. Additionally, access to different types of outdoor environments was different, based on the site from where the teacher taught. Two sites only had manmade playgrounds, while the others were close to parks or wooded areas. The types of settings could have had an effect on the barriers; however, this provided the focus group with varied settings in which to test their solutions.

Summary

The focus of this study was to examine if the barriers teachers identified that prevent them from taking children outside can be eliminated in a way that will encourage them to use outdoor learning centers as a way to prepare children enrolled in a Head Start program for kindergarten. It did not measure the quality of the outdoor learning centers, but the ease or difficulty of planning and executing their use. The focus group helped identify barriers to analyze, created solutions to break down the barriers, implemented the solutions, and evaluated the implementations to identify further adjustments needed in order to deem the solution a viable option for other teachers in the program at varying sites.

Action research was chosen because the desired result may be a change in the practice of using outdoor play as an intentional learning time to enhance the adopted Head Start curriculum. Teachers have a wealth of information, and the researcher relied on their expertise as well as her

own to develop solutions, to try to self-reflect together to see if the solutions worked and how we can continue to improve them. Including teacher participants in the research process may encourage other teachers to accept the findings more readily. Together, the teachers and I began to discover how to encourage teachers to use outdoor learning time as an approach to diminish children's challenging behaviors and prepare children for kindergarten.

Chapter 2: Literature Review

Literature Review Introduction

Research has revealed many benefits of children's outdoor play in natural settings that could be used to address the struggle one Head Start Program experienced providing children with outdoor experiences that upheld the Office of Head Start's value on outdoor play in accordance with the early learning outcomes framework (Administration for Children & Families, 2015). Giving children opportunities to play in natural settings, with a teacher who will guide their interests while they are playing outside and continue to provide activities surrounding those interests after they come inside the classroom, may result in higher academic achievement, self-regulation, and social-emotional skills. According to Louv (2008), children in the United States suffer from nature deficit disorder, a term developed by Louv, which is the price humans pay for being separated from nature because of spending more time inside watching television, playing video games, or surfing the internet than experiencing nature.

Several studies have been completed on the effect outdoor play has on the way children learn including greater creativity, increased gross motor activity, calmer and more focused behavior, and positive social and emotional interactions (Nedovic & Morrissey, 2013; Ghafouri, 2014; Maynard, Waters & Clement, 2013). Other researchers have studied teacher attitudes toward outdoor play and risky play (Ernst & Tornabene, 2012; Ihmeideh & Al-Qaryouti, 2016; McClintic & Petty, 2015); however, there is little research on why teachers do not use the current research on the effects of outdoor play or how to encourage teachers to spend time outside with children to enhance their learning inside. Therefore, it is not known how to encourage Head Start teachers to use outdoor learning environments to foster the skills and knowledge children need to prepare for kindergarten.

Children in today's society do not spend as much time outside as their parents (Louv, 2008). Parents do not spend much time in parks with their children or allow their children to play outside because they feel it is an unsafe environment for them. For many parents, the demands of providing for their families diminish the time allowance for their children to play outside (Nedovic & Morriessy, 2013). With such limited time and exposure to the outdoors from parents, it is important for children to have opportunities during their school day to go outside and play. Therefore, the responsibility of providing these opportunities falls on the teacher (McClintic & Petty, 2015). If teachers in the Head Start Program understood the value of outdoor play in natural settings and knew how to provide children with outdoor learning experiences, they may spend less time correcting challenging behaviors, providing teacher led instruction, and trying to entertain children. More time could be spent engaging children in activities, based on their interests, that provide deeper, meaningful instruction. Perhaps a nature study program that moves children outdoors may prepare children better to acquire the skills necessary to succeed in kindergarten.

Conceptual Framework

The Office of Head Start developed an early learning outcomes framework intended to guide programs with providing quality care and education to the children enrolled in Head Start and their families (Administration for Children & Families, 2015). Five domains support the framework: approaches to learning; social and emotional development; language and literacy; cognition; and perceptual, physical, and motor development. Within each domain are subdomains, goals, developmental progressions, and indicators that describe what the child should be able to do by a certain age. This comprehensive framework was designed after much research on how children learn, and it describes what it means to be kindergarten ready. In

addition, it provides developmentally appropriate practices to guiding young children through the first five years of life. The idea behind the framework is to help Head Start programs develop a system that assesses children in their development, plan activities and educational guidance to promote further development, and provide areas of professional development to help teachers build on their skills. Head Start regulations require programs to be accountable to this purpose and make improvement plans based on data from the assessed developmental growth of the children (Tomporowski, Davis, Miller, & Naglieri, 2008). According to Cooper (2015) "a substantial body of research indicates that an outdoor learning and play environment with diverse natural elements advances and enriches all of the domains relevant to the development, health, and wellbeing of young children" (p. 85). Therefore, it is important for Head Start programs to provide quality educational opportunities to give children a head start on attaining their developmental goals, and using a nature-based learning curriculum along with the early learning outcomes framework may help programs be successful with that provision.

Review of Research Literature and Methodological Literature

Head Start. According to Fox, Mattek, and Gresl (2013), behavior problems that can impede the acquisition of skills necessary for academic success occur in one-third of young children living in poverty. Educationally enriched, stimulating environments found in Head Start programs help children self-regulate and reduce challenging behavior that can result in criminal behavior later in life (Moffitt, Poulton, & Caspi, 2013). The Head Start early learning outcomes framework includes a social and emotional domain to ensure programs are addressing the needs of these children (Administration for Children & Families, 2015). Many Head Start programs have implemented a positive behavior approach to guiding young children with their social and emotional needs; however, the relationship between policy and procedure and implementation

should be examined since teachers still struggle with the increasing demands of challenging behaviors and feel they need more training (Quesenberry, Hemmeter, & Ostrosky, 2011). A positive behavior approach is a behavior management style that emphasizes clear expectations up front as well as positive rather than negative redirection, which tends to be more reactive than proactive. In other words, children are informed of what they are able to do rather than what they should not. When children know the expectations of their behavior, they do not have to figure it out by trial and error. For example, when children are told not to run, they may not understand that they should walk, so they may choose another unacceptable behavior. However, if you tell them to walk up front, they have been provided with a clear expectation and no longer have to guess which acceptable behavior is desired. Therefore, a positive behavior approach paired with the calming effect nature has on behavior may help these teachers prepare children for kindergarten and reduce challenging behavior.

The Office of Head Start (2016) created new performance standards, which increased preschool class hours to six hours per day in order to align with the hours most K–12 school systems use to promote school readiness skills. The new standards suggest that in order to improve the quality of services, children need to spend more time at school. Lee, Zhai, Brooks-Gunn, Han, and Waldfogel (2014) compared the school readiness skills children obtained from Head Start, prekindergarten programs, other center-based care, other non-parental care, and parental care. They discovered children in a full-time Head Start classroom possessing lower cognitive skills when they entered the program gained higher outcomes than children in other types of care. Unfortunately, these children had more behavioral problems entering kindergarten than those in other care, including part-time Head Start children, suggesting Head Start full-day classrooms should also concentrate on improving children's social and emotional

skills (Lee et al., 2014). Providing teachers with professional training to gain knowledge on how help children improve their social and emotional skills may help alleviate this problem.

Nedovic and Morrissey (2013) observed children playing calmly and with more focus when introduced to a natural environment that included greenery, flowers, and organic loose parts such as rocks, bark chips, and tree rounds. Hanscom (2016) described how many children were unable to sit still in their fifth-grade classroom and focus their attention to the lessons were able to attend to learning after spending time outside. Given that the new Head Start performance standards demand children spend more hours each day in Head Start programs, could a nature-based curriculum help reduce the behavior problems children may experience since research has shown that nature helped calm children and kept them focused?

Several studies not only documented the positive effect nature has on calming children, but showed it also increased their cognitive ability and concentrated engagement. Kirk, Vizcarra, Looney, and Kirk (2014) found increased physical activity increased literacy outcomes for Head Start children. Sirotkin, Denham, Bassett, and Zinsser (2013) stressed Head Start teachers needed to place a high value on teaching children how to express their emotions in a positive manner in addition to regulating their emotions. Since the early learning outcomes framework includes physical activity and positive emotional support, consideration should be given to the interconnectedness of these two domains. Louv (2008) and Kellert (2005) suggested that if natural elements were added to children's learning, we could see even more positive results.

A possible barrier to providing Head Start children with more opportunities to play in a natural outdoor setting is the fear parents may have about nature. Fraser, Heimlich, and Yocco (2010) studied adult attitudes on children's outside play. They discovered parents value their

children's play outside but fear the risks involved if the children played in the woods or by water, even if the children were supervised. Many parents understood the physical, developmental, and social benefits of playing outside but not the improvement on mental health. Finally, Fraser et al. found minority communities did not think outdoor play was as important as Caucasians believed, and Native Americans placed the highest value on play outdoors. Given the diversity of Head Start families, parents may not appreciate or understand the added benefits of outdoor play, especially in areas where the natural elements could be harsh or dangerous. Therefore, parents need to be educated on the importance of playing outside in order to solicit their approval and support of a nature-based learning curriculum that involves time spent outdoors.

Nature theorists. Children learn with an emotional connection, and they may recall instances of strong emotions. In nature, children experience an array of emotions such as wonder, joy, and enthusiasm as well as uncertainty and fear. Therefore, when these emotions are felt, the ability to make novel connections to access learning and memory is greater (Kellert, 2005). According to Kellert, theory and research support the premise that consistent contact with natural outdoor environments in which there is an emotional attachment helps children develop emotionally, psychologically, and intellectually. Therefore, direct contact with an emotional component helps children learn and acquire skills to label and categorize information that can be used later to solve problems. Equally important to the emotional connection is direct exposure to familiar natural settings, as described by Kellert. For example, schools in Finland demand children play outside.

> The average Finnish student has 75 minutes a day of recess compared to the mere 27 most US kids [*sic*] get. And not only that, teachers give the kids a 15 minute break [*sic*]

> after every lesson. Students in Finland are encouraged to play outside, even when it's freezing out. (Dalporto, 2015, para. 9)

Finland's students also scored much higher on the Program for International Student Assessment examinations than students from the United States (Program for International Student Assessment, 2016). Since Finland emphasizes outdoor play and students score much higher on the PISA test, it may be worth seeing whether children in the United States would have higher outcomes if they go outside to play more often; however, this was not the focus of this study.

Kellert (2005) believed children need to have direct experience with nature in a familiar setting over time. The author stated, "direct experience of nature plays a significant, vital, and perhaps irreplaceable role in affective, cognitive, and evaluative development" (p. 139). According to Kellert, there are three types of exposure to nature:

1. Direct exposure allows children the opportunity to play in nature that has been untouched by human manipulation, which includes backyards, vacant lots, wooded areas, parks, and creeks. While these areas may have some form of human manipulation, they will have creatures and plants that exist independently from human intervention.
2. Indirect exposure to nature would include physical contact with nature but in managed areas that are highly manipulated by humans such as zoos, botanical gardens, museums, nature centers, aquariums, and domesticated animals. All of these areas require human manipulation to maintain their existence.
3. Vicarious or symbolic exposure to nature is an experience that excludes actual physical contact but includes representations of nature found in places such as books, television, movies, and computers or internet.

Kellert's (2005) reasoning for the importance of direct exposure to nature supports the idea that children learn with all their senses. When children experience natural settings, there is an unpredictability that comes with that experience. In a manicured garden, children may not discover plants that could be harmful to them. In a natural setting, children must learn to identify plants and animals that are safe or harmful. In essence, categorizing, identifying, and labeling plants and animals assist the transference of those skills to other knowledge and ideas.

Louv (2008) was concerned that children lack the direct exposure to nature that helps keep their bodies and minds healthy. Louv believed children who play outside tend to be more physically fit, mentally sharp, and emotionally stable. Moreover, children spend too much time indoors with their electronic devices. According to the American Psychiatric Association, the most prevalent mental disorder in children is Attention Deficit Hyperactivity Disorder (ADHD) (as cited in Louv, 2008). The President's Council on Physical Fitness and Sports reports two-thirds of American children are unable to pass the basic physical expectation (Louv, 2008). Louv attributed the cause of these data to the decreased time children spend in nature. Louv shared the importance of nature and its ability to restore the health of our children, noting improvements in focused attention, mood, and creative thinking. Louv also observed significantly that immersion into nature with positive adult interactions relieved the symptoms of Attention Deficit Hyperactivity Disorder. Louv agreed with Kellert that brain development increased in nature because all of the senses were stimulated.

Sobel (2005) believed children need to learn in the environment in which they are familiar, an idea termed as place-based learning. Children need to have a frame of reference for what they are learning. Sobel noticed that children who are learning about their immediate surroundings tend to be more engaged in the learning process. The place does not necessarily

need to be a natural setting; it could also be a built environment such as a neighborhood, school building, or a city. Sobel noted that classroom discipline problems declined when children were interested and engaged in learning. The children who experienced place-based learning were found to develop higher-order cognitive skills because they were able to observe, analyze, and problem solve better and easier than children learning from traditional methods, and these skills were transferrable to other settings (Sobel, 2005). If children are encouraged to spend time in their community, a familiar place, they may begin to notice changes that naturally take place and inspire questions and interest in a new topic. Place-based education is the key to authentic learning and would be a natural starting point for inquiry-based learning to help children learn new concepts that are applicable to their lives.

Young children do not have the cognitive structures in place to truly understand what they are learning if it is not something with which they can have immediate contact (Sobel, 2012). One story Sobel (2012) shared was about his first-grade teacher friend, who was teaching her children about the solar system. She was able to get them fully engaged by singing songs about the solar system and naming the planets. One little girl could name all the moons around Jupiter. Sobel questioned the teacher about her topic choice, but she replied that it was part of the common core curriculum standards. Sobel was beginning to question his place-based learning paradigm until the little girl, who was going to Mexico for a vacation, asked which planet Mexico was on, thus proving that although she memorized a lot about the planets, her understanding of how planets fit into her world was incomplete. Therefore, place-based learning contextualizes learning, helping children connect what they are learning to their immediate surroundings.

Sobel (2012) stated three outcomes in using place-based education. First, children score higher on state-standardized tests, such as the children from Crellin Elementary School who, out of the 874 schools in the state of Maryland, had the highest pass rate (Bowie, 2010). The school served predominately poverty-level families. Second, students become stewards of their environment, as evidenced when children improved student safety by encouraging city and school officials to install a proper crosswalk (Sobel, 2012). Finally, students can make measurable changes in the environment in the same manner a group of students helped make statewide changes in air quality. These students suggested drivers limit the amount of time buses idle while waiting to take children home from school after proving the quality of the air decreased at their school during this time (Sobel, 2012). Place-based learning also helped children become more engaged and motivated to persist in solving problems, while decreasing behavior problems and time spent on discipline (Duffin, Chawla, Sobel, & PEER, 2005). If this is the impact place-based learning has on students, especially lower-income students, it should have similar results with Head Start children.

These theoretical works based on nature and how children learn are used to support the early learning outcomes framework rather than being a part of the conceptual framework. Kellert (2005) believed there is an emotional connection made between nature and humans, and educators should design their classrooms and schools with nature in mind. People feel better and perform better when their environment contains natural elements (Kellert, 2005). Access to natural elements can produce a positive emotional response; however, Louv (2008) believed children need to be immersed in nature because they suffer from a lack of exposure to the outdoors, which affects the acquisition of kindergarten readiness skills. To take it one step further, Sobel (2012) introduced place-based education, which emphasized children learning in

their natural environment, not learning about environments in which they have no physical experience. Kellert, Louv, and Sobel support the continuum of learning spelled out in the early learning outcomes framework through outdoor experiences.

Inquiry-based learning. One method used to involve learners is inquiry-based learning, which encourages students to ask questions about what they are experiencing using all their senses, form a hypothesis, test it out, and apply the lesson to gain more knowledge (Malone, 2008). Teachers who understand the value of inquiry-based learning may be more inclined to use it, and the research suggested outdoor play experiences provided excellent opportunities for teachers to practice. Perry and Branum (2009) pointed out different types of play areas and the interaction that occurred between children and adults. According to Perry and Branum, classroom play was more defined because children are limited in the way they play and interact in certain areas or utilize the materials, as in the library or block area. Many times, they relied on the expertise of the adults in the room to guide their play. The teachers were more than happy to share their expertise.

In Perry and Branum's (2009) research, children were free to engage in play in undefined outdoor areas without the help of knowledgeable adults. This provided an opportunity for adults to ask questions about children's play and gave children a chance to explain their thought patterns. "When adults understand that the physically active play of children is purposeful and follows a sequence, the grown-ups can better support what the kids have in mind as they play, which in turn, enhances the learning value of the play" (Perry & Branum, 2009, p. 199). Outside play seemed to encourage more risk-taking in cooperative play, language, problem solving, and physical challenges. Teachers supported children's play with proper inquiry-based guidance and negotiations.

Children want to control their own environment but need immediate feedback. Outdoor play offers a place where children can experience greater control over the play scenarios without adult intervention (Perry & Branum, 2009). During play, children's thinking, feelings, and experiences are tested. If children are uninhibited by adult agendas, they take more risks, have more sustained play, interact with peers in a collaborative manner, and learn more deeply. The study encouraged adults to provide outdoor spaces that encourage play and child-led learning since outdoor environments promote risk-taking, inquiry, and creativity.

Child-led inquiries provide deeper learning; however, teachers and children need to be engaged as co-constructors of the learning experience. According to Ghafouri (2014), "When learners play an agentive role in constructing their own learning experience and are involved emotionally as well as cognitively, the level of engagement is deeper, richer and more sustained" (p. 54). Ghafouri stressed the importance of multiple direct experiences of the natural environment in which the child lived in order to offer relevancy. Children need to be free to engage with nature in a self-directed manner in order to ask their own questions. When learning is guided by personal interest, a child will become more deeply engaged. Ghafouri noted that when a teacher exposed a child to nature with an agenda in mind, sustained talk and discussions decreased. This would suggest that teachers should provide opportunities for children to experience nature in a nearby area and allow the children to make their own discoveries. Through close observation, teachers should be able to determine what interests children and tap into that interest by helping children determine what they know, what they want to know, and how they will learn it.

Malone (2008) stated didactic methods (e.g., teacher instruction and assigned reading material) informed the student of facts, but learner led, inquiry-based instruction helped the

students discover information on their own, solve problems, and communicate their learning to others. This holds true for young learners also. Playing outdoors in natural settings seemed to set children free to explore, take risks, and be curious, which provide teachers ample opportunity to ask questions about their play to get them thinking critically (Maynard et al., 2013). Playing outdoors provides children with opportunities that stimulate all of their senses. Teachers need to have that same mindset of asking questions transfer over into the classroom, and children need to feel the same freedom of movement and learning inside as they do outside. One of the best things a teacher can do is learn how to answer a child's question by pointing that child in the direction where the answer to the question can be discovered personally by the one doing the asking. Research shows the value of inquiry-based learning and the effect it can have on increasing child outcomes.

Risk-taking. Risk-taking helps children learn because their success encourages further exploration, while failures may produce creative problem-solving skills. Risky play is defined as play involving some threat of physical harm, as children challenge their physical capabilities by taking risks (Sandseter, Little & Wyver, 2012). Risky play helps children test boundaries and increase their ability to identify dangerous situations and make better decisions (Sandseter et al., 2012). Outdoor play emboldens risk-taking behavior. Water and Begley (2007) observed one child experimenting with positive risk-taking behavior in a forested area. The child was genuinely excited when playing in this environment, but in the school play space she played safely without taking risks. Risky play helped her master learning goals, as she invented new ways to challenge herself. Many children tend to be more reserved when they play inside because adults spend much time sharing expectations of indoor play. Outside play frees them. Waters and Begley noted that one child playing in the forested area did not need to be

reprimanded. In a school play space, his behavior hurt other children. The outdoors allowed the child the freedom to take risks, participate in creative activities, and discover many items that provided positive inquiry rather than misbehavior.

Many parents and teachers believe children should be protected, so they are not allowed to take risks. Kenny (2013) mentioned American culture tends to caution against time spent in nature due to the risks it proposes. Playgrounds have been made safe with very little risk. According to Kenny, natural play areas with moderate risks actually keep children safer than those providing minimal risks. If given the opportunity, children will learn how to safely take risks. One reason American schools do not allow children to take moderate risks is because many parents look for someone to blame and sue if their children are hurt. Kenny pointed out that American parents do not trust their children to understand the risks, weigh the consequences, and decide how to act correspondingly. Allowing children to manage risks may help them develop self-confidence and create bigger challenges to undertake.

Nature's effect on health. Several studies conducted about outdoor play addressed child obesity and other physical health issues. The percentage of overweight children in the United States rose from 7% to 18% between the years 1980 and 2012, and 70% of those children had one cardiovascular disease risk factor with high blood pressure as the highest risk factor ("Obesity Prevention | Healthy Schools | CDC", 2016). Ogden, Carroll, Kit, and Flegal (2014) defined overweight as a body mass index (BMI) between the 85th and 95th percentiles of the sex-specific Center for Disease Control BMI-for-age growth charts. Body mass index (BMI) is a tool used to measure weight state and is calculated by dividing a person's weight by a person's height squared (Ogden et al., 2014).

Bell, Wilson, and Liu (2008) studied how a place with natural green vegetation to play in affected the BMI of children over a 2-year period. Their study concluded children who played outside on a regular basis had a lower BMI. Outside play offered more options for large motor development, as children climbed, ran, carried heavy items, pushed and pulled, and jumped (Perry & Branum, (2009), which could be why children playing outside in green places would have a lower BMI. Tremblay, et al. (2015) claimed no study was found suggesting outdoor play involved lower activity levels, so it is safe to predict children playing outdoors are unlikely to be inactive. If outdoor play encourages active play and active play helps maintain a healthy weight, then we can safely assume outdoor play can reduce the likelihood of weight gain and reduce child obesity.

While reducing obesity is important to the health of children, other physical health improvements should not be overlooked. According to the American Heart Association ("High Blood Pressure," 2014), children, even babies, can have high blood pressure. Therefore, children should learn how to have a healthy heart by lowering their blood pressure and reducing their cholesterol levels by becoming more active and less sedentary. Children are more active when they are outside playing, which raises their heart rate and gets their blood pumping. Moderate-to-vigorous activity improved systolic blood pressure, insulin sensitivity, and reduced triacylglycerol in children, which means their heart health improved (Ekelund et al., 2012). Cycling while viewing a video of a forested area increased the heart rate of primary school aged children and eventually lowered their blood pressure, based on the study Duncan et al. (2014) conducted. This might suggest an added benefit of playing in the woods. In addition to improving the heart, 10 minutes of moderate or vigorous activity can positively affect bone density (Janssen & LeBlanc, 2010). These types of health benefits would explain how Fjørtoft's

(2001) study found children who played in a forested area had a greater increase in gross motor development. The sedentary lifestyle is not good for the heart, but getting children outside and moving can help improve both bone and heart health among other physical benefits.

Another added benefit of outdoor play is reducing symptoms from Attention Deficit and Hyperactivity Disorder (ADHD). The number of clinically diagnosed cases of ADHD in 3-5-year-old children has significantly increased in recent years from 7.8% in 2003 to 11% in 2011 ("Data and Statistics | ADHD | NCBDDD | CDC", 2016). Daley, Jones, Hutchings, and Thompson (2009) explained two theories of children genetically predisposed toward having ADHD. One is a deficient inhibitory control mechanism, which affects working memory, planning, and set shifting or the ability to move from one task to the next easily. The second is called a delay aversion, which is the delay of gratification and preference for large rewards. Daley et al. (2009) questioned if the environment in which children were raised could have an effect on the symptoms of ADHD. The study implemented three parent training programs to see if early intervention could help ADHD children become self-regulated. It was noted that the implementation of behavior-management techniques, such as using praise, using words to describe feeling, giving clear precise expectations, setting limits, and offering positive behavior support (non-violent discipline techniques), helped children gain the skills necessary to self-regulate and stay on task. The conclusion was children who are genetically predisposed to ADHD can have their behavior exacerbated or controlled by their environment (Daley et al., 2009).

This is valuable information because if the environment can affect the behavior of children with ADHD, teachers need to provide them with an environment that would help them control their behavior rather than exacerbate it. Other studies noted that natural spaces improved

cognitive ability and also reduced ADHD symptoms, meaning the environment helped children control their behavior (Bell et al., 2008; Fjørtoft, 2001, Louv, 2008; Sobel, 2008). These studies implied that children in Head Start programs who exhibit challenging behaviors due to ADHD may learn how to delay gratification and stay focused to persist in tasks, depending on the natural environment in which learning takes place.

Benefits of Natural Playscapes and Settings. Cooper (2015) used Fjørtoft's (2001) study to make recommendations for using natural outdoor play settings as learning environments. Fjørtoft wanted to know if certain types of natural landscapes would affect the motor development of children. The researcher discovered children playing in diverse natural settings had improved motor development because they preferred playing in areas with a wide variety of natural features such as trees, rocks, and hills, and were therefore moving constantly, using all their large muscles. Cooper found creating and using outdoor learning environments would improve more than gross motor skills and listed improved eyesight, nutrition, academic performance, self-confidence, interpersonal skills, and self-regulation as benefits.

Head Start was specifically addressed in Cooper's (2015) recommendations. Cooper suggested Head Start allocate a specific amount of time children should be outdoors playing, along with a standard for features to be included on the playground such as shrubs, trees, mounds, terraces, slopes, loose organic parts (rocks, mulch, logs), flowering plants, and animal habitats (birdfeeders or bird houses). The recommendations also proposed programs consider designating outdoor play areas as learning environments, which might include a dramatic play area, gardening area, and/or a loose parts station. Further considerations included two gross motor features, an area for wheeled toys, diverse non-poisonous native plants, outdoor water source, and professional development for staff on how to utilize each feature in the environment.

With all the research compiled on the benefits of outdoor play with natural elements, why would teachers not spend more time outdoors with their children? A few researchers studied teacher views on outdoor play and discovered many teachers value outdoor play but do not intentionally plan learning activities or use a nature-based environment (Cevher-Kalburan, 2015; Ernst & Tornabene, 2011; Ihmeideh & Al-Qaryouti, 2016). Some of the barriers identified in planning outdoor play included safety (Cevher-Kalburan, 2015; McClintic & Petty, 2015), lack of knowledge on how to use an outdoor environment (Ihmeideh & Al-Qarvouti, 2016), and the types of environments (i.e., manmade playground, forested area, meadows, concrete pad) (Ernst & Tornabene, 2012). When adults recall their favorite places to play, many will state it was the outdoors, but they remember it lacking adult supervision (Louv, 2008). When Cevher-Kalburan interviewed pre-service teachers, many felt they would not allow children to play in ways that presented risks or hazards to their safety; therefore, they needed to be the adult supervising play. Adult supervision is important for safety concerns, but children need to be free to follow their own ideas in play with support from adults (Hanscom, 2016).

The role of the teacher in outdoor play is important to consider. Teachers tend to view themselves as supervisors of the playground, as they assess safety and an appropriate environment for play (Cevher-Kalburan, 2015; Ernst & Tornabene, 2012; Ihmeideh & Al-Qaryouti, 2016; McClintic & Petty, 2015). McClintic and Petty stated teachers felt their primary function was keeping children safe and not intruding in their play. Further research noted teachers felt more comfortable taking their children out in places that were familiar to them with clear boundaries because it reduced safety concerns (Ernst & Tornabene, 2012). Ernst and Tornabene suggested their study could be used to inform other research on how natural outdoor settings could be used as learning environments in which teachers take on more than a

supervisory role, but act as guides to enhance learning. In addition, Meier and Sisk-Hilton (2013) described how teachers guided the learning that began outside to activities and learning centers indoors.

All four studies encouraged professional development to assist teachers gain knowledge on how to use outdoor space as a natural learning environment. Cevher-Kalburan (2015) found intervention courses changed pre-service teachers' beliefs and enhanced their understanding of children's risky play. The research agreed that teachers have a basic knowledge of the benefits of outdoor play but lack the ability or willingness to intentionally plan and use learning environments in natural outdoor settings (Cevher-Kalburan, 2015; Ernst & Tornabene, 2012; Ihmeideh & Al-Qaryouti, 2016; McClintic & Petty, 2015). Their research could be used to inform further studies on teacher beliefs and attitudes toward outdoor play and how to provide guidance to teachers to inspire them to create outdoor learning environments where children can play with an adult supporting their learning.

Review of Methodological Issues

Two different studies explored teachers' beliefs and perceptions regarding children's outdoor play. Copeland, Kendeigh, Saelens, Kalkwarf, and Sherman (2011) used focus groups to determine teachers' perceptions on outdoor play. Their findings suggested that teachers' varying beliefs and values toward outdoor play shape the learning experiences children have while playing and learning outdoors. In addition to Copeland et al.'s study, an exploratory study conducted by Ernst and Tornabene (2012) distributed a questionnaire to teachers in order to learn their values and beliefs toward outdoor natural settings to understand what might persuade them to use those types of settings. Their findings suggested the way to influence teachers to use natural outdoor settings is to reduce barriers to these settings. This study added to Ernst and

Tornabene's study as this researcher examined teachers' perceptions regarding barriers to providing outdoor experiences for children on a consistent basis and explore how to reduce those barriers to encourage the teachers to use outdoor settings as a learning environment more frequently.

While it is important to understand how teachers' perceptions and beliefs affect the opportunities children receive to participate in play outdoors, it is equally important to recognize how natural settings shape outdoor experiences. Three different studies focused on how nature could influence children's play. First, Dowdell, Gray, and Malone (2011) used a mixed method to study how an exposure to nature would influence children's play. Their research found that natural outdoor settings can be a place of learning and supported the social and emotional development of children. However, it did not address barriers that might prevent teachers from exposing children to natural outdoor settings on a regular basis.

Second, Ghafouri (2012) used a qualitative methodology to observe one kindergarten classroom. The study found that when children encountered nature in their own environment, nature had relevance and meaning; and when they chose their own questions to ask about nature, they were more deeply engaged. Comparatively, teacher-led exposures to nature that had preset questions and answers failed to prompt sustained discussions and talks. Based on Ghafouri's study, teachers should consider exposing children to nature in a manner that encourages discovery of natural items that might pique their interest. It emphasized child-led discovery. With this in mind, this action research seeks to explore how teachers can set up outdoor learning environments in which children can discover nature on their own, and have teachers nearby to help guide their journey of learning by answering their questions and/or posing thought provoking questions to the children.

Finally, a study conducted by Nedovic and Morrissey (2011) used an action research approach to explore how children responded to naturalized outdoor play spaces. This study was an example of how action research can be used to examine teachers' perspectives on children's preferences to natural outdoor spaces, as the teachers worked together with the children to plan and develop a garden play space. The findings of this study uncovered children's and teachers' preference for outdoor environments that include natural, organic materials, such as trees, rocks, sticks, and bushes, rather than synthetic materials, such as commercial toys and manmade climbing equipment. While the study concluded that teachers and children should voice their preferences for natural materials in outdoor learning environments, it did not address teacher-perceived barriers in providing and utilizing natural outdoor learning environments. While creating a beautiful outdoor play space may be a start to encourage outdoor play, it does not guarantee its use. This study added to Nedovic and Morrissey's study as it attempted to resolve common barriers to daily use of the play space in order for teachers to intentionally plan for outdoor activities and lessons to help children make progress on gaining skills necessary for success in kindergarten.

Some of the methodologies reviewed in the research distinguished benefits of children's outdoor play, such as increased development physical and cognitive skills, characterized the types of natural settings used in outdoor play, and predicted the outcomes associated with outdoor play in regards to inquiry-based learning and risk-taking. In addition, the methodologies explored and described teacher attitudes about outdoor play and how they viewed natural settings. What is lacking is how to change the behaviors of the teachers to use the benefits of outdoor play characterized in the research.

Synthesis of Research Findings

The research clearly identified many benefits to outdoor play that aligned outdoor play with the domains in the Head Start early learning outcomes framework. Nature and outdoor learning environments produced a calming effect on children and helped them focus, which diminished behaviors that tend to challenge teachers' abilities to fully engage children as they approached learning (Hanscom, 2016; Nedovic & Morrissey, 2013). Inquiry-based learning would help children develop their language and literacy skills, not to mention their social and emotional development, as they interact with teachers and peers (Ghafouri, 2014). The domain of physical development was addressed, as the research indicated gross motor skills improved in outdoor settings (Cooper, 2015; Fjørtoft, 2001). Finally, risky play helped improve children's cognition, as they planned and assessed the risk of their play (Kenny, 2013).

Head Start clearly supports nature-based learning. It is evident by the list of benefits, such as increased physical and mental health, cognitive growth, and appreciation for nature, in addition to the activities provided for teachers and administrators (Nature-Based Learning and Development, 2011). Although the research recognized some barriers, such as safety, time, and access, teachers and parents have in taking children outside, it did not address how to move past those barriers (Cooper, 2015; Louv, 2008; Hanscom, 2016). If the barriers were to be addressed, teachers may be more inclined to use outdoor learning environments. If teachers were encouraged to use outdoor learning centers, they would provide the foundation for engaging interactions between teachers and children, especially if teachers were to use inquiry-based and place-based learning.

Critique of Previous Research

It is not known how to encourage teachers to support children's place-based experience with nature by including outdoor settings as learning environments. The literature reviewed several benefits of outdoor play; however, few studies addressed the barriers that exist with adults getting children outside to take advantage of those benefits. Fraser et al. (2010) suggested further examination to explore the probability of providing children with nature experiences once the barriers of adult attitudes and beliefs were addressed and/or removed. Tremblay et al. (2015) also recommended additional research to removing barriers and enabling educators to facilitate outdoor play. In both studies, the adults valued the improved health and calming benefits of children playing in nature but listed barriers without solutions to promoting it.

Ernst (2014) found accessibility to natural settings and educators' definitions of natural settings varied from one location to the next, and suggested the importance of clearly defining a natural setting and including a size measurement of the area. Once the natural setting and area were defined, understanding the relationship between the natural outdoor setting and children's classroom behaviors may help teachers learn how to boost cognitive performance using outdoor settings (Holmes, 2009). In addition, Ernst found that while teachers believed in the importance of providing outdoor play in natural settings to children, the practicality of providing those types of experiences proved difficult. If teachers were able to define a natural setting, they may understand how to provide children with opportunities to use natural settings as an outdoor learning environment. Meier and Sisk-Hilton (2013) agreed that wild, untamed, natural outdoor settings held mysteries that children could discover; however, those same mysteries could be experienced in manicured outdoor areas such as playgrounds. Therefore, natural settings must

be clearly defined. Furthermore, the learning that can happen in natural outdoor settings may be linked to the indoor classroom (Meier & Sisk-Hilton, 2013).

Although there is little linkage between the indoor classroom and outdoor play, a few links were made between outdoor play and inquiry-based learning, suggesting that it was easier for teachers to practice inquiry-based learning while children were outdoors. If teachers are able to practice supporting child-led inquiries when children are outside, this skill may transfer to an indoor classroom (Perry & Branum, 2009; Nedovic & Morrissey, 2013; Ghafouri, 2014; Maynard et al., 2013). However, the majority of inquiry-based learning research has been conducted internationally. Nedovic and Morrissey (2013) conducted their study in Australia, Ghafouri, (2014) researched in Canada, and Maynard et al. performed their study in Wales. As outdoor play and inquiry-based learning are valued differently culturally and internationally, it is important to conduct research in the United States to investigate whether inquiry-based learning and outdoor play would be accepted and practiced by American teachers with greater ease since they tend to approach teaching didactically (Hargreaves & Shirley, 2012; Malone, 2008). Again, if teachers in the United States were able to practice inquiry-based learning while outdoors, they may find it easier to switch from using teacher-led teaching to child-led learning.

Summary

This study addressed some limitations of the research by providing a Head Start program with a way to address the barriers teachers have in using outdoor natural settings as learning environments. It is clear from previous research that outdoor play provides many benefits for children as it improves physical and mental health while increasing cognitive development. Louv (2008), Kellert (2005), Hanscom (2016), and Sobel (2005) made compelling arguments for providing children with more opportunities to spend time outside. Their research points to a

solution to reduce children's challenging behaviors, increase self-control, and giving children meaningful experiences to enhance brain development. Based on the research presented in this literature review, coupling outdoor play with the Head Start early learning outcomes framework should help teachers connect outdoor learning with classroom experiences to improve children's kindergarten readiness skills.

Furthermore, based on the research of Maynard et al. (2013), Ghafouri (2014), and Perry and Branum (2009) teachers should find it easier to use inquiry-based learning strategies to encourage curiosity and extend child-directed play when children are outdoors. When children are free to explore the natural world around them, they become curious and seek to answers for themselves. Teachers could naturally become a source of knowledge rather than someone who simply transfers knowledge to an uninterested child. Teachers would not need to put so much effort into planning elaborate activities and lessons to peak the interest of children if they could recognize the natural interests revealed by children when they are playing outside (Ghafouri, 2014). This in turn, lessens teachers' work load and stress level. If the research points to outdoor play as a solution to naturally use inquiry-based learning and reduce children's challenging behaviors, why are teachers not taking advantage of the knowledge? What is lacking in the research is how to get teachers to begin taking children outside. Therefore, this study sought to answer the question: how do we encourage Head Start teachers to use outdoor learning environments to foster the skills and knowledge children need to prepare for kindergarten.

Chapter 3: Methodology

Introduction

The Office of Head Start provides guidance and research on nature-based learning. Observations and review of the lesson plans submitted by teachers at one Head Start program demonstrate many of these teachers do not seem to use this information (Nature-Based Learning and Development, 2011). Even though teachers' lesson plans included outdoor experiences, the teachers generally listed materials available for children to use, such as bikes, balls, and sandbox, rather than specifying how they would set up an outdoor space as a learning environment (Teaching Strategies Gold, 2016).

According to the education manager in one Head Start program, the teachers in the program claim their most significant challenge in preparing children for kindergarten is dealing with behaviors that impede learning, such as aggression, inability to focus attention, and the exhibition of strong emotions (XXX, personal communication, May 4, 2016). At the same time, several researchers found outdoor play diminished these types of challenging behaviors (Bell et al., 2008; Fjørtoft, 2001; Louv, 2008; Nedovic & Morrissey, 2013; Sobel, 2005). Previous research listed several benefits of children's outdoor play including better health, higher cognitive development, and improved social-emotional skills, which is why the Office of Head Start supports nature-based learning (Fjørtoft, 2001; Hanscom, 2016; Louv, 2008; Office of Head Start, 2015).

In addition to the many benefits of outdoor play in natural settings, the literature review paired outdoor learning environments with inquiry-based learning. Inquiry-based learning has become a focus in the Head Start school's program. Therefore, if the research conducted by Bell, Wilson, and Lui (2008), Fjørtoft (2001), Hanscom (2016), Louv (2008), Nedovic and

Morrissey (2013), and Sobel (2005) points toward all these benefits of outdoor play, and the Office of Head Start supports it, what more is needed to encourage teachers to use outdoor learning environments to prepare pre-kindergarten children for kindergarten by helping them gain skills in the five domain areas of the early learning outcomes framework; language and literacy, cognition, fine and gross motor skills, approaches to learning, and social-emotional development?

Researchers recommended more qualitative studies be conducted to understand the influence outdoor environments have on children's learning (Cevher-Kalburan, 2015; Ernst & Tornabene, 2012; Ihmeideh & Al-Qaryouti, 2016; McClintic & Petty, 2015, Sobel, 2005). Cevher-Kalburan suggested a larger qualitative study using interviews with early childhood pre-service teachers and long-term intervention courses to examine possible changes in understanding how outdoor play challenged children to go beyond their comfort level or physical abilities, known as risky play. McClintic and Petty indicated more research is needed regarding how teachers and directors in other cultural and geographic regions view outdoor play and suggested environments could be used as multiple case-study comparisons to extend knowledge. Ihmeideh and Al-Qaryouti proposed teachers be given proper guidance on how to use outdoor space and natural outdoor learning environments. Finally, Ernst and Tornabene offered research on using natural outdoor settings as learning environments. A key component of natural outdoor learning environments is that the learning is place-based, meaning children will learn in an environment that is tangible and relevant to them (Sobel, 2005). Therefore, this study was designed to explore how to encourage teachers to increase the time children spend outdoors in order to help children increase their skills categorized in the Head Start early learning outcomes

framework and decrease challenging behaviors experienced in the indoor classroom environment (Administration for Children & Families, 2015).

Research Questions

The research questions for this study include the following:

R1 How will barriers to outdoor play, such as weather conditions, safety concerns for the children, and accessibility to materials, be removed or diminished to encourage teachers to use outdoor learning environments to foster language and literacy skills; approaches to learning; physical, perceptual, and motor skills; cognition; and social-emotional skills, as outlined in the Head Start early learning outcomes framework?

R2 If the barriers to outdoor play are removed or diminished, how will teachers intentionally plan activities for outdoor learning environments and use inquiry-based learning strategies?

R3 How do teachers perceive natural outdoor settings as learning environments that could help prepare children for kindergarten by reducing challenging behaviors and by helping the children develop skills in the five domains established in Head Start early learning outcomes framework?

Purpose of the Study Design

This action-research study was developed to explore how teachers identify, eliminate, or diminish barriers by using outdoor learning environments to minimize children's behaviors that may impede learning and develop the kindergarten-readiness skills, as described in the Head Start early learning outcomes framework, by providing children with an opportunity to learn in the natural environment in which they live and learn (Administration for Children & Families, 2015). Sobel (2005) stressed the importance of allowing children to use all their senses as they

learn, which occurs when they are able to explore their immediate world. Moreover, Kellert (2005) claimed the emotional element that comes with direct contact with nature helps increase cognitive development and memory. In addition to increased cognitive development, children tend to be calmer, focus better, and have more positive social interactions when playing outdoors, rather than exhibit challenging behaviors, such as the inability to attend to learning activities, heightened irritability and frustration, explosive emotional responses, and negative social interactions with peers, which may be experienced more often in an indoor classroom (Fjørtoft, 2001; Hanscom, 2016; Nedovic & Morrissey, 2011).

This study was designed to address three specific barriers: safety of the children, weather conditions, and availability of materials. Participating teachers helped develop strategies to identify, diminish or remove the barriers; implement the strategies; and evaluate the success of the strategies. If the strategies needed adjusting, the participants tested the strategies with the adjustments to see how outdoor environments could be used to help teachers fulfill the Head Start requirements of preparing children for kindergarten using the early learning outcomes framework. As the study progressed, new barriers were identified and addressed. At the end of the study, participating teachers examined the data to validate accuracy to determine if barriers were addressed and indeed removed or diminished.

Action research was a viable option as a research design to answer the research questions since it required Head Start teachers to be active participants, as they and the researcher explored a change that could help them become more successful in dealing with the challenges of their program. Sagor (2011) stated three key concepts to deem action research as a plausible investigatory choice: the study focuses on the teacher's and researcher's professional work, the teachers can adjust their practice based on the data gathered, and improvement to current practice

are anticipated. This study was conducted in the researcher's Head Start program with teachers who adjusted their teaching practice as they tested a new strategy for using outdoor learning environments. The hope was that teachers would realize a decline in children's challenging behaviors that deterred them from having daily, engaging interactions with all the children in their class while they are outside playing.

Herr and Anderson (2014) described action research as a spiral of cycles, which includes a plan of action to improve a specific practice, putting the plan into action, observing the effects of the plan, and finally, reflecting on the effects for further planning and analysis. Participating teachers met with the researcher individually to address barriers to outdoor play and developed strategies for providing outdoor learning centers for children. Each teacher implemented the strategies for two weeks, during which time the teacher was observed in the course of outdoor playtime at least once. At the end of the two weeks, each teacher met with the researcher to discuss the data gathered during the 2-week period. During this meeting, the teacher and researcher evaluated how the strategies encouraged the use of outdoor learning environments, reduced challenging behaviors, and helped children increase their skills described in the early learning outcomes framework. After evaluating the strategies, adjustments were made, and each teacher was given another two weeks to implement the adjustments. The strategies were tested three different times at 2-week intervals and re-evaluated at the end of each interval. The knowledge acquired from this research could be used by other Head Start staff to improve inquiry-based learning practices, connect children to nature, as well as impact future research.

Coghlan (2007) stressed the importance of reflection to determine how the research is progressing, what needs to be adjusted, or if the plan is implemented effectively, and to evaluate or re-evaluate the original inquiry for further planning. At the end of each 2-week

implementation interval, the data were triangulated through teachers' self-reflection journals, this researcher's observations of the teachers, and the documentation gathered through the initial interview. After the data were analyzed, this researcher reflected upon the data to determine if the teachers implemented the strategies as intended and if those strategies achieved the desired result of removing the barrier, planning for each domain in the ELOF, and using inquiry-based learning strategies. Adjustments were made to the strategies for the teacher to implement for another 2-week interval. This cycle repeated itself one more time in order to have three, 2-week intervals in which the teacher used the new practice, making adjustments as needed. If it can be determined why teachers have certain attitudes regarding outdoor play and how those attitudes can be changed, this project could inform further research on how to improve teaching practices, especially with regards to using natural settings as learning environments.

Research Population and Sampling Method

Potential participants were drawn from the teachers of one Head Start program to develop plans to identify, remove, or reduce barriers to outdoor play and determine the effectiveness of the plan to encourage teachers to take children outside to explore and learn from the environment in which they live (Herr & Anderson, 2014). The case Head Start Program serves over 1,000 3-to-5-year-old children (XXX Head Start Program 2015–2016 Annual Report, 2016). The program employs over 200 classroom staff members (XXX, 2017). The 48 potential teacher participants came from diverse cultures: two African American, three Egyptian, three Russian, two Hispanic, one Filipino, and 37 Caucasian. Of the 48 participants, four have Associate of Arts degrees, 44 have bachelor's degrees, three are male and 45 are female (XXX, 2017). Teachers were invited to participate through a letter that outlined the tasks and commitment to the study. The minimum number of participants was five; the maximum number was 10 to

facilitate the researcher with time dedicated to observe and meet with each teacher often during the course of the study. Six teachers volunteered to become participants. It was made clear that participation was voluntary, and confidentiality of the participants was maintained at all times. In addition, it was made clear that participation in this study would not benefit or degrade the participant's performance evaluation. Each participant was assigned a number, which was attached to any instrumentation and data collection, to promote confidentiality. Prior to the data-collection process, participants gathered as a focus group to discuss how to overcome or address the top most common barriers to using outdoor learning environments: safety of the children, weather, and availability of materials. Upon completion of the data analysis process, participants were invited to gather as a focus group again to discuss the findings and check for accuracy.

The sites involved in the study were dependent on the placement of the teachers participating in the research. The sites varied in the accessibility of physical outdoor space. Some had access to wooded areas, while others had man-made playgrounds in the middle of a parking lot. Depending on the site, the feasibility of creating an outdoor learning environment in a natural setting was challenging, which enhanced the potential knowledge gained from exploring this type of barrier, since it was in addition to the barriers that the participants designed strategies to overcome.

Instrumentation

The instrumentation used for the research project included interview questions given to participating teachers individually, observation checklists, and self-reflection journals from participants implementing the designed plan. The interview questions, observation checklists, and journals were used to gather data, which were triangulated to ensure the validity and reliability of the data (Sagor, 2011). The researcher asked the interview questions in person to

identify specific barriers and understand the participating teachers' mindsets toward outdoor play. Interview questions were also asked following the final evaluations of the designed plans to understand any changes in teachers' attitudes toward outdoor learning environments and their opinions on the effectiveness of minimizing difficult behaviors and developing kindergarten readiness skills using outdoor learning centers. The initial interview questions helped the researcher understand teachers' perceptions of using outdoor learning environments as a tool to increase the children's skills in the five domains established in the early learning outcomes framework and reduce children's challenging behaviors (see Appendix A). Additionally, the initial questions helped guide the researcher's development of strategies to overcome barriers to outdoor play. The triangulated data were used to determine if the strategies successfully eliminated the barriers sufficiently to encourage teachers to utilize outdoor play by changing their attitude toward the effectiveness of outdoor settings as learning environments.

The journals were intended to serve as a tool for teachers to self-reflect upon their teaching practices, as they implemented the strategies developed by the researcher to reduce ~~s~~pecific barriers. This researcher provided questions to help the participants focus on their teaching practice and gather information that was compared to the researcher's observation (see Appendix B). The teachers reflected in the daily journal entries how they felt about the outdoor play experience, paying particular attention to how many times she needed to redirect children due to a child's inability to focus, display of aggression, or emotional outburst that was not easily calmed. The participating teacher also analyzed if she successfully provided activities in which children were able to build on their skills described in the early learning outcomes framework. The entries in the journals were compared to the observation checklist to help determine the effectiveness of the implementation of the plan and note changes in teaching style.

The observation checklist helped this researcher to focus on the effectiveness of the strategies developed after the initial interview. If the teacher intentionally planned an outdoor learning environment that addressed the five domains listed in the early learning outcomes framework, it should have been written in her weekly lesson plan. While the teacher and children were outside, this researcher noted any evidence of math, science, language and literacy, creative arts, physical development, health and safety, and small group collaboration Another area of focus was identifying inquiry-based and child led interactions. Finally, this researcher noted the number of times the teacher needed to manage other children's disruptive behavior while interacting with a child or group of children.

Data Collection

Prior to any data collection, participants were assigned numbers that were used to identify data with the specific teacher while protecting her identity. Data were collected from initial individual interviews of each participant, researcher's observations of children's play in outdoor settings, individual journal entries from each participating teacher, and an individual interview following the implementation of strategies designed to encourage outdoor play. The data were collected over one trimester, beginning in the winter term of 2018. The researcher used an observation checklist as a guide to focus on how each teacher used the outdoor environment and how teachers are guiding learning (see Appendix D). Each participant had a minimum of three observations, one for each 2-week interval.

This researcher conducted an interview at the site where the teacher was assigned, at her convenience, in a private space to maintain confidentiality. Immediately following the interview, the participant began developing strategies with the researcher to reduce or diminish specifically identified barriers, which were reflected in her lesson plans. Once the strategies

were established, this researcher created a timeline of 2-week intervals, developed guidelines to implement the strategies, and set a time to observe and meet to discuss teachers' experiences during the implementation phase. After the first observation, the documentation gathered throughout the initial 2-week implementation phase from the journal and the observation record were examined and compared to the initial interview. After examining the data, this researcher and the teacher reflected on her teaching practice to determine if we needed to adjust the current plan or implement a new plan to use outdoor learning environments and began gathering data on the next barrier. This cycle of creating, implementing, evaluating, and adjusting strategies to the barriers occurred three times, at 2-week intervals.

Each participating teacher kept a journal to reflect on and evaluate her planned outdoor learning activities for each day and the implementation of the strategies created with this researcher (see Appendix B). The entries evaluated how the teacher's planned activities using outdoor learning environments influenced children's learning in physical development, language and literacy, social and emotional development, approaches to learning (persistence, curiosity, focused attention), and cognition and general knowledge, which are the five core domains in the Head Start early learning outcomes framework (Administration for Children & Families, 2015). When this researcher met with the teacher, we discussed and compared her journal entries with the observations gathered. These meetings were held individually to maintain the participant's confidentiality. The discussion focused on how the teacher used the strategies developed after the initial or previous interview and how outdoor learning centers may help children explore their natural environment more deeply and answer questions the children may have proposed about them. The teacher helped assess the influence nature had on the children in terms of behavior and the acquisition of prekindergarten skills, as described by the Head Start early

learning outcomes framework. All of the data and results were kept confidential and all will be maintained in a secure, locked location for a period of 3 years.

Identification of Attributes

As the researcher, I have been a part of the program to be studied for several years and have built trust with the participants and understand the culture. Schmuck (2006) cautioned action researchers, about possible compromised validity when more than one person delivers interview questions or conducts observations. For this reason, one researcher interviewed participating teachers and observed their learning environment. The participating teachers also served as peer reviewers. They asked questions about the observations and discussed the gathered data in a final debriefing, as Creswell (2013) strongly recommended. It was important to meet with the participating teachers to discuss and reflect on the accuracy of the observations. It was difficult to create a specific design or strategy that would help each participant prior to the individual interviews because, as Herr and Anderson (2014) pointed out, action research has an emergent design that requires careful documentation of the decisions made to determine the next course of action.

Keeping the emergent design in mind, careful documentation included observations made by the researcher and teachers, as the strategies developed during the first meetings were implemented. The data collected needed to be reflected upon and discussed frequently to ensure the researcher was interpreting it correctly These discussions occurred with the teacher after each 2-week interval. A final interview was given to determine if teachers changed attitudes and practices about making outdoor learning environments part of the curriculum. The results of the study were shared and discussed with the teachers in a focus group.

Data Analysis Procedures

The data collected from the initial individual interviews provided a lens through which the researcher perceived how the participating teachers viewed the challenges of teaching and understand their feelings or attitudes toward outdoor play. The first two questions asked teachers what they felt were their successes and challenges to preparing children for kindergarten and how to build on their success and reduce challenges. The questions were designed to evaluate if the majority of the teachers were experiencing the same types of challenges; therefore, the answers were coded and analyzed for similarities. The next questions asked how teacher felt about outdoor learning environments compared to indoor learning environments. This researcher specifically examined the answers to investigate if teachers saw the outdoor and indoor learning environments as interchangeable and asked the questions again during the interviews that followed the implementation phases of the study.

Question 5 asked teachers to describe challenging behaviors that occur indoors and outdoors. This researcher specifically examined how teachers describe children's challenging behaviors and whether they felt those behaviors are exhibited more often outside or inside. Questions 6 and 7 asked how teachers determine the interests of children in order to plan a lesson and if the teacher intentionally planned outdoor learning experiences. These questions helped determine whether teachers saw themselves practicing inquiry-based learning and determined if there was a shift after using outdoor learning environments. The final questions referred to how comfortable teachers would be creating outdoor learning environments and how they might utilize a natural outdoor environment to foster skills listed in the early learning outcomes framework. This researcher used the answers to gauge how the teachers rate their ability level in

planning outdoor activities before and after the 6-week process. This researcher specifically looked for a change in attitude and/or confidence based on the before and after answers.

The teachers' journal entries were triangulated with this researcher's observations and the initial interview (see Appendix C). The observation checklists were analyzed and presented to the participating teacher to discuss findings. Specific comparisons included what the teacher actually planned and presented, what this researcher observed, and what was documented in the initial interview. Each teacher described in her journal the engagement she had with children. This, again, was compared to this researcher's observation and served as a focal point to clarify and interpret information gathered throughout the observation.

A key piece of data to analyze was the environment. This researcher looked to see if the teacher included specific outdoor areas to use as a learning environment and if she provided materials or guidance on how to use natural elements in those environments (see Appendix D). In addition, the researcher looked to see if the materials support exploration in math, science, language, literacy, creative arts, physical development, and small-group interactions, as found in the early learning outcomes framework.

Equally important as the environment, this researcher observed each teacher to identify the use of the strategies we developed to overcome specific barriers. Furthermore, this researcher examined the statements the teachers provided in the interview questions regarding interactions and compared them with the observations gathered This researcher looked for instances when the teacher talks with children about their play to expand the children's thinking. Important observations in the outdoor setting included instances when or if the teacher listened intently to the child's responses to questions, repeated the child's statements, and asked open-ended questions that help the child explain his or her thought process. These types of

interactions indicated the level of inquiry-based learning practices the teacher uses to help the children think critically, which Maynard et al. (2013) predicted would be more likely to occur when children are playing outdoors.

Once the teacher's observations were completed, we met to discuss this researcher's observations and each teacher's self-reflections written in her journal. The observations and self-reflections were compared to each other to discover differences or similarities between what was observed and what the participant perceived in her reflections. One measurable note the researcher and participant discussed is the number of times a child or children needed to be redirected and whether or not the teacher felt the redirection of the child or children should be defined as a challenging behavior. The teacher and researcher referred back to the interview questions and answers to see if there are any noticeable shifts in the teacher's attitude toward outdoor play and assessed the ease or difficulty of providing and using outdoor learning environments.

Limitations of the Research Design

This study had a number of limitations, including drawing its participants from one Head Start Program. Even though the participants came from diverse backgrounds, they shared the program philosophy of providing learning activities and experiences that build on the child's strengths and interests. In addition, not all the teachers from the Head Start program participated, as the number of teachers participating was limited to 10. Also, it is likely that the teachers who were most resistant to using outdoor learning environments did not volunteer to be part of this study; therefore, it remains unknown how to encourage teachers who are against the idea of outdoor play. Furthermore, the teachers who volunteered may have been more apt to change their beliefs into practice. Lastly, this study was designed to address specific challenges

teachers in this particular Head Start program have identified that prevented them from providing children with access to natural outdoor learning centers. Therefore, this study may not be generalizable due to the specificity of challenges a select number of teachers from this one particular Head Start experienced, as teachers were encouraged to use outdoor learning environments. In addition, this study was targeted for preschool children; therefore, replication may not be suitable for older children.

Delimitations of the Research Design

Inviting teachers from one specific Head Start Program with a similar program philosophy to be encouraged to use outdoor learning environments more frequently bound this study. The number of teachers participating was limited to 10 so that the researcher could meet with each teacher to discuss her perspectives on outdoor play, understand barriers to providing outdoor experiences, and create strategies with each teacher that would overcome or reduce those barriers to encourage the use of outdoor learning environments in a 6-week period of time. Further studies may be conducted to determine if the strategies developed in this study to overcome barriers and encourage outdoor play can be sustained over time.

Validation

According to Schmuck (2006), there are two models of action research: proactive and responsive. This action research is considered proactive since the study was designed to encourage teachers to try a new practice of using outdoor learning environments. The new practice was implemented during three different 2-week cycles. The data gathered during these cycles was analyzed by the researcher and presented to each teacher. The teacher and the researcher had an opportunity to discuss the data after each cycle to ask clarifying questions, refine the strategy to remove a barrier, and test the strategy again. The purpose of the discussion

following each 2-week interval was to "check what the data mean, reflect on alternate ways to behave, and fine-tune the new practice" (Schmuck, 2006, p. 71). Credibility of the data was established during these discussions, as the researcher and teacher checked the data and debriefed the observations of the researcher and the experiences of the teacher. In addition, the data collected during the 2-week interval was compared with the answers the teachers gave in the initial interview to further understand any changes in perception the teacher may have on outdoor learning environments. By comparing the data recorded in the journals to the researcher observation and the initial interview questions, the data were triangulated to enhance validity.

Having three phases of the action research increases dependability of the data: initiation, detection, and judgment (Schmuck, 2006). Data were gathered in each phase or 2-week interval and then analyzed. Having a consistent, recurring cycle in which the data was analyzed and discussed after it had been collected strengthened the dependability of the data. In addition, member checking was used to validate the data as they were presented to individual participants as the data were gathered and to all the participants as a group to share the findings.

Expected Findings

The findings in this study may lead to the discovery of beliefs, practices, and hindrances for Head Start teachers; begin to find solutions for overcoming challenges the teachers identified in providing outdoor play; and encourage them to use natural outdoor settings as learning environments that may reduce challenging behaviors. This may help create a positive change in the Head Start program by providing participants with a new way to provide quality education to young children to prepare them for kindergarten. Furthermore, teachers may discover that using outdoor environments effectively increase the ability to use inquiry-based learning strategies since research has shown that happens naturally in an outdoor setting (Ghafouri, 2014). Finally,

this study may contribute to developing more knowledge of how to train and encourage other teachers to use natural outdoor spaces as intentional learning opportunities.

Ethical Issues in the Study

Four major ethical issues have been identified in this study. First, the observations included teachers only; however, there were interactions between each teacher and children. The children were not used as any part of the data-collection process. Although the children were not observed, their parents were informed about the study and assured that only teachers were observed, not their children. This study was focused on the teacher at all times. Second, each teacher's identity must be maintained confidentially. The third issue is the freedom of the teachers to participate or not without any professional repercussions. The fourth major issue is researcher bias. This researcher anticipates outdoor learning environments will be an excellent way to help teachers reduce children's challenging behaviors that occur inside the classroom, which will help teachers better prepare children for kindergarten. In order to reduce researcher bias, the focus group helped determine the common barriers to taking children outdoors, and teachers were presented with the final results to help ensure the conclusion and interpretations were accurate. During the observations, this researcher needed to remind herself to be objective. She wrote her thoughts in a separate column in order to self-reflect whether or not she remained objective while writing field notes. Finally, sharing the researcher's observations with each teacher during our one-on-one debriefing after the observation gave the teacher an opportunity to dispute any observation that may be more subjective than objective.

Since the teachers were closely observed, they may prefer that their contributions to the study remain confidential. During the final focus group discussion, participants decided if and how they wanted to share their specific experiences. The analysis of the data was discussed as a

whole, rather than discussing specific experience. Each participant signed a confidentiality statement, agreeing to keep any specific experiences shared in the focus group confidential. Confidentiality was preserved by assigning a number to each teacher, which was used on any documentation that pertains to individual teachers. The number assigned to each participating teacher will be kept by the researcher in a secured file cabinet for three years and then will be destroyed.

The final ethical issue relates to the teachers' freedom to participate, since the researcher who initiated the research was a manager. Teachers must be free to accept or decline participation in the study with an understanding that it will have no bearing on their professional success or failure (Locke, Alcorn, & O'Neill, 2013). A trusting relationship must be developed so participants feel free to voice their opinions, and careful negotiations around roles must be considered. This researcher does not complete performance evaluations for the teachers; therefore, participating in this study will have no negative or positive influence on the participants' annual performance evaluation. Participants must understand that they are free to disengage in the study at any time.

This study received approval from the Concordia University–Portland Institutional Review Board to ensure the participants' rights and welfare were protected. The review board required permission from the Head Start program director to conduct the study, which the director provided. In addition, each participant signed a consent form indicating she had the right to withdraw from the study at any time and that any information provided would be held confidential (see Appendix H). The participants were also informed that little risk was involved in participating in this study. The consent form also explained the benefits of participating,

which included learning new skills to provide outdoor learning centers and potentially reducing children's challenging behaviors exhibited in the classroom.

Summary

Natural outdoor spaces provide endless possibilities for learning opportunities for young children (Bell et al., 2008; Fjørtoft, 2001; Hanscom, 2016; Louv, 2008; Nedovic & Morrissey, 2013; & Sobel, 2005). Some teachers may understand the benefits of nature-based learning; however, their practice may not match up with their beliefs. For other teachers, a desire to provide outdoor experiences may be blocked by barriers they may not identify or do not know how to overcome. By removing obstacles that may prevent teachers from using natural outdoor space and providing training to help teachers become more confident in their ability to use nature-based learning, Head Start teachers may give children more opportunities to play outside and plan lessons that are based on children's interests observed outdoors. Additionally, children may experience more positive social interactions, as they learn to negotiate relationships with their peers and adults, thus reducing challenging behaviors such as hitting, pushing, running away, and being unable to listen and reason due to elevated emotions. This study explored how to encourage teachers to use outdoor natural spaces as a learning environment to help teachers minimize challenging behaviors and prepare children for kindergarten using the Head Start early learning outcomes framework.

Chapter 4: Data Analysis and Results

Introduction

The purpose of this action research study was to discover methods to encourage teachers to use outdoor learning environments shown to be effective in helping children develop critical school readiness skills, as outlined in the early learning outcomes framework. These skills include language and literacy; approaches to learning; social and emotional development; cognition; and perceptual, motor, and physical development. This researcher chose action research to help find practical solutions to a common problem within a Head Start program. The researcher and participants were interactively linked to determine the reality of the problem and explore practical solutions. Action research requires researchers and participants to use a cycle of reflective practice to evaluate proposed solutions to improve practice (Holly, Arhar & Kasten, 2009).

The common problem the participants in this study expressed was that challenging behaviors the children displayed in the classroom make it difficult to provide experiences for individual children in each domain of the early learning outcomes framework (see Appendix F). In the Head Start program in which the study took place, teachers are required to provide one hour of uninterrupted free-choice time to explore learning centers such as a dramatic play area, a block area, an art area, a library, a writing center, a math center, and a science area. This researcher wanted to know if barriers to using outdoor learning environments could be eliminated, would teachers use them, making it easier for the teachers to help each student reach the educational goals described in the early learning outcomes framework. Each participating teacher used outdoor learning environments over three 2-week cycles to determine if plans to break down or diminish barriers were effective. The cycles consisted of planning activities,

using outdoor learning centers for two weeks while teachers journaled their experiences, researcher observation of children using outdoor learning centers during those two weeks, and a meeting between the participant and researcher for feedback and/or fact-checking after the observation. This chapter presents the results of the study including analysis of teachers' responses to initial interview questions, reflection journals, and interviews following each implementation cycle, as well as the researcher's observations of the quality of outdoor learning environments.

Description of the Sample

Participants in this study were six early childhood education teachers in a Head Start program located in the Pacific Northwest, serving low-income families in an urban setting who volunteered to participate in a project exploring outdoor learning environments. Every teacher was assigned a number to protect her identity. All six teachers were white females with ages ranging between 28 and 62 years old. One participant held a master's degree, four held a bachelor's degree, and one held an associate degree in early childhood education or a closely related field (see Table 1).

Table 1

Participant Demographics

Teacher	Sex	Race	Age	Education	Years in program
1	Female	White	54	Bachelor	12
2	Female	White	38	Bachelor	1
3	Female	White	62	Bachelor	7
4	Female	White	52	Associate	10
5	Female	White	40	Master	2

Teacher	Sex	Race	Age	Education	Years in program
6	Female	White	28	Bachelor	2

Two pairs of teachers were located at the same educational site. Therefore, this study included four unique outdoor learning environments. Teachers 1 and 2 shared outdoor space at different times with three other classrooms not participating in this study; however, the non-participating teachers rarely used the natural outdoor space Teachers 1 and 2 were using for their learning environments. Teachers 3 and 4 shared the same space and were both outside at times. Teachers 5 and 6 shared their space with other classes not participating in this study. Teacher 5 shared her space with four other classrooms; however, her class would be out by themselves or with one other class. Teacher 6 shared her space with one other classroom who used it in the morning, while she used it in the afternoon. Two of these outdoor learning environments had access to wooded areas in which children could play, while the other two outdoor learning environments consisted primarily of pavement and play structures. Upon initial recruitment, one teacher reported skepticism about the ability to use an outdoor learning environment to address all five learning domains contained in the early learning outcomes framework. The remaining five teachers expressed excitement about the learning opportunity.

The Head Start program is located in the Pacific Northwest of the United States. The average monthly weather conditions during the months this study was conducted were mild (see Table 2). Five of the participants were native to the area and one came from a similar climate; therefore, all were accustomed to the weather patterns of the area.

Table 2

Monthly Weather Averages from February 2018 to June 2018

	February	March	April	May	June
Temperature High	51	56	61	68	73
Temperature Low	37	40	43	49	54
Precipitation	2.48	2.94	2.08	1.69	.77

("Climate & Weather Averages in XXX, USA", 2019)

Each teacher has a classroom staff that consisted of herself, an assistant teacher, and a classroom aide. Classroom volunteers or parent helpers are referred to as adults. Throughout this study, all paid classroom staff are referred to as teachers or teaching staff. Participating teachers will be identified by their assigned number.

Research Methodology and Analysis

This study used an action research design to examine the reduction and/or elimination of teacher-perceived barriers to encourage teachers to use outdoor learning environments to develop children's school readiness skills as described in the early learning outcomes framework. As described by Schmuck (2006), action researchers seek to understand how an organization operates and involve key stakeholders within that organization to solve problems. In addition, action researchers collaborate with participants to reflect on a problem, create an improvement plan, implement that plan, and evaluate its effectiveness. This Head Start program's administrators and teachers were searching for a solution to relieve teachers' stress by helping them find a way to have more time with each individual child to help them meet the child's educational goals. Action research was used to empower teachers to improve their own teaching practice.

As the first step of this action research study, the researcher met with 48 teachers from one Head Start program to understand and assess the barriers they most commonly experienced when attempting to use outdoor learning environments. This discussion revealed three primary barriers: weather, safety concerns, and lack of adequate play equipment. The researcher then used an email invitation to recruit teachers from this Head Start program to participate in a voluntary research project examining the reduction of barriers to outdoor learning.

In accordance with action research questions recommended by Sagor (2011), this study focused on collaborating with participants to reduce barriers to the effective use of outdoor learning environments, to understand what changes occurred during use, and to examine the relationship between participant changes and positive action. In particular, the researcher used teacher interviews, reflective journaling, and in-person observations to investigate the reduction of teacher-perceived barriers to using outdoor learning environments with the goal of supporting children's development of critical school readiness skills. Questions asked during this study examined the ability of teachers to perceive outdoor settings as rich learning environments and to intentionally plan outdoor activities to address skills outlined in the early learning outcomes framework. Additional questions assessed the link between intentionally planned outdoor learning activities and children's development of academic, social-emotional, and behavioral skills needed for success in kindergarten and beyond.

All data collection procedures were modeled on the initiation, detection, judgment action research design suggested by Schmuck (2006; see Figure 1). The researcher met individually with each of the six participating teachers for three consultation and data collection cycles on a 2-week schedule (6 weeks total). During these meetings, the researcher collaborated with each teacher to develop a plan to reduce barriers to using outdoor learning environments to meet

children's developmental needs. Teachers agreed to implement this collaborative plan for two weeks, during which time the researcher would conduct one in-person observation of the teacher's use of intentional outdoor learning. Immediately following this observation, the researcher and teacher discussed perceived strengths and challenges regarding implementation of their collaboratively developed plan. This observation and discussion resulted in adjustments and/or improvements to the plan for implementing learning in outdoor environments. Overall, this process was repeated three times over the course of six weeks.

Initiation

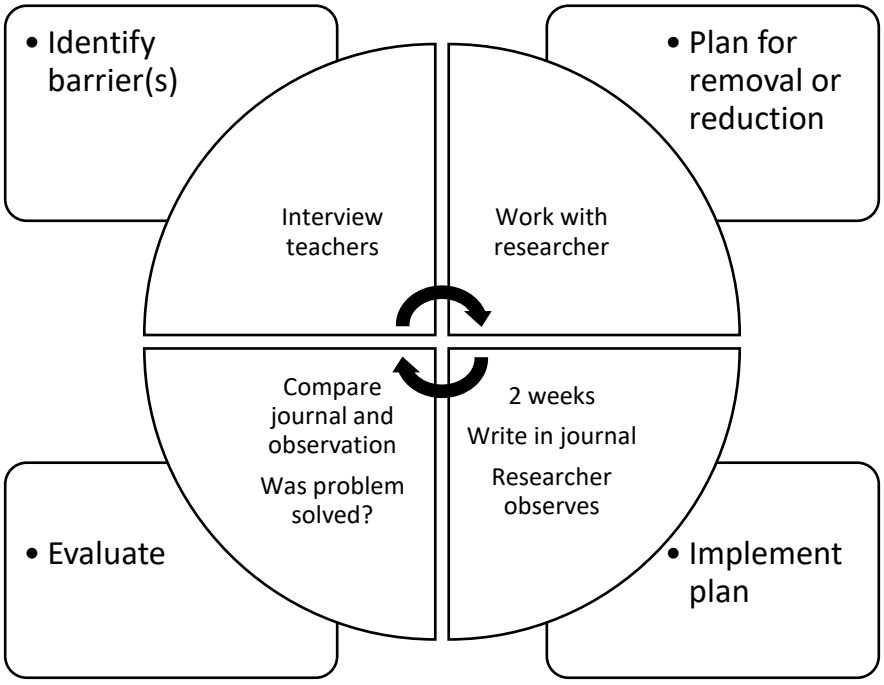

Figure 1. The Action Research Inquiry Cycle 1 as recommended by Schmuck (2006).

Detection

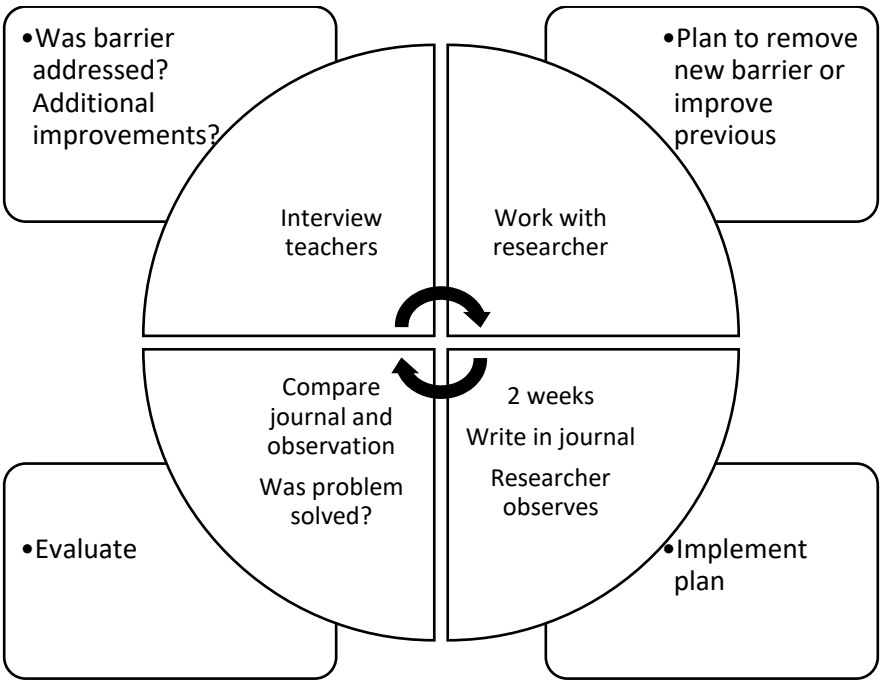

Figure 2. The Action Research Inquiry Cycle 2 as recommended by Schmuck (2006).

Judgment

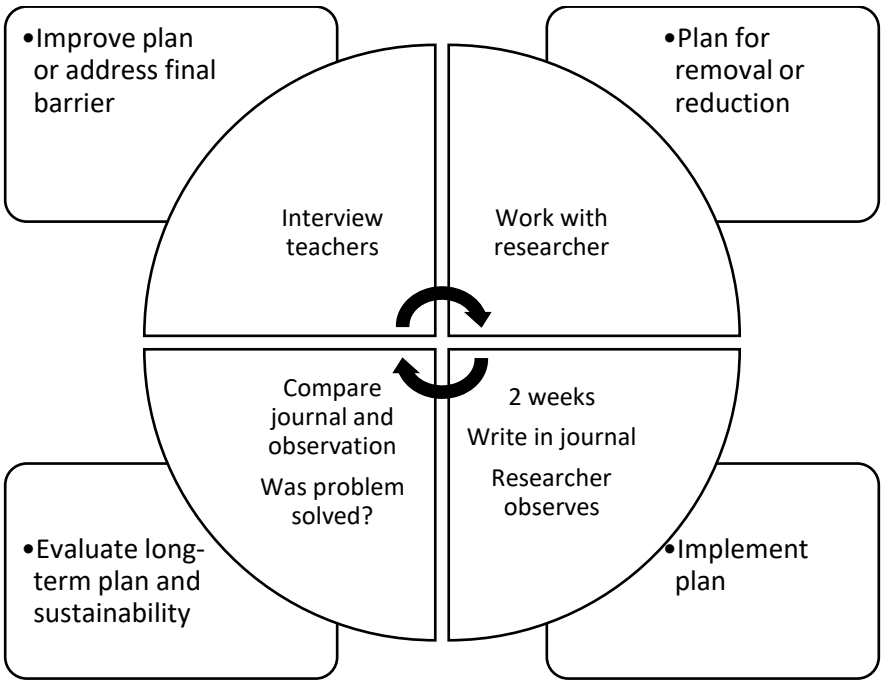

Figure 3. The Action Research Inquiry Cycle 3 as recommended by Schmuck (2006).

After completing all research cycles, the researcher met with participating teachers one final time to determine if, based on their experiences throughout the study, the Head Start program for which they worked should consider more purposefully supporting outdoor learning environments. In addition, teachers were asked about their plans to continue using outdoor learning environments in the future (i.e., longevity of project outcomes). Data collected throughout this study included teacher interviews, teacher reflective journals, and researcher observations of outdoor learning environments. All data were triangulated using Sagor's triangulation matrix (2011), which suggested research questions should be answered using three data sources: existing data such as the journals maintained by the teachers, observational data such as researcher observations, and probes such as the teacher interviews (see Appendix C).

Based on major themes coded from teacher interviews, this researcher created a table to identify teacher-perceived barriers to using outdoor learning environments (see Appendix E). Identification of barriers acted as the initial step toward removing and/or reducing the influence of these barriers on implementation. Data regarding the ability of teachers to intentionally plan outdoor learning activities that support children's school readiness skills were collected from the teachers' reflective journals and researcher review of outdoor learning (see Appendix F). Before each observation, the researcher would review the weekly lesson plan to assess for quality and follow-through. Following each observation, the researcher would collaborate with the teacher to understand her perceptions regarding outdoor learning and compare her reflective journal entries to observation notes.

Summary of the Findings

The findings indicated teachers may be encouraged to use outdoor learning environments by using them for a short time. All the participating teachers were open to trying them (see

Appendix F). Although Teacher 6 did not think there would be much benefit to using them, she discovered that the benefits exceeded her expectations after trying them and working through the barriers or challenges. In her opinion, outdoor learning environments completely engaged the children, helping them be more independent and in control of their own learning. Teacher 5 felt outdoor learning environments had the potential for improving child outcomes but could not find solutions to using shared space. Teachers 1, 2, 3, and 4 felt the Head Start program should provide training on how to use outdoor learning environments because they thought it could help teachers prepare children for kindergarten while fulfilling all the Head Start requirements. All the participating teachers agreed that using natural elements in their teaching enhanced children's learning (see Appendix G).

Presentation of the Data and Results

During the analysis phase of this project, this researcher wanted to know how teachers felt about outdoor activities as opposed to indoor activities. This would help determine if they were open to using the outdoors as a learning environment, or if they believed inside a classroom was more conducive to learning. This researcher discovered every teacher identified children's behaviors or the acquisition of social and emotional skills as challenges during our initial meeting (see Appendix F). Two of the six teachers answered the way to build on their teaching success is to spend more time outside with their students. Teacher 4 suggested having "fluid in and out classrooms," meaning children would be able to go outside anytime they chose throughout the day, not just at a scheduled outside time, which many would consider recess. Three of the teachers viewed outdoor and indoor activities as interchangeable; therefore, they felt either place would be a viable place to plan activities to help children attain their educational goals. The other three teachers saw the outdoors more of a place for children to burn off energy

or work on developing large motor skills. Although not all the participating teachers intentionally planned activities outside, they all believed challenging behaviors were easier to manage outside because it was easier to redirect children struggling to manage positive social interactions or strong emotions. The teachers had a basic understanding of inquiry-based learning, as noted in their answers, in which they suggest listening to the children's conversations and watching them closely to see what captures their curiosity.

Only two teachers felt they intentionally planned for outdoor activities (see Appendix F). The others either did not plan for them, or only planned with the materials available for use during outdoor time. Despite this, all six felt they could plan outdoor learning environments for their children. In addition, all but two felt they could use the natural outdoor space available for learning. Teacher 5 did not feel she could use a natural outdoor setting because she felt she did not have access to any natural elements outside. The playground at her site was a parking lot with an area filled in with bark chips. Teacher 6 did not know how she would use natural elements.

Overall, before beginning the use of outdoor learning centers, most felt the challenges they faced teaching their children were due to the children's behaviors and lack of social/emotional development. Most felt they could use outdoor space as a learning environment. The common barriers to using outdoor environments consisted of lack of materials, lack of knowledge on how to set up the space, and shared playground or outdoor space with other classes, either at the same time or separate times. If the teachers believe outdoor play can help children build skills, they may be motivated to use natural outdoor environments. However, if the teacher is skeptical of the benefits outdoor play can offer as they try and foster the skills in the early learning outcomes framework, it may be helpful to share previous research

with them. It is important to know the teachers' frame of mind to determine what might encourage them to use outdoor learning spaces.

Barriers. To determine how barriers to outdoor play would be removed or diminished to encourage teachers to use outdoor learning environments to foster skills outlined in the early learning outcomes framework, this researcher compared the data gathered from the interviews, observations, and journal entries (see Appendix G). At the beginning of the study, three of the teachers perceived the lack of learning materials, such as mud kitchens, dramatic play props, manipulatives suitable for outdoors, and building materials, as the primary barrier. The other three teachers indicated knowledge of how to set up outdoor environments, parent concerns, and weather were barriers. As these barriers were addressed, the possibility of using outdoor space increased. During the initial interviews, all but one teacher reported she intentionally planned outdoor activities on occasion. In addition, all but one were comfortable planning for outdoor learning experiences, and four could use natural outdoor spaces to foster students' skills.

The barrier of proper materials was addressed by presenting teachers with ideas on how to incorporate what they already have on hand. Teacher 1 knew how she wanted to set up her outdoor area but did not know how to bring the materials outside. We discussed what type of natural elements would be available for use, and what type of material she may want to add to the area to enhance learning. She realized she did not need to use many items from the classroom to set up areas after watching the way in which children were drawn to sticks, rocks, and leaves. After our initial interview, she decided she could solve her problem of transporting materials by purchasing a wagon and allowing children to use their imagination or encouraging the use of their imagination by using natural elements found outside. For example, the children used fir branches as paint brushes. The girls would play house and use fir cones to represent

food. Some of the boys would use the trees as buildings while playing Spiderman and would see how high they could climb. This researcher observed Teacher 1 using the wagon to transport materials; however, the wagon was overflowing. As this researcher observed how the children and adults interacted with the outdoor space, it became evident that teacher 1 planned an excess of teacher-directed activities, and as such, more materials were needed to execute the planned activities.

After discussing this researcher's observation of teacher-directed activities with the teacher, she acknowledged that most of the activities she planned were teacher-directed. For her next cycle of reducing or eliminating barriers, she planned specific materials for children to use and planned to observe how children would use the space. The result was children created their own play scenarios and teachers asked open-ended questions to enhance children's play rather than dictating how the children should use the space. For example, children found sticks to write in the dirt. Teachers would ask about their drawings or writing. This seemed to encourage more drawing and writing from the children participating in the activity, as well as entice other children to participate. The drawback to giving children more freedom to create their own play scenarios was children went beyond the boundaries set up to make sure they did not wander too far away from the play area. The play area was in a park setting, which did not have any fences. The area in which the children could play had a fence on one side, a building on the other side, and sidewalks. The teacher told the children in advance they were not allowed to go past the sidewalk, building, or fence. The children would become so engrossed in their play, they would not realize they had gone past the boundary until a teacher brought it to their attention. This barrier was addressed in the final 2-week cycle.

A zoning plan was developed by the teacher and researcher to make sure children stayed within the boundaries while playing outside. During the last cycle, teacher 1 and her assistants would wander around the outdoor space and interject open-ended questions to understand how the children are playing and their thought process. While teacher 1 and her assistants were asking questions, they would fail to keep an eye on the other children to make sure all children remained in the approved outdoor space. This caused teachers to develop areas in which they would stand to remind children how to use the space and stay in the designated areas. The teachers would communicate with each other to let each other know when they would be interacting with a group of children, therefore leaving their zone unattended. By using this zoning system, teachers were confident they could contain the children while providing opportunities to leave their post and ask questions or interact with children as they were playing. The children learned to stay within the boundaries and approached the teachers to ask questions or share information. Teachers found it easier to follow the children's lead on learning and developed skillful inquiry-based learning techniques.

Teacher 2 identified parents as the initial barrier to outdoor play. She felt the parents would not want their children outside during adverse weather conditions or would feel as though the children were spending too much time playing and not enough time learning. The first plan to address this issue was to discuss the benefits of outdoor play with the parents during a parent night meeting and through a newsletter. The teacher let parents know that she would be taking the children outside more often and discussed with them how their children would be learning while they were outside. She had personal conversations with parents concerned about how their child would attain the goals the teacher and parent set together if the children were not in the classroom. Once the conversations with the parents had taken place, the parents seemed to

understand how children could benefit and learn from outdoor learning environments and supported the idea. She never heard any complaints from the parents on the days she used outdoor learning centers. Parents did share with her their pleasure about the gains their children made toward their educational goals.

Teachers 3 and 4 had a similar concern that parents may not be supportive of outdoor play in adverse weather conditions. Once these teachers were able to discuss the benefits of outdoor play with the parents and shared their ideas on how to keep children clean, warm, and dry while they were outside, the parents seemed to accept the idea of more outside time. Many parents from both classes observed the children playing in the outdoor learning centers and were pleased with what they saw. Teacher 4 reported that parents noticed how nicely children played together and how long the children stayed with one activity.

During this researcher's observation, children were engaged in each center; however, there was a significant amount of time for children to wait for activities to be set up. This occurred when the teacher had a difficult time transferring the materials from the wagon to the area where children could use the materials. After discussing the observations with the teachers, she concurred that it took too long to set up the activities because of the amount of materials needed for the planned activities.

For the next cycle, this study included using a wagon to transfer materials and providing more materials that required less instruction and more freedom for children to explore. The teacher provided shovels and metal trowels for the children to use. The children discovered new items to discuss such as worms and beetles. The teacher said unstructured activities provided opportunities for unplanned teaching moments. The researcher observed teachers spending more time redirecting children from mishandling shovels and metal trowels. When the researcher

addressed this with the teacher, she said there were times when she would not take the children outside because she could not trust them to remain safe while using the materials. This researcher then asked her if she had given clear expectations on boundaries, routines, and how to use the materials. She had not; therefore, during the next cycle, she explained how to use each tool outside and gave clear behavioral expectations on how to share and wait for a turn. She also made sure the children understood the routine of going out after lunch and how they would transition from inside to outside and back inside. Understanding the expectations seemed to help children make independent and appropriate choices. Teacher 2 believed the need for redirection decreased, which provided more time for the teachers to have meaningful conversations with the children about what they were thinking and learning.

Teacher 3 was a firm believer that outdoor settings provided the optimal learning environment for children. Her greatest concern was the weather. In her experience, wet, cold children did not like to be outside, and parents did not like their children coming home wet and dirty. She had asked parents to provide rain boots and coats; however, several families were unable or unwilling to provide these items. Teacher 3 asked the education site manager to purchase 10 waterproof coveralls for those children without proper rain gear. Children were able to go outside and play on rainy, wet days without getting their school clothes wet and dirty. Children were actively engaged the entire time they were outside. On a particular note, teachers could not leave one classroom member alone with 11 or more children; therefore, when one child needed to go inside to use the restroom, classroom staff needed to bring in other children who did not need to use the restroom to ensure proper childcare licensing ratios were maintained outside (one adult per 10 children). Teacher 3 identified this as a constant struggle; therefore, it was addressed during the second cycle.

The plan for the second cycle was to have this researcher help the teacher create a zoning area in which a teacher could see both the outside play area and the inside classroom. Children were able to move from the classroom to the outdoor area at will with a teacher strategically placed at the entrance of the door. This always allowed the teacher to see the children outside and inside. The teacher also asked parents to volunteer on the days in which outdoor learning environments were offered. Parents were happy to help during these times and interacted with the children, enhancing learning opportunities. No plan was necessary for the third cycle. The teacher felt all her barriers were addressed; therefore, she planned on using natural outdoor spaces as learning environments on at least two or three times each week. She noticed children needed little redirection while they were outside because they were actively engaged in learning and appeared to be happy. She noticed her assistant teacher, classroom aide, and the parents who volunteered began asking more open-ended questions and had deeper conversations with children.

Teacher 4 identified lack of materials as a barrier to outdoor play. She felt the program needed to provide materials necessary for creating active learning centers outside. This researcher discussed with the participant how to use natural elements as learning materials. During the first cycle, the teacher provided the children with clay to make "tree faces." Many of the children spent time manipulating the clay with their fingers or pressed sticks, rocks, or grass into it. One child spent a large amount of time creating a face on a log. The teacher thought this activity would be a group activity, but realized it was easier as an individual activity. The children spent 2 hours in the forested area without needing redirection. There were no emotional outbursts or acts of aggression that normally occurred inside the classroom. The teacher felt more children explored the clay outside than they would have inside because there are certain

children who will only play with the blocks inside. She saw the potential of outdoor learning environments; however, sometimes the weather conditions kept them inside on planned outdoor days.

Rain and cold weather prevented Teacher 4 from taking the children outside on the days she had planned to use outdoor learning centers during this study. The plan for addressing this issue was to ask parents to provide proper wet and cold weather attire. She also spoke with her education site manager and family worker to acquire spare clothing for those families unable to provide adequate clothing. Once the children had proper clothing, the teacher took the children out again. The physical design of the classroom made it possible for her to allow the children to go in and out; therefore, when the children complained about being cold, they could enter the classroom to get warmed up. Most of the children preferred to be outside, even when the weather was not optimal.

No barriers needed to be addressed in the final cycle. Teacher 4 felt outdoor learning centers engaged children in a way that made it easier to work on individual skills outlined in the early learning outcomes framework. She felt she spent less time redirecting children and more time working individually with each one. This researcher observed no child needed redirecting and teachers were interacting with children when the children were outside. The children would approach teachers and share information or ask questions. More times than not, children initiated conversations with adults. There were several back-and-forth exchanges during adult-child conversations, as teachers asked the children questions and the children responded. In addition, children used each other as information resources. Teacher 4 and Teacher 5 had similar experiences and felt barriers had been removed or reduced to encourage outdoor play.

Teacher 5 struggled with outdoor learning environments. She was excited about the possibility of new experiences the outdoor learning environments could provide; however, her greatest concern was that she had no access to natural outdoor spaces. Her site was a temporary location in which an old parking lot served as the outdoor play area. The location was in the heart of an unsafe neighborhood in which many homeless people resided. This posed a serious problem in securing materials the children could use during outdoor playtime, as anything left out in the playground must be secured or locked up. The teacher brought in natural materials such as rocks, twigs, branches, wood cookies, stumps, and sand. She set up her centers before the children arrived at school; however, the children from other classrooms had access to the playground before her class. When her class was able to go out, the centers had been destroyed or dismantled, as the other children were not taught how to care for the materials or given clear expectations about how each center was to be used. This researcher observed the children from other classes using the materials in addition to her class. Although children were engaged with the materials for long periods of time, it frustrated Teacher 5 that her centers were not set up the way she had planned.

During the second cycle, Teacher 5 discussed with the other teachers how she was using the outdoor space as learning centers. She had hoped that they would join her in using the centers as a learning environment and give their children clear expectations and rules on how to use the materials appropriately. She, again, set up outdoor learning centers and discussed with her children what to expect when they were outside and how to care for the materials. When they went outside, they still found the centers destroyed by the other classes. This resulted in the teacher and the children feeling frustrated.

During the last cycle, Teacher 5 opted not to use outdoor learning environments. She noticed the children enjoyed playing with the natural elements; therefore, she brought them inside for the children to use during free-choice time when the children could choose an area in which to play and explore. She felt the natural colors and tones of the classroom had a calming effect on the children. They seemed to use the natural elements for a longer period than "store-bought" plastic items. Children had access to both natural and man-made items but often chose the natural items over the other.

Teacher 6 felt overwhelmed and was unsure of how to use outdoor spaces. She did not know what they would look like or how she would set centers up. This researcher and participant spent some time brainstorming, after which, Teacher 6 felt ready to try some of those ideas. She tried a different approach than the other teachers in two ways. First, she decided to have half the children go outside and half the children stay inside. Secondly, she asked the children what they thought would be fun to "bring or do at outdoor choice." The children shared their ideas: playing in the dirt, planting flowers, painting with feet, reading books, doing journals, etc. As to not overwhelm herself or the children, the teacher planned on making tricycles, an easel with paper and crayons, chalk, and bubbles with different sized wands available in the outdoor area. Children seemed to enjoy the centers outside. They were friendly with each other, which was evident in the way they shared the bikes, waited for their turn, or traded bubble wands for tricycles. The most significant struggle was trying to get all the materials outside and set up before children were ready to use them.

During the second cycle, Teacher 6 developed a system for setting up the outside area. She set most of the centers up after the morning class used the outdoor area and before her afternoon class began. The system worked and improved as time went on; however, it was still a

challenge. During the last cycle, the teacher asked the children to help set up the outdoor space by creating a new job for the daily job chart. The added jobs helped children to set up and tear down the outdoor activities. The teacher felt the children enjoyed being helpers, and it gave them a sense of accomplishment. After trying the outdoor centers, Teacher 6 set up activities every day and incorporated them into every lesson plan. She would not go back to indoor choice time.

Early learning outcomes framework domains. Each teacher found ways to intentionally plan activities for outdoor learning environments and used inquiry-based learning. Four teachers initially felt they lacked materials to provide centers, however, realized natural elements could be used. They also recognized they could use the materials they already had on hand. Literacy lessons or activities seemed to be a significant challenge for the teachers to intentionally plan; however, this issue became the easiest to solve simply by providing the children with clipboards and reading books that related to the children's experience outside. All the teachers felt cognitive development happened naturally outside, as children gained scientific reasoning; therefore, they felt it was unnecessary to intentionally plan activities to foster these skills alone. The activities planned for other domains would include cognitive development. Each teacher planned activities to help the children gain skills in the five domains of the early learning outcomes framework (see Appendix E).

Language and literacy. To help increase language and literacy, every teacher provided clipboards with paper and writing implements. They each noticed children would use these items to document their work and share their experiences with their parents. In each teacher's journal, the teacher commented on how children who would not go near the writing table or use the clipboards inside would use them outside. Teacher 3 wrote, "There was one child who would

not visit the writing center, but outside, he would pick up a clipboard and draw what he saw" (Teacher 3, journal entry). Teachers 3, 4, and 6 stated children who normally do not want to draw or write their name inside were using the clipboards daily outside. This researcher observed this during every observation. Several entries described how children would draw what they saw when they were outside. "Many children would *document* their experience outside for their parents, but would not draw, paint or write when inside" (Teacher 4, journal entry).

Another common activity was children using sticks to draw or write names in the dirt or sand. Again, these activities were available indoors; however, children seemed to show no interest in them. Teacher 1 shared, "Children used sticks to draw in the dirt and talked about what they were drawing or writing" (meeting 2). "Children enjoyed writing their name in the dirt with a stick" (Teacher 2, meeting 2). Teacher 5 had trays of sand and sticks available inside, but there were one or two children who would not use them. Outside, children naturally picked up sticks and begin making marks in the dirt.

Teachers also found information in books that would answer questions children had when encountering natural elements outside. For example, most children found worms on the playground and asked several questions about the worms. This provided a great opportunity for teachers to model how to use books as a resource to answer questions. Three of teachers read the book *Not a Stick* (Portis, 2016) to help children learn what else they could do with the sticks. This helped teachers set boundaries and expectations for safe play and exploration when using sticks. In addition, Teacher 3 and 4 often took their iPad with them outside to help children look up information to answer the children's questions.

Language was easily planned by having centers outside. Teachers commented on how children who were quiet and shy inside would initiate conversations outside or at least participate

in conversations with their peers. Teacher 6 shared a story with this researcher about one child who rarely spoke in the classroom because he was shy and timid animatedly engaged in planting seeds. Teacher 6 said he illustrated with his words what his flowers would look like once they grew. Teacher 1 stated, "Children talked to each other about where to find each item [during a scavenger hunt] (meeting 2). She further stated it was the first time she saw certain pairs of children conversing with each other. During this researcher's observations, children spoke often with each other and approached teachers to ask questions or share information about what they were doing. Vocabulary increased as teachers used different words to describe actions and items found outside. This researcher also observed children repeating new words and asking questions. Teachers stated they felt language was increasing for most children.

Approaches to learning. Approaches to learning skills include managing emotions and behavior with increasing independence, taking initiative and being curious, and fostering creativity (Administration for Children & Families, 2015). These skills came naturally outside. Teachers reported children were curious about their surroundings. One teacher pointed out that the outdoors was unpredictable; therefore, children never knew what they would find when they went out. Teacher 3 told a story about how their class adopted a pet banana slug. One day when they were out in the woods, a child discovered a banana slug. Most of the children wanted to see the slug and asked a few questions. The next time they went out into the woods, another child spotted a banana slug. The children were convinced it was the same one. This became a study topic for the entire class. The children decided they needed to name the slug and adopt it as their pet. They were not allowed to take the slug into the classroom; rather, they needed to leave the slug in his natural environment and check on him, if they could find him, when they were out. The weather, insects or animals coming into the area, or type of wind would be different each

day. This researcher observed children quickly finding places to explore and often engaging with other children or materials for long periods of time. Inside a classroom, teachers reported that children may find something to do for the first 15 minutes of free choice, then begin wandering around and needing redirection from a teacher. All the teachers reported children were engaged for long periods of time outside.

Because children were engaged with materials or other children, they seemed to be able to self-manage themselves. Teacher 6 described a few of her students being more independent while outdoors. She stated, "[Child's name] needed constant one-on-one help to choose an activity and stay engaged. While outside, she became more independent" (meeting 3). This researcher saw the child to whom she referred make her own choices and find several things to do. Once they found an activity in which to participate, children stayed with it for longer than 15 minutes. One child had support from the teaching assistant; however, the assistant saw what the child was doing and encouraged the child by stating how safe or friendly the child was being. In addition, Teachers 1, 3, 4, and 6 noted their children were calmer once they returned indoors and were still able to choose activities in which to engage fully. The outdoors had a calming effect on the children.

Teachers 1, 3, and 6 also commented on how children who normally struggle to stay engaged were more likely to be independent while finding an activity that would hold their attention for a long period of time. Teacher 1 stated, "Those students who either were challenging or didn't participate in activities, participated [in outdoor-planned activities]. She noticed this during the scavenger hunt she had planned. She also described how "children stayed engaged, helping one another" as they looked for each item on the scavenger hunt. She felt children stayed with activities longer outside than they would if they were inside the classroom.

Teacher 2 felt the outdoors provided in-the moment teaching opportunities, promoted curiosity, and held children's attention. "I have discovered thus-far, digging in the dirt seems like the most satisfying and engrossing for children. Of course, we discovered some worms and an unexpected lesson came here" (journal entry). She shared many examples of how children interacted with their natural world, such as this one. "We found a beetle and looked at it with a magnifying glass. It was not too sprightly to begin with, but wow was it sluggish after they were done with *building a home* for it, which pretty much meant covering it with dirt! The kids were so engaged and excited, it was really wonderful." However, she did not always trust that her children could follow rules and routines; therefore, she did not always take them outside during their planned activity time. "Unfortunately, the children have not been using their listening ears today and have been displaying some violent behavior [in the classroom]. I will not be trusting them with metal trowels today." This researcher discussed the barrier of trust with her. She did not want to risk any difficult interactions with the children due to their behavior because the area in which she took the children was not fenced or self-contained. Many times, she opted to keep them inside the classroom. She would take them out to the enclosed playground area when their behavior was too much to handle inside the classroom; however, she did not plan any intentional learning centers during this time.

Teacher 3 expressed her delight in how engaged the children were when they were outside. One day she took out clay for the children to make faces on trees. "There was a great deal of interest in the clay. They didn't use it as I thought they would. Some children made faces, some children used the clay to make impressions. Two girls used the clay to make a bed for the dead baby squirrel they found" (Teacher 3, journal entry). Many times, this researcher read "We did not need to re-direct anyone today. Everyone was completely engaged" (Teacher

3, journal entry). When this researcher asked how long children would stay engaged, she said a long period of time would be 90 minutes. "It is amazing how they [children] never seem to tire of *adventuring,* as one child calls it" (Teacher 3, meeting 3). During this researcher's observations of each classroom, most children were able to choose an activity and stay with it for more than 25 minutes, and some would engage in the activity the entire 90 minutes they were outside.

Teacher 6 made several comments and journal entries regarding children choosing activities and staying with them for longer periods of time. She noticed several boys would spend much time planning and building structures with the blocks when they were outside. She noted in her journal, "Children spent less time wandering around and more time engaged with an activity. They seemed to stay with a chosen activity longer than they did when they were inside" (journal entry). In addition, she stated, "Children were curious about painting with plungers. They mixed paints together to discover new colors" (meeting 2). She did not see this type of curiosity happen when the children would paint inside the classroom.

Perceptual, motor, and physical development. Motor and physical development were intentionally planned during outdoor time; however, perceptual development is addressed during the infant and toddler stages of development according to the early learning outcomes framework; therefore, it was not discussed in this study. Scheduling and planning gross motor activities for outdoor time is a requirement for this Head Start program. For this study, risky play and place-based learning were discussed and introduced with participants. Increasing the outdoor time to include outdoor learning centers increased the time the children spent outdoors by an hour, making the total time outside 1.5 hours at a minimum. The result was longer periods

of time in which children could participate in gross motor activities typically disallowed while indoors. Teacher 1 noticed children playing soccer for a least 45 minutes.

Teacher 2 noticed children became creative in how they rode their tricycles. This researcher observed risky play when a few of Teacher 2's students were trying to ride the tricycles over the steps. They figured out how to get the tricycles up onto the steps to ride a short distance; however, they could not figure out how to safely get down. Teacher 2 kept a close eye on the students participating in this activity and asked probing questions to see if children could problem-solve how to get down safely. In addition to riding the tricycles, Teacher 2 witnessed her students taking risks playing soccer. "They all got muddy and a few got a bump or bruise here and there since soccer in my class seems to involve a lot of very dramatic sliding" (Teacher 2, meeting 2).

Teachers 2, 3, 4, and 5 watched their students balance and jump on stumps and logs. Teachers 3 and 4 were able to take their children out into the woods. Teacher 3 witnessed children jumping from log to log. Teacher 4 shared, "The children enjoy balancing on logs and jumping over them. There were a few logs they could crawl under" (meeting 3). Teacher 5 had an area in a parking lot that had 10 inches of bark chips on top of pavement. Wooden stumps were brought in for the children to move and use to sit on. She reported, "The children moved the stumps to form a line along with some old tires. Once the *path* was completed, the children would balance on the stumps and tires to avoid falling into the *hot lava*" (meeting 2). This researcher watched the children continuing this play scenario during the observation. Logs and stumps played a dual role in providing items for heavy lifting and balancing.

Large arm movements were observed in several classes. Teacher 6 provided ribbons attached to sticks. The children moved their arms in large circles to make the ribbons flow and

then tried small wrist movements to see how the ribbons would respond. Teacher 3 set out T-ball stands, bats, and balls for her children to practice swinging. Many of the boys took turns hitting the ball for at least 45 minutes every time they went out.

Social and emotional development. One of the skills teachers want to cultivate in children is building relationships with peers and adults to create a sense of identity and belonging (Administration for Children & Families, 2015). Each teacher concurred social and emotional skills could be taught inside or outside. Every activity planned had the potential for building these skills. The teachers intentionally planned activities they knew the children would be attracted to and let the other teaching staff know how to help encourage friendly play. Some naturally engaging activities to promote social and emotional skills included going on scavenger hunts, taking turns riding tricycles, playing with balls, and exploring new areas. Teachers would encourage children to seek information from their peers. Teachers 1, 2, and 5 learned to give specific expectations and rules for outdoor learning environments and encouraged the children to help each other with the rules. This researcher observed these types of interactions several times at all observations.

Teacher 2 shared an excellent example, in a journal entry, of how being outside offered an opportunity for an impromptu lesson. The children were outside and found a worm.

> One of the boys chopped the worm in half and it created quite a stir. In the face of his peers, tears, and accusations, he remained defiant, but I found him later sitting, despondently by the play structure with a half of the worm's (now very dead) body. It was a small, private lesson, but we talked about how its important to protect things that are smaller than us, and how worms are helpful for the planet. I told him I knew he didn't mean to kill the worm and affirmed what a good kid he was.

This researcher discussed this incident with the teacher. She said this incident sparked several conversations about taking care of each other and respecting each other's feelings. It helped children learn to navigate difficult social and emotional differences and how to respond to those differences.

Cognition. All teachers felt activities to improve cognition were easy to plan because they used the unpredictable circumstances that happened naturally outside to be the guiding factor. Teachers felt they did need to guide mathematic development more than scientific reasoning. Teacher 1 had boys who wanted to climb trees. These boys held daily discussions regarding the height of the tree, the circumference, and who could climb the highest. She also facilitated math skills by encouraging the boys to count how many trees could be climbed. Teacher 2 helped the children count rings they found on the logs to determine the age of the tree. This naturally led to a discussion regarding the age of the children. During this researcher's observation, children were talking about the rings and how old the tree might have been when it was cut down and compared it to themselves and their own age. This led into a discussion about birthday parties. This researcher also observed Teachers 1 and 2 counting how many times the soccer ball was kicked and discussing with the children the distance the ball travelled. Teacher 3 had children count rocks. This was a spontaneous activity. Teacher 4 intentionally put rocks in the sensory table for children to count; however, the children were more interested in moving the rocks with their toy trucks. Her staff looked for opportunities to count, measure, and identify shapes while children were playing. Teacher 6 intentionally planned activities to improve math skills, such as providing children with different shapes of bubble wands. Not only were children interested in identifying shapes, they also enjoyed counting bubbles.

Each teacher commented on the ease of using inquiry-based learning to increase cognitive skills. They encouraged all the staff to ask children questions such as, "I wonder how many…?" This researcher heard many questions during the observations. Staff would ask, "What else could you do? How could you solve that? What else do you know? Where could we get more information? How we could document what you discovered?" All these questions helped build children's scientific reasoning skills. None of the teachers could answer why it was easier to use inquiry-based learning outside; they simply realized it was easier. Some predicted it was because teachers assumed more control in the classroom, whereas they allowed children to be more in control of their own learning outside. Teacher 1 struggled with letting the children lead their own learning during the first cycle but tried to allow children more freedom during the last two cycles. For her, it was a shift in her mindset; therefore, it took some practice. Other teachers were able to let go of teacher-led activities and allowed children to engage with the material provided in their own way.

Inquiry-based learning. Inquiry-based learning improved with each cycle. During the first cycle, this researcher observed teachers directing play or asking closed-ended questions, such as, "Are you looking for worms?" or "Did you find the cones?" Teachers 1 and 2 initiated conversations most of the time. The feedback loops or back-and-forth conversations were not long, as children failed to answer and moved on to a different activity or simply ignored the teacher's question. During the second cycle, Teachers 1 and 2 were able to provide children with materials and allowed them to choose how they would use the materials. The teachers resisted directing play; however, they still did so much of the time. During the last cycle, the teachers provided ideas about how to play if necessary. The children were able to engage with an activity of their choosing. This naturally resulted in more child-initiated conversations. When a teacher did initiate a conversation, the child would stay with the conversation for at least three exchanges. If a child initiated a conversation by asking a question or sharing information, the feedback

loops were at least five exchanges. Teachers also encouraged children to seek out other children who had a similar interest or the ability to answer their question.

Summary

The purpose of this action research study was to gain understanding on how to encourage teachers to use outdoor learning environments to prepare children for kindergarten by gaining the skills specified by the early learning outcomes framework. Data were gathered during the three cycles suggested by Schmuck (2006). The data were analyzed by comparing teacher journal entries to researcher observations and interviews following each cycle. The noted perceptions identified consisted of fewer challenging behaviors needing to be addressed by the teachers, engagement of the children in the five domains listed in the early learning outcomes framework, and ease of practicing inquiry-based learning.

Participating teachers were encouraged to use outdoor learning environments by solving their perceived problems in using them. Once they were able to find solutions to perceived barriers of implementing outdoor learning environments and understood the benefits and ease of use after testing them, the teachers believed outdoor learning centers would help children develop skills needed for success in kindergarten. All the teachers except for Teacher 5 felt the barriers they had in using outdoor learning environments were removed or diminished. Teacher 5 had difficulty sharing the space with other classrooms using the outdoor space. She felt that if she could share the space with other teachers who wanted to use outdoor learning centers, she may have been successful using them. She may have been correct because Teachers 1 and 2 shared a space, as did teachers 3 and 4. Chapter 5 provides an in-depth discussion of the results found and how those findings fit into the literature review, change practice, policy, and theory, and recommends further research.

Chapter 5: Discussion and Conclusion

Introduction

Many Head Start teachers struggle to assist each student as he or she progresses toward educational goals due to the perceived increase in challenging behaviors some children exhibit in their classroom (Friedman-Krauss, Raver, Neuspiel, & Kinsel, 2014). Administrators and teachers from the Pacific Northwest program that was the focus of this study searched for solutions to this problem. Research suggested children remain calmer, interact with peers positively, stay focused, and think creatively when they are outdoors; therefore, using outdoor learning environments may help teachers develop their students' skills, as described by the early learning outcomes framework, to help them be successful in kindergarten (Bell et al., 2008; Fjørtoft, 2001; Hanscom, 2016; Kellert, 2005; Louv, 2008; Sobel, 2005). This researcher examined which barriers might exist that prevent teachers from using outdoor learning environments. If those barriers were eliminated or diminished, teachers could be encouraged to plan outdoor activities to help build children's skills in the five domains of the early learning outcomes framework: language and literacy; approaches to learning; cognition; perceptual, motor, and physical development; and social and emotional development.

The results of this study may provide valuable insight into how to encourage teachers to use outdoor learning environments, thus reaping the benefits of outdoor play. In addition, the study will add to the current literature by discussing how teachers can use outdoor learning environments to acquire skills in the five broad areas of development. In this chapter the researcher will present the limitations and problems with the study and the implication of the results for practice, policy and theory. Upon reviewing the findings, this researcher will evaluate

the facts using personal insights and interpretation. Recommendations for further research and discussion of how this study informs the literature presented will conclude this chapter.

Summary of the Results

Research questions. The purpose of this study was to conduct an action-research project to explore how teachers identify, eliminate or replace barriers to using outdoor learning environments to minimize children's difficult behaviors and develop kindergarten readiness skills, as described in the Head Start early learning outcomes framework. The research was guided by three questions.

R1: How will barriers to outdoor play, such as weather conditions, safety concerns for the children and accessibility to materials be removed or diminished to encourage teachers to use outdoor learning environments to foster language and literacy skills; approaches to learning; physical, perceptual, and motor skills; cognition; and social-emotional skills, as outlined in the Head Start early learning outcomes framework?

Participating teachers met with the researcher to identify barriers during the initial interview. Each teacher chose one barrier to address and worked with the researcher to find a solution to remove the barrier. After deciding on a solution, the teacher had two weeks to implement it and plan outdoor learning centers that would foster language and literacy skills; approaches to learning; physical, perceptual, and motor skills; cognition; and social-emotional skills, as outlined in the Head Start early learning outcomes framework. The purchase of wagons helped transport materials to natural outdoor settings. Teachers who were concerned about the weather requested the program purchase weatherproof coveralls for each child. These items were purchased in addition to rubber boots for the children whose parents could not provide them. Teacher 2 was concerned that parents would not approve of the time spent outside;

therefore, a newsletter was sent out to parents explaining the benefits of outdoor play, as well as providing an informational session about outdoor play during a parent meeting. The researcher provided training and individual coaching to teachers on how to gather and use natural items for the centers and shared ideas on how to set up outdoor learning centers. Finally, the program purchased materials suitable for outdoor play. The data gathered supported the hypothesis that if barriers could be removed, teachers would realize the benefits of outdoor play and be encouraged to intentionally plan activities outdoors that would cultivate children's progress in the skills described in the early learning outcomes framework. Teacher 5 was the only teacher unable to overcome her barrier. This will be discussed further in this chapter.

R2: If the barriers to outdoor play are removed or diminished, how will teachers intentionally plan activities for outdoor learning environments and use inquiry-based learning strategies?

The teachers intentionally planned activities for outdoor learning environments similarly to how they planned activities indoors. The activities were included on their weekly lesson plans. The researcher reviewed their lesson plans prior to observing the outdoor playtime to determine if the plans included activities that would address all five domains of the early learning outcomes framework. During the observation, the researcher looked for evidence of math, science, language and literacy, creative arts, physical development, health and safety, and small group collaboration as the children were outside playing. The findings suggested each teacher was able to intentionally plan activities to address all five domains.

In addition to intentionally planning outdoor activities, the researcher observed how teachers used inquiry-based learning strategies. Teacher 1 struggled the most with transitioning from teacher-led learning to child-led exploration; however, she was able to adjust to using

inquiry-based learning strategies with practice. The other teachers also found it easier to follow a child's lead by asking open-ended questions or offering suggestions to deepen exploration while they were outside. Each teacher stated during the final interview that it seemed more natural to facilitate children's learning using inquiry-based learning techniques. This was also reflected in teachers' personal journals.

R3: How do teachers perceive natural outdoor settings as learning environments that could help prepare children for kindergarten by reducing challenging behaviors and by helping the children develop skills in the five domains established in the Head Start early learning outcomes framework?

In the closing interview, the researcher asked each teacher how she perceived natural outdoor settings as learning environments that could help prepare children for kindergarten by reducing challenging behaviors and by helping the children develop skills in the five domains established in the Head Start early learning outcomes framework. The researcher and teachers revisited the initial answers shared in the first interview and reflected upon the experiences the teachers journaled and the researcher's observations. After comparing all the data points, teachers stated they perceived outdoor learning environments as a viable means of preparing children for kindergarten because children's challenging behaviors seemed to be significantly reduced. Teacher 3 stated, "When children are outside, they are happy and engaged. Little time is spent redirecting." Teacher 4 concurred and concluded, "Outdoor learning environments make the job easier." Coaching from the researcher to help remove barriers, testing how to intentionally plan outdoor activities to address all five domains of the early learning outcomes framework, and attempting to use inquiry-based learning strategies helped teachers reframe their perspective on outdoor play to encourage their use of outdoor learning environments.

Theory. Allowing children to play outdoors has many benefits. In addition to increasing overall physical health, Louv (2008), Kellert (2005), and Hanscom (2016) stated playing outdoors improved children's mental state of mind, ability to focus, and creative thinking. Providing children time to play outside in a natural environment gives children the opportunity to use all their senses, which in turn helps them understand the world around them. "The more exposure your child has to sensory experiences throughout the day, the more integrated and organized the brain, senses, and body become" (Hanscomb, 2016, p. 55). When the brain becomes integrated and organized, cognitive ability increased, and children gained more control over their behavior (Bell et al., 2008; Fjørtoft, 2001; Louv, 2008; Sobel, 2008). Research has proven that exposure to outdoor natural environments has a positive effect on children's emotional and physical health.

The Office of Head Start acknowledges the benefits of nature-based learning; however, teachers in this study rarely use it (Administration for Children & Families, 2015). Often, teachers in this Head Start program shared their frustration in meeting their job duties due to the one-on-one assistance a few children in their classroom who exhibited challenging behavior needed. Because the behavior was disruptive and the child exhibiting the behavior needed constant attention, many of the teachers did not feel they were able to meet the needs of other children in the classroom. Many Head Start teachers stated they would get frustrated and exhausted when dealing with certain behaviors (Friedman-Krauss et al., 2014). Head Start teachers in this study shared with the education manager that when they reached the point of exhaustion, they would take the children outside to play because the children's behaviors seemed to be easier to manage (XXX, personal communication, May 10, 2016). If behaviors were easier to manage outside, then creating outdoor learning environments to work on educational goals

may be an easier way to reach those goals. This researcher wanted to know what barriers existed to using outdoor learning environments and why the teachers would not intentionally plan outdoor activities to help them gain their individual goals planned using the early learning outcomes framework.

Six Head Start teachers helped determine ways in which barriers could be removed or diminished that would encourage them to take children outside more often. Five teachers believed they were successful in removing barriers and chose to continue using outdoor learning environments more often. They intentionally planned activities and centers outside, focusing on each domain in the early learning outcomes framework, and attempted to switch from teacher-directed instruction to child-led inquiry. All noticed a reduction in challenging behaviors which allowed them more time to spend with individual children. Teacher 5 was unable to overcome her barrier; however, she tried bringing natural elements into the classroom to see if children would remain curious and engaged in learning, thus gaining some of the benefits from a natural outdoor environment. The teachers acknowledged that outdoor play and intentionally planned outdoor learning centers should be used more often in their program to help children gain the necessary skills to be successful in kindergarten. They were encouraged to use outdoor learning environments by experimenting with planning and executing the idea. In addition, they agreed that professional development and coaching on how to use outdoor learning centers would be beneficial.

Discussion of the Results

Barriers removed. Each participating teacher had different barriers that affected her willingness to use outdoor learning environments. Teacher 1 had learning materials, such as paper, pencils, clipboards, paint, and dramatic play props; however, she did not know how she would transfer those materials to the outdoor environment the children would use. Purchasing a wagon was a simple solution to this problem. Once Teacher 1 took her class outside, she found it was easier to hold the children's attention; however, her activities were teacher-led. Therefore, she spent much time planning and executing her lesson plan she felt would engage the children in learning. The researcher suggested she not plan activities to enhance learning while she was outside. Instead, she should observe how the children explore their environment and provide materials that might encourage further exploration. For example, if the children find a worm or insect, provide them with tools to dig in the dirt to see if they could find more. She could provide measurement tools for her boys who were climbing trees, so they could measure how high they could climb. During her third 2-week cycle, she did not plan any teacher-led activities. She found it was easier to help children develop their skills when they were engaged in their chosen activities, and her role became guiding their play towards skill development. Having an opportunity to discuss the observation of the researcher and reflect upon her journal entries helped adjust her approach to teaching as she used outdoor learning environments.

Teacher 2 was concerned about how the parents would feel about their children going outside regardless of the conditions. During the initial interview with the researcher, Teacher 2 felt parents believed learning happened inside a classroom, and outdoor time was playtime with no academic advantage. Teacher 2 believed outdoor environments were more conducive to student-driven exploration, and learning happened more naturally. She was completely open to

using outdoor learning centers. Her greatest concern was how the parents would accept the idea of their children being outside for most of their day. The parents of her children actively participated in creating educational goals for their children using the early learning outcomes framework. Many of them shared their concern about taking their children outside, especially in the rain, as it would take time away from their learning opportunities. The researcher suggested she educate the parents on how their children could benefit from playing outside and offered different ideas on how to educate them. Teacher 2 sent out a newsletter to the parents informing them of the benefits to outdoor play and solicited the endorsement for the education site manager to share this information at a parent night meeting. Since another teacher from this site was also in this study, the education manager supported outdoor learning centers and happily shared information with the parents regarding the benefits of outdoor play. When Teacher 2 began taking the children outside, the parents had no complaints.

Like Teacher 1, Teacher 2 had similar barriers transporting materials from the classroom to the natural outdoor area and keeping the children in the designated area, as it was not fenced. She was also given a wagon which solved the transportation problem. After Teacher 2 and the researcher discussed the problem of keeping children in the boundaries and misusing of materials, the researcher suggested Teacher 2 give the children clear expectations and make sure they understood the area in which they could play. Once these were made clear, the teacher had a more successful time with outdoor learning environments.

Teacher 3 took her children out into the forested area regularly; however, she did not know how to provide the children with proper clothing to ensure they were comfortable outside to explore the wooded areas. She shared with the researcher that if each child could have a rainproof coverall and rain boots, the children could go outside more often and stay longer.

After discussing how the children could use natural elements outside to learn, Teacher 3 decided the classroom materials fund could be used to purchase the coveralls.

Next, she needed to find a solution to having insufficient adults to meet the licensing regulations regarding teacher-to-student ratios, so the children could move in and out of the classroom when only two staff were working. This was easily solved by asking parents to volunteer in the classroom to continuously count children to make sure the ratios of adults to children were always in compliance with the regulations. If there were too many children in one area, the parent would encourage children to move to another area. If no parent was available to facilitate ratio compliance, Teacher 3 and the researcher were able to create a zoning plan for teaching staff that would meet the licensing expectations. Teacher 3 could not identify any more barriers and successfully took children outside. She found children were happy and fully engaged in learning when they were outside, and her teaching staff could easily support learning by asking open-ended questions and offering ideas to further the children's engagement.

Teacher 4 felt she did not have enough materials that could withstand the elements of the outdoor learning environment. She wanted dramatic play props, tables for children to sit and draw, and art materials. After discussing how natural elements could be used for props and art materials and getting ideas from books and the internet on how to use rocks, sticks, leaves, and flowers as learning and art materials, she felt there were only a few items she needed to create outdoor learning centers. She was able to purchase minimal items for the centers and bags for the children to put items that they gathered on their nature walks into. She recognized that children would use their creativity to symbolically use materials to represent items not present, such as rocks as food in their pretend kitchen; therefore, she did have enough materials available to her to create outdoor learning centers.

Teacher 5 was unable to move past her barrier; however, she was not willing to give up on the idea of using outdoor learning environments. Not only did Teacher 5 share her space with other classes, her space was temporary. The site at which she was placed was in the process of being built; therefore, she was in a temporary site. She was hopeful that when her permanent site was completed, she would have more success using outdoor learning environments since the completed project included a new playground installed with natural elements such as trees, shrubs, rocks, and a sand area. She could see the benefits of outdoor play during the short time her children were outside and how well they engaged with the natural elements she brought in, such as the tree stumps, wood cookies, and branches. She also saw the children use the mud kitchen for longer periods of time. During the observation, the researcher saw the children create play scenarios and delegate different roles to each other in which to execute the scenarios. Teacher 5 stated this was something she saw regularly when the children were outside. She was able to see the potential outdoor learning environments could provide in helping children reach their educational goals. Based on this teacher's experience, a key factor in using outdoor learning centers is the actual space or access to a natural environment in which the children can play. This teacher was limited in the way she could set up the outdoor learning environment because is was a temporary site. This implies that the access a teacher has to a natural outdoor space has some effect on their willingness to use outdoor learning centers. Teacher 6 also shared space; however, she had the ability to section off the area in which she created her outdoor learning centers. In addition, she received support from the other teacher with whom she shared the space.

Teacher 6 successfully broke down the barriers to outdoor learning environments simply by testing them out for a while. When she began the study, she was open to the idea of outdoor

learning centers and wanted to see how it would affect the behavior and engagement of her students. She was skeptical at first that using outdoor environments could provide the academic engagement children needed to further the skills in the five domains of the early learning outcomes framework; however, she understood the benefits outdoor play could provide for her children. During the initial interview, Teacher 6 had never thought of setting up learning centers outside. She did not know where to begin. Once she saw some concrete examples of how to set up the environment, she was excited to try using outdoor learning centers. Through trial and error, she was able to find a way to set up her environment effectively using help from the children. This researcher questions if her success was due, in part, to the ownership the children had in helping to set up the centers.

Each teacher worked with the researcher to find acceptable approaches to overcome the barriers. Their input into solutions helped them plan courses of action that they felt they could manage as they used outdoor learning centers. Once they felt the solution was manageable, they tested it out for two weeks. If the solution was proven unmanageable, the researcher and teacher formulated a better solution to try. A key piece in this process was having the teacher be an active participant in finding solutions to breaking down barriers. Coaching and access to the materials the teacher felt they needed helped bypass the barriers and allowed the teachers to experience the benefits of outdoor play the research presented. Calm, more focused, and engaged children permitted teachers to interact with more children one-on-one.

Domains of the early learning outcomes framework. Participating teachers were able to provide opportunities for each child to gain skills in the five domains of the early learning outcomes framework: language and literacy; approaches to learning; cognition; perceptual, motor, and physical development; and social and emotional development. Many of these opportunities presented themselves naturally, especially when teachers asked the children open-ended questions about their play or discoveries. Teachers were unable to explain why children tended to gravitate toward activities such as writing, drawing, or looking at books that they would not be interested inside a classroom, stayed focused on one activity for long periods of time, or were more independent. Teacher 6 had a child whom she had not heard speak one word while in the classroom speak to her and peers while outside. All the teachers stated it was easier to observe children and interact with them while outdoors. They believed this occurrence was due in part to spending less time redirecting children from negative behavior to positive behavior. The explanation of why teachers were able to foster more skills outdoors can be found in previous research. All the teachers in this study were able to realize the benefits outdoor play provided, as they observed those benefits firsthand.

None of the teachers planned outdoor experiences regularly or intentionally prior to this study. Teacher 2 claimed she did not plan any experiences because she was hired during the winter months; therefore, the weather was "a deterrent." Teacher 1 claimed she planned outdoor experiences occasionally; however, she relied on "unintentional teaching moment, such as children finding a worm on the playground." Teacher 5 planned physically active games and activities, yet none of the activities were intentionally planned to foster skills described in the early learning outcomes framework. Teacher 6 planned which materials to make available for children outside though no intentions were made clear. Teachers 3 and 4 felt they intentionally

planned outdoor activities that would encourage children to expand their skills in the five domains of the early learning outcomes framework. Teachers were forced to intentionally plan activities keeping the five domains of the early learning outcomes framework in mind to encourage child engagement. For example, to increase writing skills, every teacher in this study provided clipboards with paper and a pencil attached. This intentional planning resulted in active engagement of several children in each domain area.

Language and literacy were both difficult and easy to intentionally plan. Participating teachers felt language would naturally increase due to new experiences and discoveries made outside. Teacher 6 could not predict her children's vocabulary would increase as much as it did, nor did she predict her selectively mute children would be more comfortable outside and begin speaking to her and their peers. Teacher 5 had a similar experience when a few of her children, who rarely spoke began asking questions and shared their knowledge of certain subjects with their peers while they were outdoors. Vocabulary increased in Teacher 3 and 4's children, as they learned about banana slugs, moss, lichen, etc. The greatest surprise for all the teachers was the children's increased interest in using the clipboards with paper and pencils to document their learning. All the teachers had had some children who were resistant to using any type of writing implement, which was why this came as a surprise.

The approaches to learning domain describes the progression of skills as increasing focus and persistence, regulating behavior to manage routines and follow expectations, caring for learning materials, showing initiative and curiosity, using imagination, and gaining independence. Each teacher described specific children who were able to become more independent outdoors. The researcher observed children in each class needing less guidance and developing increased focus and persistence as the study progressed through each phase. Every

teacher stated children needed less redirection because they would be engaged with activities for long periods of time, which they claimed would not happen in the classroom. Teachers reported and the researcher observed elaborate play scenarios. In Teacher 1's class, the researcher observed several boys creating superheroes who would climb and "leap" over trees. Each time the researcher went out to observe, these same boys would be playing superheroes the entire time they were outside. Each boy would describe what their superhero would do and then act it out. The teaching staff would ask questions about their play scenario, and the boys were able to articulate what they were doing. By asking questions and offering up ideas, Teacher 1's teaching staff helped extend the boys' play. Language was increased and math skills were enhanced as the boys predicted the height and circumference of the trees. Their physical development was increased, as they moved in different ways, and when social problems arose, the boys were able to discuss solutions to those problems and continue playing. Teacher 1 would see this inside the classroom; however, the length of play and the elaborate play scenarios were hindered by the smaller space and reaction of other children trying to share the same space.

Physical and motor development seemed to naturally increase according to the teachers. All of them expected this to happen since the space in which the children play is much larger outside than inside. The children had more freedom to run, jump, skip, and move about when they were outside. Inside, teaching staff are consistently saying to the children, "Walking feet. Feet on the floor. Slow down. No spinning. Do not invade personal space." When the children are outdoors, they are not only free to participate in all these activities but encouraged to do so. Therefore, children naturally increase their motor and physical skills. Teacher 3 shared how her children spend time in the woods climbing over rocks, hopping over puddles, balancing on rocks as they cross the creek, and pulling sticks or stones out of the ground. Again, these activities

naturally increase physical development. Many of these tasks are not replicated inside a classroom.

Children developed socially and emotionally when they were outside using the learning environments. The teachers described several peer interactions that were positive as children played and discovered new things. Teacher 4 stated:

> What was great about this new area (pools with pillows, blankets, and books) was that at certain points during the two-hour outdoor play, some of the more aggressive boys were over in the pools looking at books. This never happens in the classroom. These boys always choose very aggressive play, such as fake fighting, and had to be constantly re-directed indoors and out. To see them calm and engaged in literacy was awesome.

Teacher 6 shared how one boy would talk with peers in a friendly way and became engaged in the activities he found outside. When he was inside, he would "roam around the classroom and put his hands on other children in an aggressive way." He was able to socialize in a calmer manner outdoors, and the other children began to interact with him positively.

Teacher 5 described several positive interactions between peers as they developed socially. One group of children would create different play scenarios outdoors and assign roles to each other. One day they would be pirates, and the next day they would need to avoid the hot lava. One of her groups of girls arranged tree stumps to create a beauty shop. This took some negotiating, as the girls shared their vision on how the shop should look. Once the shop was built, they took turns getting their hair done. During this process they were able to calm their emotions if they did not get their way and wait patiently for their turn.

Other examples of social and emotional development were explained by Teachers 1, 2 and 3. During the scavenger hunt Teacher 1 created, she noticed children helping each other as

they searched for items. She was excited about this and said, “The exploration and team work are amazing.” Teacher 2 shared how she was able to help one boy work through his emotions when his classmates were unhappy that he chopped a worm in half. In addition to these examples, Teacher 3 watched a group of children navigate taking turns throwing sticks and rocks in the creek and discuss how to throw the items and how far their sticks would float down the creek. All these positive interactions gave children an opportunity to develop their sense of belonging to a group and recognizing their own unique qualities, skills, emotions, and interests.

The final domain in which teachers saw growth was in cognition. The early learning outcome framework separated the cognition domain into two subparts, mathematics and scientific reasoning. Teachers intentionally planned activities to increase knowledge in these areas but noted growth came naturally when children were outside. Some boys from Teacher 1’s class had several discussions about the height and circumference of trees. As mentioned earlier, children in Teacher 3’s class experimented how to throw rocks and sticks in the water and predicted how far their sticks would float down the creek. Not only did this activity build scientific reasoning, it also promoted mathematic skills as the children measured distance. Several teachers described how finding worms or other creatures in nature sparked curiosity and caused the children to pose many questions about the creature. In addition, children naturally counted items such as bubbles being popped, rocks and sticks gathered, turns taken, and rings on the wood cookies.

Inquiry-based learning. Inquiry-based learning occurs when questions that guide learning are posed to students or by students. The students take a more active role in learning, as they discover new ideas, ask more questions, or search for answers. The Head Start program in this study adopted policies that promote inquiry-based learning; however, teachers still tend to direct

learning more often than guiding it. Teacher 1 struggled with this during her first and second cycle of the study. The researcher discussed this issue with Teacher 1 after the first observation. The teacher was able to recognize that she was being more directive and needed to allow the children to choose their own activities while they were outside. She, her assistant, and her aide practiced asking questions to the children as they played. She realized that children did become more engaged in an activity when they were asked about their discoveries or experiences. She believed it was easier to permit children to explore activities on their own while they were outside. She noticed children did not need to be told what to do when they were in the natural wooded area. They were able to choose activities or develop play scenarios that provided opportunities for the staff to ask probing questions that would prolong the children's exploration. To that end, being outside made it easier for the teacher and classroom staff to guide learning that would build on the skills needed for each child to reach his or her educational goals.

Teachers 3 and 4 also claimed it was easier to allow children to guide learning while they were outside. One week, both teachers brought clay out into the woods for children to make faces and put the faces on the trees. The children did not use the clay in a manner the teachers had planned. Instead, they explored the properties of the clay or used it to make impressions. Teacher 4 wrote in her journal, "It was clear from the beginning that children were not adept at playing with clay and the sensation of touching it and experimenting with it was much more interesting to them than the actual process of making a face." She was able to allow the children to explore how they wanted to use the clay while they were outside rather than push them to create faces. Inside she felt she and her staff tended to push their learning agenda onto the children and not let the children create their own experiences with materials.

Teacher 6 was curious about how her children would engage with the outdoor learning centers. She claimed her approach to teaching differed outside from inside. While she was outside, she wanted to observe the children to see how they would interact with the materials and each other; therefore, she stood back and watched how each child engaged with the centers he or she chose. This gave the children a chance to explore the materials in their own way rather than being told how to use them. Inside the classroom, the teacher was more inclined to show children how to interact with materials or each other. Outside, she was able to set aside her teaching agenda and help guide learning, taking cues from the children. Her staff seemed to find this easier outside also. She recognized this during the conversations she had with the researcher after discussing what the researcher had observed and noted.

Discussion of the Results in Relation to the Literature

According to the literature presented in chapter 2, the results of this study were not surprising. Louv (2008) defined *nature-deficit disorder* as the lack of outdoor experiences resulting in children being physically unfit and displaying problem behaviors such as aggression, the inability to focus, lack of persistence, and a greater ease of becoming agitated. The teachers in this study noticed Louv's (2008) observations were accurate; their children were more prone to emotional outbursts, lacked focus, and were less engaged indoors than when they were outdoors. After the children had spent time outdoors, they seemed calmer when they were inside, according to Teachers 1, 3, 4, and 6. Many of the teachers observed children participating in activities outdoors that they never saw them engage in inside, such as the boys who enjoyed looking at books outside but would never visit the library area while indoors. A child who needed constant supervision by Teacher 6 became independent outdoors, making safe choices and engaging in tasks much longer that previously experienced indoors.

Kellert (2005) believed that exposure to nature helped calm humans and stated that direct exposure to nature is best. However, if direct exposure was not possible, natural items could be brought inside to achieve a calming effect. Teacher 5 felt unsuccessful breaking down her barrier of shared spaced. Therefore, she chose to bring natural elements inside, such as sticks, rocks, wood slices, and pine branches [to use as paint brushes]. She felt these items helped the children sustain longer periods of interest in the tasks in which they participated. This tied in with Kellert's theory regarding the effect nature has on the emotional well-being of humans.

An exploratory case study conducted by Ernst and Tornabene (2012) suggested the way to influence teachers to use natural outdoor settings is to reduce barriers to these settings. The teachers in this research worked with the researcher to reduce the barriers and tried using outdoor settings for a total of 6 weeks. The result was five of the six teachers felt they were successful reducing the barriers and experienced the benefits of outdoor play as described by previous research. Teacher 3 and 4 felt their barriers were removed in the first two cycles; therefore, no plan was created to address any barrier during the third cycle. Instead, these two teachers concentrated on honing their inquiry-based learning skills and planning activities they thought would engage children. Although Teacher 5 did not feel the barrier was eliminated, she felt either outdoor settings or exposure to natural elements could be used to help children gain skills in the 5 domains of the early learning outcomes framework.

Teacher 5 shared her outdoor space with four other classes. Two classes could be outside in the same area at the same time. This posed a barrier to which no immediate solution was found or tried during this study. In the beginning, she was excited about setting up outdoor learning centers to see how her children would react and explore. She needed to set up the environment before school began. Based on the outdoor playground schedule determined at the

beginning of the year, her class had access to the outdoor area after two other classrooms. In addition, her class shared the spaced with another classroom. When her class went out to use the outdoor learning centers, the other classes had used or destroyed them; therefore, the centers were not set up properly, parts were missing, or the materials were completely used or broken. Her class was unable to experience the centers the way in which they were intended. However, the children did enjoy using some of the natural elements, such as rocks, wood cookies, branches, and cones in their outdoor play. As a response to this observation, Teacher 6 brought those items into the classroom to see if using the natural elements inside could keep children engaged and inquisitive. The children did find the natural elements interesting and seemed to stay engaged with them longer than mass-produced manipulatives.

According to the journal statements from Teacher 5, bringing the natural elements inside did have a positive effect on the children. The children had been intrigued with using tree branches as paint brushes outside and continued their play when those items were brought inside the classroom. Kellert (2005) described how a direct experience with nature could reduce stress and enhance performance and productivity. Teacher 5 believed the small exposure to real natural elements did have a calming effect on the children. In addition to the natural elements, she changed her room to include more natural colors of the flora and fauna found in the neighborhood and eliminated man-made visuals with bright colors. Sobel (2008) stressed the idea of place-based learning, which meant exposing children to items or situations found in the community where children live. The items Teacher 5 used in the classroom could be found around the school or in the children's neighborhoods. The effect of locally found natural items on this classroom warrants further exploration.

Teacher 5 was not discouraged by the inability to eliminate the barrier she faced to outdoor learning environments. She still recognized the impact the outdoors could have on helping her students gain the skills necessary to be successful in kindergarten. In the final meeting with her, she stated she still wants to try using outdoor learning environments, especially because she heard about the success of the other participants in this study. She felt that the teachers she shared space with needed to be on board. She explained to them how she wanted to set up outdoor learning environments and how the other teachers could help, even if they did not want to use them. However, this did not seem to encourage any collaboration on their part. She felt that the program should provide professional development on the importance of outdoor play, the benefits the research has proven, and how to proceed. This coincides with the results Ernst and Tornabene (2012) noted, such that if teachers were to recognize the importance and benefit of outdoor play, they may be encouraged to use outdoor learning centers. Several researchers suggested professional development would help teachers improve their knowledge on the benefits of outdoor play and how to implement it (Cevher-Kalburan, 2015; Ernst & Tornabene, 2012; Ihmeideh & Al-Qaryouti, 2016; McClintic & Petty, 2015). This Head Start program may want to consider exploring how professional development may encourage the use of outdoor learning environments to help children gain skills in language, literacy, social and emotional development, mathematics, science, and physical development.

Cooper (2015) stated children who are exposed to natural outdoor learning environments will advance their skills in all the areas listed in the early learning outcomes framework. Every participating teacher discussed with the researcher or wrote in the journal how the outdoor learning environment enriched the learning for their children and built skills in each domain in the early learning outcomes framework. Language and literacy seemed to be the domain that

surprised the teachers, as many children were excited about documenting their discoveries or wanted to write or draw using clipboards with paper attached to them. In addition, when children were curious about objects they found in nature, they wanted to find books to help answer their questions. Teacher 6 stated one child did not speak in the classroom; however, the child sought her out and spoke to her about his experience outdoors. Other children would exclaim, "He can talk!" She felt this would not have happened in the classroom. Finally, the outdoor area helped children learn new vocabulary, as they discovered natural items new to them. Participating teachers were pleased to see the children talk with each other, as they explored the outdoors and created play scenarios.

Several times teachers mentioned how their children performed a task or participated in an activity while outdoors that they would not have done inside the classroom. Teacher 1 noted boys engaging in mathematics while deciding how high they could climb. Children in Teacher 2's classroom participated in more spontaneous conversations amongst themselves. One child in Teacher 3's classroom was more willing to take risks when outside by climbing over tree trunks and playing with other children. Teacher 4 described boys choosing to read books outside in the pool area filled with blankets and pillows; whereas, they would never enter the library area or show any interest in books when inside. Teacher 5 observed children engaging in activities for longer periods of time outdoors than indoors. Lastly, Teacher 6 said children in her class were more apt to solve social problems when playing outside. She also described how two of her children were more independent and less aggressive outside than inside the classroom. All these stories relate back to the research in which children are calmer, more focused and engaged, less risk aversive, and more independent (Kellert, 2005; Kirk et al., 2014; Louv, 2005; Nedovic and Morrissey, 2013; Sandseter et al., 2012; Sobel, 2012).

Finally, Maynard et al. (2013), Ghafouri (2014), and Perry and Branum (2009) shared their findings regarding inquiry-based learning. They suggested the outdoors may provide ample opportunities for children to freely explore their environment while teachers become a resource for information, therefore making the outdoors an excellent place to practice inquiry-based learning. Teachers in this research found it easier to allow children to lead their own learning by providing them opportunities to engage with their natural world. Teacher 1 tried to simply move learning outside using didactic methods. She realized later she did not need to plan teacher-led instruction and activities but rather allowed children to choose their own path. When this was done, children participated in more focused play and deeper dramatic play, which encouraged more social-emotional interactions with peers. Also, children required less direction, as they independently chose activities that allowed teachers to ask questions that enhanced critical thinking and problem solving. As a result, teachers felt they did not need to spend as much time lesson planning, but could enrich learning by asking open-ended questions to help children think about their own actions and discoveries.

This study set out to discover what might encourage teachers to use outdoor learning environments to help them prepare students for kindergarten based on the five domains of the early learning outcomes framework to realize the benefits of outdoor play described in previous research. The results suggested helping teachers break down barriers and observing how their children build their skills in the five domains while outdoors could encourage teachers to use outdoor learning centers. Coaching and professional development may help teachers feel more confident in using natural outdoor learning environments.

Limitations

The researcher anticipated the results of this action-research study. An unforeseen limitation was the time-line in which the study was conducted. Teachers began at different times, and it was difficult at times to schedule debriefing interviews with them after the researcher observation. Additional limitations included the lack of diversity among participating teachers, research setting, and meeting times with the participants.

Although our program employs teachers with diverse backgrounds, only white females participated in this action-research study. Two white male teachers and an African-American female teacher volunteered, however, one male teacher was promoted, one male teacher was unable to schedule an initial meeting due to staffing issues in his classroom, and the African-American teacher changed her mind. The six teachers who volunteered were veteran teachers, even though they may have only had a few years with this Head Start program. A few new teachers felt overwhelmed learning all the requirements of Head Start performance standards, therefore did not want the added stress of journaling their experiences.

The research settings were limited to four different sites because two of the sites had two teachers volunteer for this study. Each site had different levels of natural outdoor settings, with one having no natural elements in which to entice children to explore. This researcher recommends further research be conducted to see how natural elements could be introduced to an outdoor setting in an urban environment that is comprised of pavement.

Finally, meeting with participants was challenging due to time constraints from both the teachers and the researcher. During this study, the program experienced a Federal Review from the Office of Head Start. This made it difficult for the researcher and teachers to meet since all

parties were preparing for the review. Some of the interviews happened by external means such as email and phone rather than face-to-face interviews. If this study were to be replicated, it may be beneficial to have a researcher who could dedicate uninterrupted time to observe and meet with teachers in person.

Implications of the Results for Practice, Policy, and Theory

The literature discussed the value of outdoor play; however, teachers in this Head Start program do not use outdoor settings as intentional learning environments as often as indoor settings. Teachers have expressed their frustration to the education manager with completing all their job duties because of the large number of expectations and challenging behaviors to which they must attend. Outdoor learning environments could help teachers complete their job expectations. This study suggested that once barriers were removed, teachers may be more likely to plan outdoor activities and allow children the freedom to shape their own learning.

Practice. The data gathered in this study implied barriers to using outdoor environments can be broken down or removed by addressing each barrier individually. As a result of this study, the participating teachers' perception of using outdoor learning environments changed, and they began to use inquiry-based learning strategies regularly and naturally. These teachers vowed to change their teaching practice to include outdoor learning environments. This researcher will continue to coach the six participating teachers and any other teachers interested in using outdoor learning space as a natural learning environment. Furthermore, participating teachers and the researcher will help support other teachers in this program who want to implement the use of outdoor learning environments by providing professional development sessions on how to identify barriers and remove them. The findings of this study may change the

practice of using indoor classroom settings solely as learning environments and encourage other teachers to use outdoor learning centers to prepare children for kindergarten.

Policy. The practical implications of providing coaching and access to outdoor settings should help guide this Head Start program policy. Administrators may want to consider how they can provide each classroom with access to natural outdoor learning environments or create an outdoor space with natural elements. By providing these spaces, teachers may be motivated to use outdoor learning environments to foster skills defined in the early learning outcomes framework. Teachers 1, 2, 3, and 4 all had access to natural wooded areas. Teacher 6 had an outdoor space in which the children could move in and out of the classroom with ease and choose where they would like to play. More often, children chose to play outside. Teacher 5 wanted to use outdoor learning environments; however, the space she had available was difficult to create with no natural elements incorporated into the space. Access to natural outdoor settings is important to encouraging teachers to use the space as a learning environment.

In addition, administrators may want to consider pairing teachers with like-minded visions of using outdoor learning environments. Two sets of teachers in this study were from the same site. This offered them an opportunity to share their ideas with each other and work together to set up enticing outdoor learning centers for the children to hone their skills. Coupling interested teachers with a designated coach who can help teachers find solutions to overcome barriers would be helpful. Teacher 5 was unable to move past her barriers due to a lack of cooperation from fellow teachers. If these teachers wanted to use outdoor learning environments, they may have been more motivated to help their students learn how to use materials, reset the centers for the next class to use, and help plan activities that could be easily

sustainable between classes. Furthermore, professional learning communities who wish to explore the topic of outdoor learning environments may also encourage teachers to use them.

Finally, administrators may want to consider providing in-depth training for nature-based play and using outdoor spaces in their professional development plans. Teacher 6 did not feel she had the knowledge to set up an outdoor learning environment. Once she was able to understand the benefits of outdoor play, see how other teachers set up their outdoor learning centers, and had time to brainstorm ideas with an expert, she was able to provide this type of experience for her children. Once she observed how her children engaged in the outdoor learning centers she provided, she was convinced that outdoor learning centers could provide an excellent environment for teaching and learning to increase skills in the five domains of the early learning outcomes framework. She also noticed it felt more natural to ask open-ended questions and implement inquiry-based learning techniques.

Theory. The theoretical implications suggest outdoor learning centers make it easier to combine theories to provide a rich learning environment. The data presented in this study imply nature-based learning and development, place-based learning, and inquiry-based learning can meld to support learning in the five domains of the early learning outcomes framework. Learning outside helped children stay calm and focus on their activities. Outdoor learning environments may help teachers focus their work with individual children since they can spend more time on child-led activities and less time redirecting children's behavior that decreases learning opportunities for all the children in the classroom.

Another theoretical implication suggests outdoor learning environments can be used to foster skills described by the Head Start ELOF. The participants felt outdoor learning centers naturally encouraged the children to engage in activities to strengthen skills in language and

literacy, social and emotional development, motor and physical development, approaches to learning, and cognition. Participants noted that children would participate in early writing skills as they documented their learning using clipboards provided by the teachers. This was not something the teachers were successful in encouraging while inside the classroom. In addition, children were more focused and attended to the skill they were learning for longer periods than teachers had observed while inside the classroom. Based on the data analyzed in this study, outdoor learning environments may help teachers plan activities to capture the curiosity and attentiveness of the children to gain the skills outlined in the ELOF.

This study suggests to the community of learners and educational communities that barriers can be removed to encourage teachers to use outdoor spaces as learning environments. The encouragement comes from simply working through the barriers and trying out a new approach in helping children gain skills that will prepare them for kindergarten. Theoretically, this study can be transferable to other age groups and preschool programs. It informs both policy and practice by proposing outdoor environments as a viable setting to enhance learning since it calms children and helps them be more focused and engaged.

Recommendations for Further Research

This study should be replicated since the results were based on a limited sample of participants. Recommendations for further research include expanding the age range for outdoor learning environments, extending it to programs other than Head Start programs, and using more diverse teachers. Another consideration would be to have teachers not inclined to use outdoor learning environments participate to truly see if simply breaking down the barriers to outdoor play and recognizing the benefits would encourage more use. The teachers in this study were

open to the idea of using outdoor learning environments and believed in the benefits of outdoor play.

Additionally, it may be beneficial to examine how the physical outdoor setting affects the use of outdoor learning centers. In this study, there were four different physical settings that affected the planning and implementation of outdoor learning centers, specifically in regards to Teacher 5. McClintic and Petty (2015) stated more research is needed to see how early childhood educators and administrators perceive the outdoor environment in relationship to curriculum. To take it to another level, more research should explore how educators and administrators could improve the access to natural outdoor learning environments to enhance curriculum. Teachers 1, 2, 3, and 4 seemed to have an easier time using outdoor learning centers because they had access to wooded areas and natural outdoor settings compared to the sparse access to natural elements experienced by Teachers 5 and 6. Access to the wooded areas and natural spaced allowed children to gather natural items to use as they played. The children in Teachers 5 and 6's classrooms had to rely on the adults to bring in natural items and did not get an opportunity to find items on their own. For those children in Teachers 1, 2, 3, and 4's classrooms, gathering natural items furthered their learning as they decided how to use each item in their play.

One more recommendation for further research could include studying the effect natural elements found in the geographical area may have on children's behavior and focus when used in indoor learning environments congruent with inquiry-based learning techniques. Teacher 5 perceived improvements in her children's focus and engagement when natural elements were introduced inside her classroom. According the Sobel (2012), using items not found in the area may have no meaning or relevance to the children since they would not be able to have hands-on

experience outside the classroom. It would be interesting to see if Teacher 5 would perceive improvements in her children's focus and engagement if she used natural items not found in the local area.

Furthermore, it would be worth exploring if the barrier of shared space could be solved if all the teachers in the site participated in the study and tried outdoor learning environments. Teachers 1 and 2 shared space, as did Teachers 3 and 4. Did they find it easier to use outdoor learning centers because they had each other to share ideas? Teacher 6 successfully used outdoor learning centers without the support of the other teachers in her location. Teacher 5 felt she could not use outdoor learning centers because her fellow teachers were not supportive or did not share her vision of how the outdoor centers could enhance learning. This may have affected the outcome of her experience.

The final recommendation is to extend this study to the home-base model of Head Start. In a home-base model, the teacher would share information with the parent on how to use natural outdoor environments to enhance learning. In addition, the teacher would plan activities for the parent and child outside to model the information and instruction given to the parent. Measuring how the parent feels about using the outdoor learning environment and the teacher's perception of the intended outcomes could provide insight into the how to include parents and educate them on the many benefits of outdoor play.

Conclusion

Six teachers actively participated in the study by implementing plans designed to address barriers to using outdoor learning environments. Each one planned activities and learning centers to engage children to build on the skills described in the early learning outcomes framework similarly to how they would plan inside a classroom; however, they used natural

elements found outdoors such as sticks, rocks, and plants. They found it easier to observe how children interact with their environment and peers and use open-ended questions to help children use problem-solving strategies and critical thinking. Teacher-led activities were kept to a minimum, as teachers reframed their approach to teaching using inquiry-based learning. Teachers discussed with their staff what questions could be asked as children engaged with the materials and activities intentionally planned. After seeing how the children became more independent and focused, the teachers perceived natural outdoor settings and learning environments as a viable solution to reducing challenging behaviors. By reducing the challenging behaviors experienced inside the classrooms, teachers felt they could have more meaningful teaching opportunities with each individual child to build skills that will prepare each child to be successful in kindergarten.

This action research study found teachers could be encouraged to use outdoor settings to help children gain skills outlined in the early learning outcomes framework. Professional development and coaching on how to use outdoor learning environments would help teachers get started. Once teachers experience the benefits of outdoor play and realize how they can intentionally plan activities that address all five domains in the early learning outcomes framework, they will be more inclined to use outdoor learning environments. All six teachers felt using outdoor spaces could reduce their own stress in completing all the tasks Head Start required of them, while preparing children for kindergarten in a positive manner. Five teachers plan on using outdoor learning environments in the future. One teacher wants to use outdoor learning environments; however, she feels that sharing space with teachers who do not share her desire will impede her ability to be successful using outdoor spaces. As one teacher said, "Outdoor learning environments make the job easier. You do not need to redirect often. There

seems to be more opportunities to engage with each child individually to help them meet their goals." Outdoor play is important to the development of young children and should be encouraged more since children do not have the same exposure to nature and outdoors as in the past.

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Appendix A: Individual Interview Questions for Teacher Participants

1. As a teacher of prekindergarten children, what are your greatest successes and challenges to preparing children for kindergarten as you create goals and activities based on the five domains listed in the Head Start Early learning outcomes framework (ELOF) in your current Head Start program?
2. How could you build on the successes and reduce the challenges you face?
3. What is the difference between the purpose of outdoor play and indoor play as it relates to learning and the acquisition of skills described in the ELOF?
4. Could the purposes of outdoor play and indoor play be interchangeable? How or how not?
5. Describe children's challenging behavior that occurs indoors and outdoors. Is there a difference in the intensity and frequency of children's challenging behavior when children are inside versus outside? Please explain your answer.
6. Our program emphasizes inquiry-based learning. How do you determine what children are interested in learning and build a study or lessons around that interest?
7. Do you intentionally plan outdoor learning experiences for your students? Why or why not?
8. If the program were to ask you to create more learning opportunities outdoors, how comfortable would you be creating outdoor learning centers that would help you prepare the children for kindergarten using the five domains in the Head Start ELOF? What type of professional development would you need to ensure your success?
9. How could you utilize a natural outdoor learning environment as way to foster skills listed in the Head Start ELOF?

Appendix B: Teacher Self-Reflection Journal

Were there barriers for outdoor play?

How did you address the barriers?

How did you plan for outdoor activities?

Which activities were planned to support the skills described in the ELOF?

How were children engaged? How did they use the materials provided?

How were your interactions with children? Were you able to interact with multiple children?

How many times did you have to stop to redirect children due to child's inability to focus, display of aggression, or an emotional outburst that is not easily calmed?

What went well?

What did not go well?

Do you think an indoor activity could have produced the same results? Why or why not?

Appendix C: Data Triangulation Matrix

Research Question 1: How will barriers to outdoor play be removed or diminished to encourage teachers to use outdoor learning environments to foster skills outlined in the ELOF?

Journal Entry	Observation	Interview
Were there barriers for outdoor play?	Was there evidence of planned strategies developed after the initial interview?	How did the teacher initially answer Questions 7, 8 and 9?
How did the teacher address these barriers?	Describe the environment and materials provided.	
Which activities support the skills described in the ELOF?		

Research Question 2: How did teachers intentionally plan activities and use inquiry-based learning strategies?

Journal Entry	Observation	Interview
How and what did teachers plan for outdoor activities?	Did teachers ask open-ended questions?	How did the teacher answer questions 4 and 6
	Did teachers initiate play or did the children?	
	Who initiated conversations? Were there feedback loops?	

Research Question 3a: How do teachers perceive natural outdoor stings as learning environments?

Journal Entry	Observation	Interview
What went well or did not go well during outdoor play?	Discuss the observation of teacher interactions with the teacher.	How did teachers answer questions 3, 4, 8, and 9?
Did the teacher feel an indoor activity could have produced the same results?	Upon reflection, does the discussion alter the teacher's viewpoint on what went well and what did not?	

Research Question 3b: Did children's challenging behaviors attenuate in outdoor learning environments?

Journal Entry	Observation	Interview
Was the teacher able to interact with multiple children?	Were there any instances of redirection given to children due to displays of challenging behavior?	How did teachers answer 1, 2, 5 and 9?
How many times did a teacher feel she had to stop to redirect children due to their inability to focus, displays of aggression, or emotional outbursts that were not easily calmed?		

Appendix D: Observation Checklist

Teacher: Date:

Item to observe Notes:

Lesson Plan: Outdoor learning activity

- Execution of Lesson Plan
- Setting
- Materials available for children

Inquiry-based interaction

- Open-ended questions
- Teacher initiated conversation
- Feedback loops
- Need for redirection

There is evidence of:

- Mathematics
- Science
- Language/literacy
- Creative arts
- Physical development
- Health and safety
- Small Groups – teacher encouraged collaboration

Teacher Response

- Number of child interactions
- Need for redirection/per child
- Teachers engage with children w/o taking over

Observation of Teacher interactions

Child	Initiated C or T	Length of Interaction	Interruptions due to redirection of other children	Open-ended questions	Feedback loops (number of exchanges)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Appendix E: Early Learning Outcomes Framework Data Table—Common Statements That Appeared Often in Journals and Were Observed by Researcher

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
1	"Children tend to self-talk and parallel talk when playing outside." "Children talked to each other about where to find each item [during the scavenger hunt]." "Gave students a piece of paper with different nature items on it. Students ran around collecting the items." Children used sticks to draw in the dirt and talked about what they were drawing/writing.	"Those students who either were challenging or didn't participate in activities, participated [in outdoor planned activities]." "Children stayed engaged, helping one another." Children chose an activity and stayed with it longer than they would inside.	Children played soccer for at least 45 minutes. Many enjoyed digging with the shovels. A few boys spend lots of time trying to climb the trees. "Teacher and students used pieces from their scavenger hunt to make paint brushes and then paint on paper with them."	When children were looking for different nature items on their scavenger hunt, they worked together. "The exploration and team work are amazing." Children seem to want to connect more with each other and use each other as a reference to further knowledge (as seen in the scavenger hunt).	Children figured out how to use the natural items found in the area to create works of art. The boys who like to climb trees spent a lot of time discussing how to get higher. They were able to discuss who climbed higher, which tree was taller and what they would need to help trees grow bigger.
2	"Children enjoyed writing their name in the dirt with a stick." More spontaneous	"I have discovered thus-far, digging in the dirt seems like the most satisfying and	Risky play was observed when a few children were trying to ride the	"One of the boys chopped the worm in half and it created quite a stir. In the face of his	"We blew bubbles (which they were popping with sticks; practicing

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
	conversations amongst peers. "We read a story about watermelon seeds…" This story set the stage for finding seeds in outside and created an interest when planting green beans.	engrossing for children. Of course, we discovered some worms and an unexpected lesson came here." "Unfortunately, the children have not been using their listening ears today and have been displaying some violent behavior. I will not be trusting them with metal trowels today." "We found a beetle and looked at it with a magnifying glass – It was not too sprightly to begin with, but wow was it sluggish after they were done with 'building a home' for it (which pretty much meant covering it with	trikes over the steps. They figured out how to get them up onto the steps to ride a little way but could not figure out how to safely get down. "And we jumped off tree stumps." Digging in the dirt "They all got muddy and a few got a bump or bruise here and there (soccer in my class seems to involve a lot of very dramatic sliding)."	peers, tears, and accusations, he remained defiant, but I found him later sitting, despondently by the play structure with a half of the worm's (now very dead) body. It was a small, private lesson, but we talked about how its important to protect things that are smaller than us, and how worms are helpful for the planet. I told him I knew he didn't mean to kill the worm and affirmed what a good kid he was."	counting 1-2-3-4...)." "We counted the rings of the tree because the rings can show how old a tree is."

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
		dirt!). The kids were so engaged and excited, it was really wonderful."			
3	"There was one child who would not visit the writing center, but outside, he would pick up a clipboard and draw what he saw." The teacher read a book about robins and watched a video that shared the sound robins make. Following, the children went out into the woods to listen for the sound robins make. The found several of them.	"We bought clay for them to use on trees and make tree faces. …there was a great deal of interest in the clay. They didn't use it as I thought they would. Some children made faces, some children used the clay to make impressions. Two girls used the clay to make a bed for the dead baby squirrel that they found." "We did not need to re-direct anyone today. Everyone was completely engaged." "It is amazing how they	Children threw rocks in the creek, which led to throwing sticks. Children practiced under-hand and over-hand throwing. T-ball was planned for outdoor time. All the children participated, therefore they needed to wait a long time for their turn to bat.	Children had several conversations with each other discussing how to throw rocks and sticks into the water. They also discussed how far they would float down the creek. Four girls played Moana together. They spent the entire time role playing by discussing how to play and which roles they were play.	Children pulled bark from a rotten log and discovered insects. "I took a group up the hill and we found a rotten log that was suspended 3 feet off the ground. We found several worms. That led to conversations about how the worms got up into the log." A few children sat with a teacher and counted rocks. Children made boats from foil and tied with

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
		[children] never seem to tire of 'adventuring,' as one child calls it." "One child was off task quite a bit outside and spent time throwing bark-dust trying to play. She was better than when we are inside, but not as enjoyable as the forest." Children enjoyed fishing with homemade poles for 90 minutes. One child who tended to be off-task played in the shallow water by herself with no behavior problems.			string. They practiced floating their boats in the pond.
4	"Many children would 'document' their experience outside for their	"One child was engaged in face making, but it took a while." (persistence)	"There was a lot of poking fingers into it [clay] as it lay on a log.	Children used clipboards with paper on it to draw	Math and literacy were planned in the sensory table, which

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
	parents, but would not draw, paint, or write when inside." "Children loved the pre-made books. They all wanted a turn making their own books. In the classroom, only a few (2 or 3) of the same children ever engage in this activity, but outside, they actually fought over it and just about every child made on to take home."	"It was clear from the beginning that children were not adept a playing with clay and the sensation of touching it and experimenting with it was much more interesting to them than the actual process of making a face."	They stuck rocks grass, and pieces of wood into it."	pictures for each other. "What was great about this new area (pools w/pillows, blankets, and books) was that at certain points during the 2-hour outdoor play, some of the more aggressive boys were over in the pools looking at books. This never happens in the classroom. These boys always choose very aggressive play, such as fake fighting, and must be constantly re-directed indoors and out. To see them calm and engaged in literacy was awesome.?	was taken outside. "Children were very engaged with materials. No one seemed to notice rocks had letters on them. They wanted to use them to load in trucks, dump, and make piles, etc. No one counted rocks." The children played typical role-playing scenarios. "Teacher had to initiate math or literacy activities and stayed to keep going." Children collected items and put them in a bag. They used a list to find items in the woods. The children counted

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
					objects to see who had.
5	Children were intrigued with painting with tree branches. Children enjoyed using the sidewalk chalk outside Children discussed the worm that was found in the dirt. Some of the children that rarely spoke, asked questions and offered answers to other children's questions.	Girls made up a game of hopping from one stump to another to avoid the hot lava. They played for 20 minutes straight. Children moved from one center to another on their own. Once they were at a center, they tended to stay there longer than they would inside.	Balancing on the stumps and tires. Heavy lifting as children moved tires and stumps. Fine motor skills were challenged when children would move ramps on the magnet wall. Children used large and small arm movements when drawing with sidewalk chalk.	The log used as a balance beam was played with as a pirate ship. The children sat on the log and used smaller sticks as oars. They placed a branch between two of the logs and pretended to be walking over the water. Children discussed roles and how to play in this scenario. A group of girls arranged some of the tree stumps to play beauty shop. They took turns in the chairs and used bark chips as pretend brushes.	A child discovered a worm and excitedly showed the teacher. Children were interested in learning more about the worm, therefore spent much time observing and touching it. The child who found the worm, eventually put it back where he found it.

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
6	Children used the clipboard outside more often than inside. Sidewalk chalk was provided to draw pictures. Children were encouraged to tell others what they drew and why they chose to draw it. Books and pillows were placed in a small kiddie pool. Children visited the area to look at books. Children were observed sharing books with each other and talking about the pictures they say. Most of these conversations were child initiated and had several feedback loops. A large swimming pool was set up with paper fish with a paperclip on each one. On each	Children used blocks on a large gym mat to plan and build structures. Children tended to solve problems on their own, especially social problems. Children spent less time wandering around and more time engaged with an activity. They seemed to stay with a chosen activity longer than they did when they were inside. Children were curious about painting with plungers. They mixed paints together to discover new colors. One child needed constant one-	Children moved ribbons attached to a stick in large arm movement and small wrist movements. Hula hoops were provided for children to try. Some children put the hoops on the ground and jumped in the centers of them. Tricycles and scooters were available for use. No tricycle was ever idle. Children enjoyed riding these and took turns often. Children practiced different ways to balance	Children took turns dipping their bubble wands in the solution. Conversations were friendly as they encouraged each other while trying new ways to make bubbles. Mixed ages and skill levels were evident as the children helped each other out. For example, when a child caught a fish with a letter on it, if the child did not know the letter, another friend would help him/her identify it. Children practiced patience and taking turns while planting in the dirt.	Children identified different shapes of bubble wands and different ways to make bubbles, for example waving the wand or blowing through the wand. "This bubble is as big as my head!" Children played rubber ducks with numerals on the bottom and raindrops on the top to represent numerals. Children used tools to dig and pat down dirt.

Teacher	Language and Literacy	Approaches to Learning	Perceptual, motor, and physical development	Social and Emotional	Cognitive
	fish was a letter. The children would "catch" a fish and identify the letter. Teachers extended the lesson by asking for the sound of the letter. One child was shy and timid inside. During planting time, he was engaged and talked to the teacher about planting and described what his flowers would like once they grew.	on-one help to choose an activity and stay engaged. While outside, this child became more independent.	using the "Stand Tall Stilts."	One child who tended to roam around the classroom inside, would put his hands-on other children in an aggressive way. Outside, he stayed engaged with activities and teachers did not need to shadow him or redirect him. He was friendly with his peers and talked with them, rather than touch them. Children found friends to use the teeter totter.	

Appendix F: Individual Initial Interview Questions for Teacher Participants

Question 1: As a teacher of preschool children, what are your greatest success and challenges to preparing children for kindergarten as you create goals and activities based on the five domains listed in the Head Start Early Learning Outcomes Framework (ELOF) in your current Head Start program?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
Challenging behaviors are the most difficult. It is hard to do lessons with domains in mind. Most lesson are on social and emotional. In free choice it is hard to keep all the children engaged. I just started teacher the letter "D" with a smaller group. It is easier to keep their attention.	It is difficult to concentrate on all the domains when soft skills, such as fostering emotional intelligence, need to be taught so the children can become emotionally coherent and safe. My greatest success is creating confidence for children to attempt new things. Children don't trust their own genius.	Challenges include challenging behavior, ability to teach social skills before going to the next level, proper staffing, parent buy-in to take children outside. The 5 domains offer focus, so it is easier to see improvements. I can see concrete skills increase.	Children who need to learn social skills make teaching challenging, but also lack of planning time, trained staff, no time to gather quality observations, and lack of access to the Education Site Manager. Some successes I have had are seeing a non-verbal child begin using words, or when that one child that cries at the beginning of school constantly, begins to look forward to coming to school	Social and emotional is the focus. When social and emotional skills are not in place, academics are difficult. I spend a lot of time teaching social and emotional skills. The children learn how to treat each other and behave in a classroom when they leave.	Challenging behaviors make it difficult to feel successful, however, I feel good about creating a sense of community.

Question 2: How could you build on the successes and reduce the challenges you face?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
I try to use smaller groups. I also let the children know when they are being appropriate. I use the pom-pom system. When a child acts appropriately, they receive a pom-pom. I also cross-talk to let everyone hear positive praise when a child is following the classroom rules.	Bring in different teaching approaches like Montessori. Expand the scope of how we approach problems, for example, if a child is throwing chairs, take them outside rather than restrain them.	I believe in spending time outside. I think using outdoor time could lead to a higher success of gaining concrete skills.	Having fluid in and out classrooms – if children could choose when to be outside and when to be inside on their own, it would reduce challenging behaviors and give them more autonomy.	Continue to teach social/emotional skills.	Have children show ownership of learning

Question 3: What is the difference between the purpose of outdoor play and indoor play as it relates to learning and the acquisition of skills described in the ELOF?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
Outdoor play keeps the children moving and engaged. They see things outside that they do not see inside. They become engaged in finding things and work together. Inside the boys are bickering the last 15 minutes of free choice and then they want to chase each other. I must find something new to engage them. When outside I do not hear a child wanting what another child has. I do not see them become obnoxious with each other.	The difference is student-driven exploration – exploration is in their hands. Inside, teachers tell children what they want them to do. Outside, children lead what happens. Learning happens naturally and at the child's own pace. It is not quantifiable.	There is no difference, or there should not be any difference. Outside is more wonderous.	There really isn't a difference. Inside is more contained. There are no tables outside. When children play outside, the children come to the teacher to share information. Inside, the teachers share information with the children.	You can acquire skills in either place. Social and emotional learning can take place both inside and outside. There is lots of nature to count and build. Language can happen in both places – signs outside, dirt to write in, letters – You can do anything outside that you do inside.	Outdoors is a place to burn of energy and help get the wiggles out. Inside is where the academic learning happens.

Question 4: Could the purposes of outdoor play and indoor play be interchangeable? How or how not?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
You cannot take certain materials outside because of the weather. Indoors you can have books, glue sticks, beads, stamp pads, and other types of art materials.	Yes. We could do circle time outside, even eating lunch and snack. Everything we do inside could be done outside on a sunny day. It might be hard to keep children focused. Children could draw 'A' in the dirt and use sticks for numbers.	Absolutely!	Yes. Anything done inside, could be done outside. Outdoors children can run free but running should not be done inside.	Yes. See previous answer	I suppose it could. I think it is easier to work on academics inside, but social/emotional happens in both areas

Question 5: Describe children's challenging behavior that occurs indoors and outdoors. Is there a difference in the intensity and frequency of children's challenging behavior when children are inside versus outside? Please explain your answer.

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
Outside, children seem more helpful with each other. It is easier to engage the children in a game of soccer. Bikes create a problem, because they seem to want the one someone else has. Children do not seem to fight as often outside and if they do, it is over quickly.	For autistic children, it is hard for them to contain their body. There is less space for each body inside. Children become overstimulated indoors. Child can self-entertain outside. Outside seems to provide a space where a child is better able to focus. They have more space to be children. Indoors doesn't fit the need of every classroom in terms of individual needs.	Challenging behaviors that occur inside tend to be loud and the other children notice when it is happening. It affects all the children, so you cannot ignore it. You must tend to the child. When you are outside, the noise is not so bothersome. You can ignore it [behavior] easier or redirect the child or other children away from it.	Children having a tough time following directions or playing with others need to be dealt with immediately. This means there is a lot more waiting. Outdoors, there are plenty of distractions to focus children's attention, so the challenging behavior can be attended to.	Aggression outside is different. Inside there is no room for gross motor needs. Outside, you have gross motor space, but unable to control (teachers). Sharing can be a challenge in both places.	Inside, behaviors can get loud and children tend to stop and focus on the disruption. Outside, behaviors seem less intense and can be diverted easier.

Question 6: Our program emphasizes inquiry-based learning. How do you determine what children are interested in learning and build a study or lessons around that interest?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
You have to watch the children. Kids tell teachers what they want to play with, such as dinosaurs. Teachers imagine themselves at that age and wonder what they might like to learn. You should also use active listening when children talk with their peers.	You need to pay attention to something kids are interested in and follow their lead. For example, if a worm is found outside, you take that moment to talk about worms. The more interest the more you stay with that topic.	You observe children. You watch how they play, read books to see what they like, pay attention to what they are interested in, and introduce new items to see their reaction.	Children seem to group themselves together, so you want to have certain activities ready for them. There will be a group of children who are curious and want to check out new things. Another group is interested in dramatic play and does not want to be teacher-led. And then there is the run around group. You would want to interest this group in rolling down the hill different ways.	By listening to conversations. The majority of topics to study come from teachers. Teacher may incorporate children's observed interests, but teachers decide on studies.	Listening to conversations and observing how children play. Watching what children choose to play with and how they play.

Question 7: Do you intentionally plan outdoor learning experiences for your student Why or why not?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
Sometimes. There is a lot to learn outdoors that are not available indoors, like trees, birds, flowers, bees. I use unintentional teaching moments to build on, such as finding a worm. As a class we would talk about worms and maybe begin a study on them.	No. I started teaching in the winter, so the weather was a deterrent. People don't talk about outdoor experiences in our program.	Yes. We have wood cookies to play with, outdoor kitchens, and nails and hammers.	Yes. I like to have different activities available for the children. For instance, we would have a flower shop outside. It helps them hone their social/emotional skills.	In small ways. I plan activities such as follow the leader, hopscotch, shooting baskets in the basketball hoop, things like that.	Sort of. I plan which materials that are available outside.

Question 8: If the program were to ask you to create more learning opportunities outdoors, how comfortable would you be creating outdoor learning centers that would help you prepare the children for kindergarten using the five domains in the Head Start ELOF? What type of professional development would you need to ensure your success?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
I think I could do it. I would do a lot of large group activities outside. I could also make sure everything is laminated and we could do ABC bingo, counting worms and bears. We could take out some of the art materials.	I would feel very comfortable. I would give the children a feel of confidence being outdoors. I would need to provide a safe space for them to explore.	I would be comfortable doing that however, I would need planning time. I would want professional development to help give me new ideas for learning environments.	I could do it, but I would need more materials. I would want professional development on how to set up different environments and get fresh ideas.	I would be comfortable planning more outdoor activities, but there are barriers.	I do not know what to do out there. I would need help with ideas.

Question 9: How could you utilize a natural outdoor learning environment to foster skills listed in the Head Start ELOF?

Teacher 1	Teacher 2	Teacher 3	Teacher 4	Teacher 5	Teacher 6
The children could learn with twigs, rocks, pebbles, sand, dirt. They could write letters or numbers in the sand. I think children could work on math and literacy skills. It would help children be more aware of things they can use to learn and play. Vocabulary would grow as they learned the difference between a twig and a branch.	I would plan activities such as exploring leaves or worms, making leaf boats to see how much weight could be added before they sunk, painting rocks, using pine needles as paint brushes, and more.	The same way as I do inside. I would set up activities that would engage children.	I could use outdoor learning environments to allow the children to explore new ideas. After seeing what they are interested in, I would set up different activities. For example, science would be easy to do if you had a garden or found insects in the yard.	There is no natural outdoor environment. It would be nice to have a garden to study lifecycles.	I do not know.

Appendix G: Barriers Addressed During Each Cycle

Teacher 1

Cycle 1 - Initiation Phase			Cycle 2 - Detection Phase		Cycle 3 – Judgement Phase	
Initial Barrier	Plan	1st observation/2nd Barrier	Plan	2nd observation/3rd Barrier	Plan	Final observations and assessment
Material transfer	Bought a wagon	Planning activities – all teacher directed	Less teacher directed	Distraction beyond boundaries	zoning	Children were engaged and stayed within the boundaries. Teachers followed the children's lead. Children approached teachers more often to share knowledge or ask questions.

Teacher 2

Cycle 1 - Initiation Phase			Cycle 2 - Detection Phase		Cycle 3 – Judgement Phase	
Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier
parents	Discuss benefits with parents at Parent night and through newsletter	Children engaged in the centers. There was some wait time as teachers set up each activity. Transferring materials was difficult. Parents were onboard with outdoor play after they were notified of the benefits.	Wagon	Behaviors – children did not seem to understand the expectations, spent time redirecting Teacher did not take them out if they were unable to "be trusted" to remain safe while using the materials.	Discuss routines, give clear expectations	Children seem to understand the boundaries and expectations. They made independent choices. Teachers were able to engage children in conversations about what they were doing. Teachers used open-ended questions and sustained more feedback loops. "I honestly think part of the benefit of this outdoor ed thing is just wearing them out."

Teacher 3

Cycle 1 - Initiation Phase			Cycle 2 - Detection Phase		Cycle 3 – Judgement Phase	
Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier
weather	Bought muddy buddy suits	Ratios – When staff are out, it is hard to meet ratios both inside and out. You need to continuously count heads.	Zoning – proper positioning of staff when one is missing meets the ratio according to childcare licensing. – also, ask parents to help.	Staff zoned properly. Parents were present to help engage children. 8 adults were present to help.	Continue & observe	When children are outside, they are happy and engaged. Little time is spent redirecting. Children seek teachers to share information or ask questions. Lead teacher asked many open-ended questions and stayed with a conversation to further engagement and interest.

Teacher 4

Cycle 1 - Initiation Phase			Cycle 2 - Detection Phase		Cycle 3 – Judgement Phase	
Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier
materials	Purchased materials suitable for outdoors, brainstormed natural elements	Weather	Talk to parents about proper dress, provide clothing	Children were properly dressed. They seemed to be comfortable outside, even when raining. They were able to go inside to warm up and then come back outside.	Teacher is pleased with the progress towards goals. Continue offering outside learning environments. Provide activities that will build on skills the children are learning. Be intentional.	Outdoor learning environments make the job easier. You do not need to redirect often. There seems to be more opportunities to engage with each child individually to help them meet their goals.

Teacher 5

Cycle 1 - Initiation Phase			Cycle 2 - Detection Phase		Cycle 3 – Judgement Phase	
Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier
No natural materials	Brought in twigs, rocks, wood cookies, sand	Shared space – children engaged with the natural elements. Children tended to stay at one center for longer periods of time. The other classroom children wanted to share the materials but did not know how to care for them properly. T5's children tried to explain how to play with materials but were not always successful.	Discussion w/teachers Ask other teachers to instruct students on how to play and care for outdoor materials.	Shared space – no improvement. Teacher set up centers, however the other classrooms destroyed some of them. Children were unable to engage in planned activities. Teachers and children were frustrated.	Bring natural elements inside	Children seemed to enjoy using natural elements such as painting with fir branches. The natural colors and tones in the classroom seem to have a calming effect on the children. Teacher would like to try using the outdoor space next year but will continue using a Reggio Emilia approach in the classroom.

Teacher 6

Cycle 1 - Initiation Phase			Cycle 2 - Detection Phase		Cycle 3 – Judgement Phase	
Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier	Plan	1st observation/ 2nd Barrier	Initial Barrier
knowledge	Brainstormed ideas on what outdoor learning centers would look like and how to set them up.	Lack of materials. Not enough activities and materials out to engage children for any length of time.	Purchase materials for outdoor use	Many choices for children to choose. They could paint, play a game at the table, use monster-stomp props, ride trikes, read, fish in the fish pond, use the ribbons, play in the water table, or draw with chalk. Set up-time consuming.	Create jobs for children to assist.	Children enjoyed helping set up and tear down. When the children were playing, all were engaged. There was no evidence of redirection necessary for the children. The child that needed constant shadowing inside was independent outside and was able to engage positively with the materials and other children.

Appendix H: Consent Form

Research Study Title: Nature-based Learning and the Professional Development of Teachers
Principal Investigator: Velvet Cooley
Research Institution: Concordia University
Faculty Advisor: Dr. Barbara Weschke

Purpose and what you will be doing:

The purpose of this research is to determine if professional development trainings will encourage teachers to take children outside as a way to prepare pre-k children for kindergarten.

I expect approximately 8 volunteers. No one will be paid to be in the study. I will begin enrollment on October 31, 2017 and end enrollment on June 30, 2018. To be in the study, you will interview with the researcher before the research begins, attend a focus group meeting before and after the collection of data, keep a self-reflection journal, meet with the researcher at least 3 times to discuss your journal, and have a final exit interview. Doing these things should take less than 13 hours of your time.

Risks:

There are no risks to participating in this study other than providing your information. However, I will protect your information. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying information you give will be kept securely via electronic encryption or locked inside a file cabinet. When I look at the data, none of the data will have your name or identifying information. I WILL NOT RECORD INTERVIEWS. I will only use a secret code to analyze the data. I will not identify you in any publication or report. Your information will be kept private at all times and then all study documents will be destroyed 3 years after I conclude this study.

I WILL GUARD AGAINST "DEDUCTIVE DISCLOSURE." DEDUCTIVE DISCLOSURE IS WHEN A PERSON OUTSIDE THE RESEARCH MAY BE ABLE TO DEDUCE THE PERSONAL IDENTITY OF A PARTICIPANT DUE TO SPECIFIC DETAILS WRITTEN WITHIN THE RESEARCH DOCUMENTATION. I WILL NOT REPORT DATA THAT COULD LEAD TO DEDUCTIVE DISCLOSURE.

Benefits:

The benefits of participating in this research include acquiring skills in providing outdoor learning environments and the potential decrease of challenges that teachers have in fulfilling their job duties. An added benefit is the opportunity to further research in the area of professional development for early childhood educators.

Confidentiality:
This information will not be distributed to any other agency and will be kept private and confidential. The only exception to this is if you tell us abuse or neglect that makes us seriously concerned for your immediate health and safety.

Right to Withdraw:
Your participation is greatly appreciated, but I acknowledge that the questions I am asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time you experience a negative emotion from answering the questions, I will stop asking you questions. If you are uncomfortable with being observed, I will stop the observation immediately.

Contact Information:
You will receive a copy of this consent form. If you have questions you can talk to or write the principal investigator, Velvet Cooley at [redacted]. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email obranch@cu-portland.edu or call 503-493-6390).

Your Statement of Consent:
I have read the above information. I asked questions if I had them, and my questions were answered. I volunteer my consent for this study.

_____ _____
Participant Name Date

_____ _____
Participant Signature Date

_____ _____
Investigator Name Date

_____ _____
Investigator Signature Date

Investigator: Velvet Cooley email: [redacted]
c/o: Professor: Dr. Barbara Weschke
Concordia University–Portland
2811 NE Holman Street
Portland, Oregon 97221

Appendix I: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

> As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does "fraudulent" mean?

> "Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.

What is "unauthorized" assistance?

> "Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:
>
> - Use of unauthorized notes or another's work during an online test
> - Use of unauthorized notes or personal assistance in an online exam setting
> - Inappropriate collaboration in preparation and/or completion of a project
> - Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University–Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

Velvet M. Cooley

Digital Signature

Velvet M. Cooley

Name (Typed)

4/12/19

Date