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Barriers to Facilitating an Existing Certified Nature Explore Outdoor Classroom

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Abstract

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MA, Texas Woman's University, 1984

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Abstract

In response to social trends whereby children are spending less time outside, school administrators have developed certified Nature Explore Outdoor Classrooms (NEOCs) intentionally designed to support whole-child learning within a natural environment. Despite the documented benefits of nature-based education, the literature and NEOC sites report challenges in facilitating this type of space. The purpose of this study was to investigate what prevents teachers in a certified NEOC from facilitating student/teacher engagement with the natural outdoor environment. Kolb's, Piaget's, and Vygotsky's theories of constructivism served as the study's framework to explore the problem from the teachers' perspectives. A qualitative case study was used to gain insight into the potential barriers to facilitating a NEOC. Eight teachers were recruited using purposeful sampling. Participant criteria included (a) >18 years of age, (b) >3 years early childhood teaching experience, (c) >1 year experience in selected NEOC, (d) prior NEOC training, and (e) willingness to share experiences. Data collection included classroom observation, individual interviewing, and review of relevant documents. All data were analyzed using comparative and inductive analysis and coded into 5 emergent themes. Identified barriers included teacher involvement, rules and regulations, volunteers, materials, and weather. By creating a 3-day professional development program that supports the benefits of nature-based learning environments and introduces strategies to overcome identified barriers, this study may promote positive social change in nature-based education. Children, families, and communities may expand their nature-based knowledge and interaction skills to pass to future generations.

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Dedication

This doctoral study is dedicated to all adults and children who value the beauty, wonder, and awe of the natural environment. This includes my parents who took me camping at a young age, my husband who partners with me on hiking expeditions, and my children whose favorite memories are of times spent exploring state and national parks on family vacations. You are my inspiration for perpetuating the love of the outdoors to future generations.

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Section 1: The Problem

Introduction

Generations ago children spent many more unhurried hours exploring their outdoor world than they do today (Rosenow, 2008). Gone are the days when children played outside unsupervised until the streetlights came on or built forts with natural materials they found in the backyard. In the past three decades, evidence has shown a generational break from nature in the United States (Louv, 2008). *Biophobia* is a term coined by Sobol (1996, p. 19), a leading author in the area of nurturing children through nature, which names the fear of the natural world and environmental issues. Several factors account for the trend that has redirected children indoors.

First, parents worry about child abductions, environmental allergens, and injuries associated with outdoor play (Rosenow, 2008). Additionally, many of today's children demonstrate unfounded fears and dislikes of insects, reptiles, trees, weather, birds, and plant life even when they have had very little actual contact with them. In turn, this lack of contact and heightened fears have diminished the use of their senses, increased attention difficulties, and created more physical and emotional illnesses (Rosenow, 2008). In 2005, Louv coined the term *nature-deficit disorder* (p. 99) to describe young children who have become alienated from nature. In fact, many children have become "ecophobic" (Sobel, 1996, p. 3), fearing the environment at an early age. Although real dangers exist in nature, they have been overblown and sensationalized by the media, whereas the benefits of engagement with nature as part of childhood are seriously overlooked (Louv, 2008).

With advancements in technology, children have also been seduced by indoor activities such as television, DVDs, computers, video games, and iPads. Void of many of today's technologies, most adults spent the majority of their childhoods engaged with the natural world, but many of today's children have not been granted those same privileges even though drawing young children to nature during their early years nurtures a lifelong positive interest in and attitude toward the natural world (Louv, 2008). Consequently, Golden (2010) concluded that outdoor exploration, which was once an everyday experience for children, has now become rare and requires purposeful planning by adults and educators. Poignantly, Sobel (1996) posited that children must be given opportunities to develop close personal connections with nature because adults must allow them to love the earth before they ask them to save the earth.

According to Bailie (2010), Kiewra, Reeble, and Rosenow (2011), and Scott and Boyd (2013), there is a wealth of literature supporting nature's benefits for children, as well as ideas and activities for facilitation of outdoor spaces. For example, Tourquati, Gabriel, Jones-Branch, and Leeper-Miller (2010) wrote that engagement with the natural world is one of the most powerful ways to support the investigative process of learning, which includes observation, experimentation, data collection, prediction, analysis, and reporting discoveries.

In response to children's decreased exposure to nature, a collaborative project created by the Arbor Day Foundation and Dimensions Educational Research (Kiewra et al., 2011) was developed over the past decade to guide adults and educators in developing and providing intentionally designed outdoor spaces to support whole-child learning within a natural environment. Additionally, the collaborative group developed

certification criteria for naming a designated outdoor space as a Nature Explore Outdoor Classroom (NEOC) based on published, research-based, and field-tested steps in its design (Cuppens, Rosenow, & Wike, 2008). As a result, many preschools now incorporate outdoor education as an integral part of their curriculum, with nearly 200 facilities nationwide awarded certification from the Arbor Day Foundation and Dimensions Educational Research (2005), demonstrating a deep commitment to connecting children with nature.

Statement of the Problem

After years of field-testing young children in a preschool environment, Dimensions Educational Research Foundation and the Arbor Day Foundation developed three standards required for an outdoor learning environment to achieve certification as a NEOC (Cuppens et al., 2008). The first standard outlines 10 guiding principles in developing well-designed outdoor spaces that encourage children to make deeper connections to their natural surroundings. These guiding principles include the following: dividing the space into clearly delineated areas; including a mix of activity areas; assigning simple names; identifying each area; using a variety of natural materials that are durable; personalizing the design with regional materials; and generating ideas from children and staff.

Staff development is the second standard necessary for certification (Cuppens et al., 2008). Through partnerships with nature centers, summer institutes, or environmental programs, teachers may be taught to offer meaningful experiences in the natural world (Bailie, 2010). According to Cuppens et al. (2008), “The most wonderfully designed

natural outdoor classroom will only be as effective for children as the adults who explore it with them" (p. 4).

The third standard toward certification of a NEOC is family involvement (Cuppens et al., 2008). Families become involved in designing, developing, and facilitating the outdoor space and activities to encourage positive experiences with nature. Beyond the family, the participation of local groups, such as gardeners and farmers, can encourage community relationships and a shared interest in nature. For example, a garden can create shared appreciation for culture, local history, the labor of farming, and knowledge of horticulture (Nimmo & Hallett, 2008).

Currently, 172 certified NEOCs are in place in 39 states in the United States, as well as one each in Washington, DC and Canada. There are 11 certified NEOCs throughout the state of Texas. Unique in size, setting, and structure, all have demonstrated an ongoing commitment to connecting children with nature (Nature Explore, 2014). With attention to continued growth and maintenance, these certified classrooms are required to submit an annual recertification application documenting ongoing improvement, teacher training, and family involvement.

However, despite a well-designed national program serving as a model, schools at local levels are facing challenges in a variety of outdoor settings when attempting to facilitate an environment where children can connect and thrive in the joys of the natural world (Jacobi-Vessels, 2013). There is a plethora of resource books, articles, blogs, and workshops (Fox & Wirth, 2012; Jacobi-Vessels, 2013; Kable, 2014; Rosenow, 2013) that identify very positive benefits of outdoor classrooms. However, I have spoken to teachers

at certified local NEOC centers who indicate that facilitation of those spaces is accompanied by hard work, challenges, and barriers.

As a staff member of the first certified NEOC in the state of Texas, I have experienced frustration in facilitating an educationally functional outdoor space. Located in a North Texas suburb of Dallas, our private preschool/kindergarten facility serves 280 students ranging in age from 2 to 6 years and employs 43 teachers. Additionally, this NEOC school is located within close proximity to two major universities and several community colleges that send practicum students to our site for supervision. Time, money, and effort have been spent developing this particular certified NEOC, following the guiding principles previously outlined. However, some of the spaces are not being used to their full potential in terms of their design and intention. Initial certification was awarded in 2009, with successful recertification annually. Nonetheless, parent involvement is minimal, and the outdoor classroom typically tends to be used as an ordinary playground. For instance, as a staff member at one school told me, "Parents are impressed by our outdoor space and program, want their children to experience it, but it is a challenge for them to get involved with their busy schedules."

The purpose of the study was to explore barriers encountered by educators in facilitating an existing certified Nature Explore Outdoor Classroom in central Texas designed to encourage students to engage in activities within a natural environment. Engagement includes interaction with specific natural areas designed with educational purposes.

Rationale

Evidence of the Problem at the Local Level

In Texas, the 11 certified NEOCs face challenges to facilitation unlike those within different climates and settings. As stated by a staff member at a local preschool, "We have had a nature area associated with our school for over 50 years and it is an ongoing challenge and process" (personal communication, January 29, 2014). Because of the size of the state, the climate in Texas varies widely from region to region and is prone to weather phenomena that differ from those experienced in a vast majority of U.S. states. Tornadoes, hurricanes, hail storms, lightning, flash flooding, extreme heat, drought, high ultraviolet light levels, and high ozone pollution conditions exist in many Texas counties (City of Austin Office of Homeland Security and Emergency Management, 2014). Moreover, indigenous plants and animals, poisonous and venomous, contribute to local risk and facilitation challenges in a nature-based curriculum.

In 2012, when I attended the largest annual national early childhood conference, which was sponsored by the National Association for the Education of Young Children, there were at least a dozen workshops addressing the topic of improving outdoor education areas. With interest, I was drawn to one entitled "Keeping It Growing: Strategies for Using, Maintaining and Enriching Your Outdoor Environment" (Fox & Wirth, 2012). Several participants in the audience shared stories and frustrations regarding experiencing barriers to facilitating their schools' NEOCs. Additionally, they communicated that staff members come away from workshops with great ideas and lots of motivation but when they return to their schools, the ideas never come to fruition for a variety of reasons. In summary, frustrations indicated at local NEOC schools, firsthand

experience at my own school, national interest, and conference dialogue suggested that there are barriers to NEOCs that keep committed and dedicated programs from achieving the maximum intent of the natural space in early childhood education.

Evidence of the Problem From the Professional Literature

During the past decade, substantial research has demonstrated the benefits and value of authentic experiences with animals and plants in their natural environment as part of early education (Louv, 2008; Scott & Boyd, 2013; Sobol, 1996). Children are more on task, develop more brain connections, learn negotiating skills, and exercise leadership, as reported by Adams (2011), when they are given outside play opportunities. Furthermore, Cuppens et al. (2007) recognized the added benefit to children when adult facilitation is present and posited that

> adults who observe closely will celebrate the intellectual, physical, social, and emotional growth that can take place for every child. And, they will delight in sharing the wonder and awe that nature can inspire in each of us, no matter what our age. (p. 4)

However, overwhelming workloads, costs, lack of training, fear of risks, loss of control, and lack of educational support for teachers have been reported in the literature as barriers to facilitating a natural outdoor space as a learning environment (Adams, 2013; Jacobi-Vessels, 2013; Scott & Boyd, 2013; Stan & Humberstone, 2011; Weise, 2012; Zimmerman & Land, 2014). In general, teachers have the daunting task of creating outdoor environments that promote creative play, enhancing the quality of play through social interactions, and observing that children play in appropriate and safe ways. As noted by Kable (2014), educators must work a little bit harder and think a bit more

creatively in pursuit of more meaningful outdoor spaces that offer children the opportunity to develop connections with the natural world, connections that include engaging the team, children, and families in a cohesive vision.

The early learning center (ELC) at which I chose to explore barriers to facilitating a NEOC is located in a suburban community in central Texas. The ELC has served 3 to 6 year olds for almost 50 years with a mission to "create a sense of wonder and excitement to provide a foundation of lifelong learning" (Nature Explore, 2014). It received its initial NEOC certification in 2010 and has recertified annually. Nearly 150 children attend the school, which is led by 25 teachers, one of whom is the Outdoor Coordinator. Additionally, the selected ELC is located in close proximity to a major university, Texas A&M, which supervises practicum students.

Special Terms

Nature Explore Outdoor Classrooms are unique outdoor spaces based on field-tested principles, which are designed by local educators, families, and communities and matched to selected sites and goals of the local team (Fazio, 2009).

Nature-based education is directed toward the goal of promoting environmental literacy and curriculum that includes understanding the environment, how humans depend on it for survival, how to protect it, and how humans can improve it (Adams, 2010). Activities focus on nature-supportive learning across all developmental domains (Bailie, 2010).

Natural settings can occur outdoors or indoors and include a variety of nature-based materials that expose children to plants, seeds, leaves, animals, insects, fish, birds, rocks, wood, dirt, and sand (Scott & Boyd, 2013).

Supervision in an early learning setting is the role of an adult who must be aware of the surroundings, be mindful of the rules, identify hazards in the environment, and intervene when dangerous or inappropriate behavior occurs (Olsen, Thompson, & Hudson, 2011)

Structure in a classroom environment is present when shape, arrangement, grouping of children, and learning materials strategically impact the learning culture (Faulk & Evanshen, 2013).

Exploration includes making self-directed discoveries and satisfying curiosity to gather information without having a preconceived end goal (Ogu & Schmidt, 2009).

Teacher-directed activities are those led by an adult in which the child is guided to meet objectives determined by the teacher (Dean, Hubbell, & Pitler, 2012).

Child-directed activities are those led by a child's interest and motivation but guided by an adult to meet flexible, developmentally appropriate objectives. This strategy often enables students to take control of their own learning, which increases intrinsic motivation (Dean et al., 2012).

Significance

According to Weise (2012), play-based education where children learn best is getting lost because of current trends in education toward more testing, stringent accountability, reduced music and art offerings, and less recess time. Therefore, it is crucial to develop play-based natural environments where children can enjoy themselves and thrive while achieving cognitive, physical, emotional, and social growth. For the most part, tools, ideas, support, and resources for the creation of such environments are available to local schools. However, without these designed and built areas being

facilitated to their full potential, children are missing out on untapped growth and development. Identifying barriers to creating a flourishing and educationally effective NEOC may help local programs, and therefore the children in those programs, connect with nature.

Moreover, when NEOCs partner with community organizations and parents, awareness is generated regarding the importance of the natural environment in education, the ways they depend on it for survival, and what they can all do to protect and improve it (Torquati, Gabriel, Jones-Branch, & Leeper-Miller, 2010). On a larger scale, as members of the early childhood profession recognize the clear benefits that accrue to children who are taught in nature-based environments, the more acceptable it is for curriculum to include the natural world where concrete and authentic learning experiences occur (Bailie, 2010).

Guiding Questions

Past research has clearly supported benefits for children who have access to nature-based learning experiences. Ordinarily, schools, organizations, foundations, and communities have demonstrated support for offering this type of learning to young children. However, for many local facilities, there appears to be barriers present that prevent them from facilitating an effective nature-based classroom to its full potential. Indeed, further investigation is needed to bridge the gap from well-documented benefits of a Nature Explore Outdoor Classroom to effective facilitation of those spaces. This study was guided by the following two questions:

1. According to teachers in one Texas preschool/kindergarten, what barriers may exist that prevent teachers from facilitating student/teacher engagement with the natural outdoor environment designed to NEOC certification standards?
2. According to teachers in one Texas preschool/kindergarten, what strategies will improve facilitating student/teacher engagement with the natural outdoor environment designed to NEOC certification standards?

Review of the Literature

Theoretical Framework

The theory of constructivism served as the framework for this study. A constructivist stance maintains that learning is a process of constructing meaning: It is how people make sense of their experiences (Knowles, Holton, & Swanson, 2012). Beyond that, constructivism emphasizes that learning's main purpose is knowledge, centering around the individual and social construction and that the learning process builds meaning from experiences (Merriam, Caffarella, & Baumgartner, 2007). Particularly, experiential learning theory (Kolb, 1984), social constructivism (Vygotsky, 1978), and cognitive constructivism (Piaget, 1966) were theoretical supportive aspects of the constructivist framework through which this study was focused.

Experiential learning theorists Dewey, Piaget, Lewin, and Kolb contended that people clearly learn from experiences (Merriam et al., 2007). Additionally, Kolb (1984) posited that learning is a cognitive process involving constant adaption to and engagement with one's environment. He argued that individuals create knowledge from experiences rather than just from received instruction. Moreover, according to Knowles et al. (2012), experiential learning is achieved through transformational learning,

reflective practice, communities of practice, and situated learning. Furthermore, teachers facilitating a NEOC within their program bring forth a variety of knowledge, perception, and opinion based on prior experiences. Consequently, the relationship between the learning process and experience, with an emphasis on meaningful knowledge, makes experiential learning theory as a subset supportive of a constructivist framework (Merriam et al., 2007).

Certainly, each teacher brings a unique background of past experiences and openness to new experiences in every aspect of curriculum delivery. According to Merriam et al. (2007), "Experience becomes the adult learner's living textbook … already there, waiting to be appropriated" (p. 161). With his groundbreaking theory, Kolb (1984) posited that the resource of highest value in education is the learner's experience. Additionally, early childhood educators possess a wealth of materials, activities, and environments capable of enrichment through experience (Rosenow, 2008). Accordingly, learning opportunities are often seized within immediate surroundings using familiar, real-life, and readily available resources.

Furthermore, teachers and children can learn together through experiences within a natural setting. Through experience, adults can develop interesting techniques for using an outdoor classroom as an integral part of children's daily learning rather than viewing outdoor time only as an opportunity to "let off some steam" (Rosenow, 2008). Moreover, teachers benefit from engaging in powerfully supported experiential programs within a natural setting so that they can share their experiences with others, specifically young children (Torquati et al., 2010). Consequently, shared experiences in nature are so fully

engaging that children are inspired to think deeply about their explorations and talk about them with their teachers (Kiewra et al., 2011).

Vygotsky's (1978) foundational work on social-cognition, or situated-cognition, combines the individual and the social in understanding an activity such as learning. Social-cognitive learning occurs within a person's immediate social environment and is a function of interaction, environment, and behavior (Lodico, Spaulding, & Voegtle, 2010). Therefore, a nature-based outdoor classroom is by default an interactive and social environment, which was supported through a constructivist approach in my study. This philosophical perspective indicates that reality is socially constructed by individuals who bring frameworks from their own experiences, leading to multiple meanings (Lodico et al., 2010).

Although Piaget's (1966) work entirely focused on childhood cognitive development, his theory of cognitive constructivism laid the foundation for active and motivated adult learners creating meaning through interaction with their environment. According to Piaget, "the behavior of the human organism starts with the organization of sensory-motor reactions, and becomes more intelligent as coordination between the reaction to objects becomes progressively more interrelated and complex" (Knowles et al., 2012, p. 30). Therefore, nature education is an important part of early childhood development because the natural world offers concrete and authentic learning experiences. Decidedly, it is a natural extension of the traditional classroom where *play* promotes cognitive, physical, emotional, and social growth (Hanvey, 2010).

Benefits of Nature-Based Education

Specific to cognitive development, young children develop thinking skills through observation, sight, sound, touch, smell, and taste as they make comparisons and contrasts during exploration of their environment (McHenry & Buerk, 2008; Ogu & Schmidt, 2009). First of all, Clark and Moss (2011) supported the idea that young children are experts in their own lives and develop cognition through making meaning of their environment. Moreover, Starbuck and Olthof (2008) suggested that science and math cognitive concepts are easily incorporated into garden activities. Opportunities for the study of ecosystems, plants, animals, counting, measuring, sequencing, sorting, classifying, and spatial relationships abound in a natural environment. In fact, the most recent conceptual framework developed for science education (National Research Council, 2012) uses scientific practices that promote the integration of motivating and meaningful activities within nature to question and seek answers.

Additionally, language development is enhanced in the natural environment when children are exposed to new experiences and develop vocabulary associations. Ogu and Schmidt (2009) posited that skillful open-ended questioning on the teacher's part could lead to higher level language and discussion with children. Furthermore, discoveries in the outdoor environment can encourage early literacy through reading, writing, describing, and storytelling about new experiences (Meadan & Jegatheesan, 2010). There is no doubt, according to the Centers for Disease Control and Prevention (2010), that physical activity that students engage in at school is directly related to their cognitive development in reading and math as well as their overall intelligence.

In addition to cognitive benefits, physiological benefits of nature-based education can start in the early years but carry over well beyond that. Unfortunately, patterns of sedentary life begin early with too much television, video games, and computer usage, which can lead to obesity (Jacobi-Vessels, 2013). A study by Pellegrini and Bohn-Gettler (2013) had the encouraging finding that during outdoor time in an early childhood setting, at least 60% of children engage in physical activity, which helps to develop strength, coordination, and cardiovascular fitness. Moreover, children's contact and interaction with nature have been found to be as important for development as good nutrition and adequate sleep (Hachey & Butler, 2009), which is especially important in urban areas where nature-based opportunities are more limited. However, half of American preschool children do not go outside every day with a supervising parent (Tandon, Zhou, & Christakis, 2012).

Growth in emotional and social skills complements cognitive and physical development in a nature-based environment as young children learn to negotiate, collaborate, imagine, settle disputes, and take risks (Jacobi-Vessels, 2013). A less structured environment such as a NEOC can facilitate cooperation and conflict resolution, fostering friendships and the development of positive self-esteem (Pellegrini & Bohn-Gettler, 2013). Because the environment is one of exploration, an appreciation for multiple perspectives can be developed (Ogu & Schmidt, 2009). Interestingly, in a 2013 study by Scott and Boyd, it was clear through letters written by young children that working in partnerships was enjoyed and group work in nature-based experiences differed in a positive manner from classroom group work.

General Barriers to Nature-Based Education

However, as noted by Weise (2012), even though the benefits of nature education are known, overwhelming trepidation was experienced when parents, teachers, and students were given the opportunity to expand their playgrounds into previously forbidden natural areas. The excitement was accompanied by the reality of the huge amounts of manual labor involved, such as clearing woods, which were necessary to prepare the space for educational purposes. Then, Jacobi-Vessels (2013) identified that urban areas, especially, had challenges in designing an outdoor area where there was a current void of existing greenery and limited space.

Moreover, the financial investment to create an outdoor classroom must be considered prior to commencing a project that culminates in an engaging, vibrant, and functional learning environment. In designing and developing an outdoor space, Rosenow (2008) challenged programs to partner with Nature Action Collaborative for Children, an international collaborative effort bringing together people from a variety of professions, including landscape architects and representatives from environmental groups. Coupled with available grant money and collaboration enlisted from the local community, schools and environmentally minded organizations have developed outdoor classroom projects (Weise, 2012). Additionally, to save costs, Schwartz and Luckenbill (2012) suggested using materials already found in the classroom or in nature, such as tempera paint, sponges, paintbrushes, construction paper, seed pods, pinecones, natural clay, and water.

Despite the known benefits of nature-based play, parents of young children can harbor concerns when they consider outdoor classrooms for their children (Williams, 2008). Protests from parents can occur when children get dirt or natural materials on their

clothes, in their hair, or in their mouths. Protectively, parents may also think that the weather is too cold, too hot, or too humid, or that the environment contains too much ozone/pollution. In addition, working families may have a difficult time supporting outdoor exploration for their children due to busy work schedules. As a result, Dimensions Educational Research Foundation (2005) found that children's lives have become structured and scheduled by well-meaning adults who mistakenly believe that sports or lessons take the place of spontaneous outdoor play or make them more successful in life.

Additionally, lack of teacher training for teaching outdoors has affected planning lessons, in that child-initiated/centered approaches are more effective than teacher-initiated/centered practices commonly found in the classroom (Maynard, Waters, & Clement, 2013). Within the confines and comfort of an indoor classroom, teachers have been found to demonstrate familiar pedagogy and curriculum learned in college and experienced in the workplace. Anxiety has been found to increase when teachers are introduced to a new teaching environment (Scott & Boyd, 2013). Teachers have demonstrated reluctance to teach outdoors because they have not been taught or have not experienced that curricular paradigm (Adams, 2013). Nonetheless, it was discovered that when teachers accepted less-than-expert status as outdoor teachers and worked with their students, an effective shared learning dynamic was established (Scott & Boyd, 2013).

Unfortunately, Jacobi-Vessels (2013) reported that teachers hesitate to feel comfortable in a natural setting with students due to the many perceived risks involved in outdoor learning experiences. If a teacher is more concerned about risks than opportunities for learning, a negative impact is imposed, and learning opportunities are

diminished or lost (Stan & Humberstone, 2011). In reality, outdoor time often becomes a chance for teachers to chat and children to "get the wiggles out." Wilson (2008) stated that in order to achieve the full benefits of outdoor experiences, teachers must "alter their mindset in regards to viewing time outdoors as a break from teaching" (p. 35). In another study, Jacobi-Vessels (2013) found that teachers were hesitant to move their classrooms outside for fear of loss of control in the area of behavior management in a novel environment. However, other research by Copple (2012) suggested that self-regulation is present from birth and is highly influenced by the environment and that early self-regulation in a variety of situations leads to better self-control in later childhood.

According to studies done by Scott and Boyd (2013) and Bixler, Floyd, and Hammitt (2002), the most effective means found to encourage teachers to teach in a new way was to provide them with support and opportunities to learn about the outdoors themselves. Experiential learning, through hands-on activities, is a way for teachers to share that learning with their students. In addition, Cuppens et al. (2007) reported that the more adults were taught to develop comfort with and awareness of nature, the more they supported children in developing the same awareness. Interestingly, young children have been found to learn more about attitudes and behaviors by observing adults than by listening to what adults say, and if a teacher is enthusiastic about nature, that attitude generates a greater impact on the child's engagement and curiosity (Dowdell, Gray, & Malone, 2011). Furthermore, Zimmerman and Land (2014) found that when teachers are presented with support and resources, specifically familiar technology, they are better able to extend and connect prior outdoor experiences through exploring new perspectives, representations, and data.

In addition to local considerations, barriers on a more general level have been identified (Adams, 2013; Nimmo & Hallet, 2008; Ogu & Schmidt, 2009). A strong consideration was the need for heightened supervision with decreased structure in the learning environment, with learning becoming less teacher directed and more child directed, which is often the situation in an outdoor space (Olsen et al., 2011). Children are intrinsically motivated to explore, observe, and experiment in unstructured environments, and Jacobi-Vessels (2013) posited that teachers can use this unbridled curiosity present in a less structured outdoor setting to help children develop scientific inquiry involving wonder, exploration, questioning, and idea sharing. However, Nimmo and Hallett (2008) reported seeing disproportionate consideration for safety in developing curriculum related to children's outdoor time. Therefore, achieving a balanced position on the continuum between exploratory risk and safety becomes important in an outdoor classroom.

Also for consideration is the issue of infants and children with special needs, sensory deficits, and medical issues when facilitating an effective nature-based classroom. According to Ogu and Schmidt (2009), overlooked considerations for outdoor spaces designed for children with disabilities can create challenges such as those related to accessibility, variety of play activities, and outdoor surfaces for mobility. When taking infants and toddlers outdoors, facilitators are expected to monitor for hazards such as overheating, intense UV rays, ingesting nonfood items, and unstable mobility (Adams, 2013).

This critical analysis of the literature review provided a framework for identifying previous findings in published research regarding the topic of nature-based education and

identified barriers to facilitation of those spaces. I reviewed 51 articles, books, and websites to identify central issues. I identified relevant sources by searching library databases, which included using Boolean phrases, key words, citation chaining, Google scholar, and Walden University library tips and techniques. By establishing the state of previous research, future research needs can be identified. Even though a search may not be exhaustive, Randolph (2009) contended that a representative sample of research can be used to make inferences concerning the entire population of research when information gathered begins to repeat itself, which indicates saturation of information related to a study's topic. Because the information I researched through the literature review did begin to repeat itself, I believe saturation was reached.

Implications

A young child who develops investigative skills and is encouraged to be creative gains more independence, which will support the child in all academic subjects in subsequent grades (Pellegrini & Bohn-Gettler, 2013; Santa, 2007). Consequently, children who learn to love and appreciate nature might be more apt to contribute to their community in developing outdoor spaces and participating in nature clean-up, nature education, conservation, and recycling programs.

Through this study, I sought to provide a deeper understanding of any barriers that may prevent a local school from fully experiencing the intent of a certified NEOC paradigm. If changes are made to overcome those barriers, students might be able to expand their experiences in the natural world to further develop physical well-being, creativity, and cognition, as well as social and emotional skills.

Moreover, the findings of this study suggested the evolution of a professional development plan that focused on identified barriers teachers experienced in a certified NEOC. Suggestions to overcome those barriers are discussed, and in the professional development plan, participants are encouraged to brainstorm alternate strategies. Additionally, suggested lesson plans and interactive activities guide teachers in ways to overcome perceived barriers in the NEOC.

Summary

In response to well-known and researched cognitive, physical, social, and emotional benefits that accrue to children who have access to the natural world, the Arbor Day Foundation and Dimensions Education Research collaborated on a project to guide programs in facilitating effective nature-based education experiences for children (Cuppens et al., 2007). However, the literature also suggests challenges to facilitating outdoor education such as workloads, financial investment, teacher training, perceived risks, and supervision. This study took place at one early learning program with a certified Nature Explore Outdoor Classroom (NEOC) in order to investigate the barriers that may prevent full implementation of the NEOC. In Section 1, I described the local problem and the rationale for choosing this problem to study. Also discussed were special terms and the significance of the problem. Moreover, I conducted a review of current literature supporting a constructivist theoretical framework for my study as well as associating the local problem with a broader problem. Finally, I discussed implications of developing teacher training to potentially improve facilitation of NEOCs.

In Section 2, I describe the methodology of the qualitative research design chosen for this project study. Therein, description and justification of participants, data

collection, and data analysis are included. Sections 3 and 4 describe and support the results of the project study and conclude with reflections, recommendations for ways to address problems found, implications, applications, and directions for further research.

Section 2: The Methodology

Introduction

The purpose of this qualitative research case study was to more deeply understand barriers that prevented student/teacher engagement with a natural outdoor environment designed to NEOC certification standards in relation to a constructivist framework informed by the theories of Kolb, Piaget, and Vygotsky. To explore how teachers perceived experienced and potential barriers to student/teacher engagement with the natural outdoor environment, this study focused on the following two research questions:

1. According to teachers in one Texas preschool/kindergarten, what barriers may exist that prevent teachers from facilitating student/teacher engagement with the natural outdoor environment designed to NEOC certification standards?
2. According to teachers in one Texas preschool/kindergarten, what strategies will improve facilitating student/teacher engagement with the natural outdoor environment designed to NEOC certification standards?

Within Section 2 of this study, I discuss the methodology used to determine the findings for the central questions discussed in Section 1. I conducted a collective case study that focused on observations, interviews, and document collection using homogenous participants located at an existing certified NEOC in central Texas. Observations provided data regarding teacher behavior and instructional strategies as they related to the teachers' perceived barriers and use of strategies to facilitate the NEOC in support of student learning. Through teacher interviews, I determined how teachers perceived existing barriers and the strategies they used to overcome those perceived barriers. Document collection provided objective data to support teachers' perceived barriers and

the strategies that had actually been implemented. In addition, within Section 2, I discuss sampling procedures, data collection, data analysis methods, and findings. By employing a collective case study approach, I obtained data that provided a rich and detailed description of the perceptions and experiences of teachers facilitating an existing NEOC.

Qualitative Research Design and Approach

In an educational study, the researcher's choice between quantitative and qualitative methodology is guided by the study's philosophical framework, data collection methods, data analysis, dissemination of the findings, and the extent to which findings can be applied to other educational settings (Lodico et al., 2010). Creswell (2012) pointed out that quantitative research identifies a research problem for which specific questions can be answered by obtaining measurable and observable data (Creswell, 2012). Furthermore, it is a systematic approach meant to fill a void in existing knowledge, add to the literature, confirm or disconfirm results of a previous study, or improve current practices (Lodico et al., 2010). On the other hand, qualitative research involves exploring a problem and developing a detailed understanding of a central phenomenon (Creswell, 2012). Essentially, the central phenomenon encompasses both the problem (purpose) statement and the research questions. Moreover, qualitative research is an interpretive method that involves inductive reasoning and consideration of multiple perspectives (Lodico et al., 2010). For these reasons, in a Walden University video cast, Cavanagh (2013) described quantitative research as knowing "a little about a lot" and qualitative research as "knowing a lot about a little."

For this study, as mentioned above, I chose a case study design to collect, analyze, and interpret the data. With attention to the problem and research questions in this project

study, I chose a qualitative research case study in an effort to discover meaning, investigate processes, and possibly gain an in-depth understanding of an individual, group, or situation (Lodico et al., 2010, p. 269). According to Merriam (2009), a case study is a bounded system, studied over time, where there is a limit to the number of people being studied and through which a researcher addresses an instance of issue or concern. According to Lodico et al. (2010), a case study gets a researcher closer to a particular program and individuals associated with that group. Marshall, Cardon, Poddar, and Fontenot (2013) emphasized the importance of allowing the events and situations in a case study to speak for themselves rather than be judged or evaluated by the researcher. A case study in which I would become immersed in a selected group was appropriate for this study because the product would present the essence of the structure of the experiences described in detail by the teachers of the program (Merriam et al., 2007). Specifically, I researched an existing NEOC program as the central phenomenon and observed and interviewed the teachers who facilitated that program to investigate potential barriers encountered in facilitating the outdoor space.

Considerations for my choice of a case study for this project included the desire to research a particular central phenomenon within a bounded system. A case study reveals what is important in the phenomenon, what is revealed, and what might be represented (Merriam, 2009). I considered a quantitative research study that would have described a problem based on trends in the field and include specific measurable variables. Research questions that warrant a quantitative research method are narrow, specific, and capable of obtaining data that can be analyzed using mathematical statistics (Creswell, 2012). I dismissed a quantitative method because my research questions were not narrow and

specific but rather encouraged exploration to develop a detailed understanding of the central phenomenon. Therefore, the more appropriate choice was a qualitative research study. Given the numerous types of qualitative research, I also considered an ethnographic approach because my study was to focus on human society. However, because the study did not target a specific culture, I dismissed ethnography. Also considered was a grounded theory case study, but I felt that my focus would be devoted more to understanding how people made sense of their experiences than to building a theory. After much consideration, based on the nature of the research problem and my guiding research questions, I chose a qualitative case study as the most appropriate research methodology for my study.

Participants

Population and Sampling Procedure

In qualitative research, participants are identified through purposeful sampling based on people and places that can help to understand the central phenomenon (Creswell, 2012). This is supported by Koch, Niesz, and McCarthy's (2013) statement that in purposeful sampling, "when individual participants are selected, it is not for the participants' representativeness of a larger population but for their personal experiences of the phenomenon being explored" (p. 136). Creswell (2012) added that purposeful sampling is selected when a researcher desires to learn about a central phenomenon in which the participants are "information rich" (p. 206) and can help to develop a deep understanding. This purposeful sample was chosen from a finite number of potential participants and was based on size, location, and availability but also reflected a typical type of purposeful sampling because it was in no way unusual, extreme, or deviant

(Merriam, 2009). Purposeful sampling allowed me to choose participants who could articulate their experiences and insights to provide an in-depth understanding of a central phenomenon—in this case, barriers to facilitation of effective use of outdoor spaces.

Criteria for Selecting Participants

The setting for this study was an ELC in central Texas located in a community with a population of approximately 100,000 people. The community is home to a large state university that is an integral, active, and influential entity for the residents of the area. I recognize that case study results are not generalized to a larger population (Creswell, 2009), but the selected ELC is similar to other NEOCs in the state of Texas. The selected campus consists of three separate buildings located on the outside perimeter of the one-acre NEOC. During the 2014-2015 school year, there were 125 students ranging in age from 2-5 years. Additionally, there were 15 teachers and one director employed at the ELC. Participants were chosen through purposeful sampling selection and were required to meet criteria for essential attributes desired for the study (Merriam, 2009). Criteria for participant selection in this case study included staff members who were (a) at least 18 years of age, (b) had at least 3 years of early childhood teaching experience, (c) had at least 1 year of experience in the selected site's NEOC, (d) had received internal or external training on how to facilitate a NEOC, and (e) had a willingness to share their experiences with me and could provide information-rich descriptions regarding the specific topic (Lodico et al., 2010). Additionally, all participants had at least a high school degree as required by Texas state child care licensing laws.

The target sample size for this study was 10 teachers at the ELC. The 12 ELC teachers who were identified by the ELC director as meeting the required criteria were sent an introductory email to participate (see Appendix C). Although 12 ELC teachers were invited to participate in this study, those teachers who voluntarily agreed determined the number of participants. Approximately 67% of the teachers who were invited to participate, or 8 teachers, agreed to do so. Creswell (2012) suggested that only a few cases are necessary in qualitative research studies. Selecting only eight case study participants allowed me to gather in-depth, rich data that were coded about each participant and associated setting (Creswell, 2012). Each participant was asked to voluntarily answer four demographic questions: (a) gender, (b) age range, (c) number of years of experience teaching in the field of early childhood education, and (d) number of years teaching/facilitating in a NEOC. See Table 1 for a participant demographic overview.

Table 1

Participant Demographics

Participant	Gender	Age range	Years in early childhood	Years teaching in NEOC
WW	Female	36-50	15	6
JSS	Female	51 or older	25	6
PH	Female	36-50	9	6
PC	Female	51 or older	23	6
MA	Female	36-50	17	6
JS	Female	36-50	11	6
HF	Female	36-50	10	6
AM	Female	36-50	20	5

Gaining Access to Participants

Gatekeepers, according to Creswell (2009), are individuals in authority who assist a researcher by providing access to potential participants. I contacted the ELC administration office via a phone call to inquire about the person who could authorize access for my research study. To secure approval for research data collection, I was instructed to speak to the director of the ELC. I initiated a phone conversation with her and provided an overview of the proposed project, describing the process step by step. Subsequent to the phone conversation, a letter of cooperation was emailed to the director of the selected site (see Appendix B). The returned, signed copy of the letter of cooperation gave me approval to conduct my research.

Thereafter, the director provided me with a list of names and emails of staff members who met participant criteria. Subsequent to receiving this list, I sent potential participants an introductory group email but protected the privacy of all those emailed by using blind carbon copy (BBC) to inform them of my project study and ask for volunteers (see Appendix C). Bogdan and Biklen (2007) emphasized that researchers making their interests known and developing cooperation with the participants encourages more freedom during research. Attached to the introductory email was the participant consent form (see Appendix D) detailing background information on the study, participant criteria, procedures, the voluntary nature of the study, risks and benefits, payment, privacy, and contact information. This form stressed the need to protect research participants, develop trust with them, and guard against any misconduct on the part of the researcher (Creswell, 2009). Two of the individuals interested in participating in the study sent a return email with an electronically signed participant consent form to

confirm participation in the study. The remaining six participants let me know of their interest in participating, via email response, but signed and returned the participant consent form on the day of the site visit before any data collection commenced.

Establishing Researcher-Participant Relationship

I worked to develop a researcher-participant relationship to safeguard all individuals so that each participant felt comfortable sharing perceptions and beliefs with me prior to, during, and after the interview. Establishing trust and credibility is required for good qualitative case study results. Above all, sensitivity, honest communication, and nonjudgmental interaction are key elements of a trusted field relationship (Lodico et al., 2010). Because I had never visited the chosen site for my research and had no established relationship with the director and staff who taught there, I briefly spoke to the director by phone to share my project study overview. Furthermore, I communicated my desire to conduct the research at her site and gain preliminary interest. She was very enthusiastic about the proposed research and offered her site for my study. Subsequently, I made a follow-up phone call to suggest a preliminary time frame for the research to be conducted. Because we possessed a passion for nature-based education, worked in a facility with a certified NEOC, and desired effective facilitation of that space, the director and I shared a connection. By building a connection and trust with the director, I was able to gain the trust of her teachers, the participants, because they had already established trust and respect with her, the gatekeeper.

Once the targeted number of participants was reached, I sent a follow-up email to thank them for volunteering and gave an anticipated time frame for the site visit. The week before commencing the project study research site visit, I made a telephone call to

speak personally with the participants to establish initial rapport, schedule a time for the observation and interview, as well as make arrangements for the collection of all participant consent forms before beginning observations. Within that conversation, I expressed my appreciation for their time and effort in anticipation of their participation in my research study.

On the morning of my arrival, I was introduced to all of the teachers at the ELC whether they were participants in the study or not. This was beneficial in developing trust because all teachers then knew who I was and the reason for my presence on campus, rather than seeing me as a stranger with a clipboard observing in their NEOC. On the second day of my research, I brought donuts for the teachers as a gesture of goodwill. The use of nonverbal communication such as smiles and friendly waves during the observations helped to build relationships. Before the interviews, I took just a few moments to chat and break the ice so that the participants felt relaxed and comfortable. I also offered the participants bottled water. During the interviews, I experienced shared laughter, empathy, sensitivity, and honesty with the participants. I remained nonjudgmental in the interviews and welcomed participants' descriptions of their experiences. Participants were encouraged to expand on their comments and felt that I was genuinely interested in what they had to say. At the conclusion of the interviews, I thanked them for their time and gave them a small $25 gift certificate.

Protection of Participants' Rights

In conducting qualitative research, ethical issues to consider and share with participants include the worthiness of the project, benefits, costs, reciprocity, harm and risk, privacy, confidentiality, anonymity, research integrity, and use of results (Cavanagh,

2013). The Walden University Review Board (IRB), which is responsible for ensuring that research complies with the university's ethical standards, reviewed and approved the study prior to any data collection. The IRB approval number assigned to this study was 02-03-15-0339680 and had an expiration date of February 2, 2016. As evidence that I fully understood the ethical protection of all participants, I obtained a certificate from The National Institutes of Health (NIH) Office of Extramural Research. This research study had a low risk level for participants, and none of the participants had ever worked with me. Furthermore, I had never been employed by the ELC. Participation was voluntary. If a potential participant decided not to participate, he or she could select the option to stop the observation or interview. I compiled a list of the eight consenting teachers' names for this study in the event that a participant wished to later withdraw from the study. Pseudonyms were randomly assigned to each participant. Only I have knowledge of the true identities of each participant within this study.

The safety, well-being, and confidentiality of each participant were priorities throughout the duration of the study. All voice recordings of interviews were saved in electronic files and deleted from mobile devices. In addition, all electronic data collected from each participant were stored in password-protected, encrypted files on my home computer. Encrypting the files ensured confidentiality so that in the unlikely event that my computer was lost or stolen, data were coded in a manner that any third party would not be able to read. All nonelectronic data have been stored securely in a locked desk located within my home. I will store these data for 5 years, per Walden University protocol. After 5 years have lapsed, I will destroy all electronic and nonelectronic data.

Prior to beginning my study, while continuing my research, during the results write-up, and when reporting results, I followed the protocols for ethical considerations.

Data Collection

Descriptions of Data Collection

Case study research involves the implementation of strategies of deep inquiry while exploring a central phenomenon in a bounded system (Creswell, 2009). In order to delve deeply into the central phenomenon of possible barriers to facilitating a NEOC, I collected detailed information from participants by using the data collection techniques of observations, interviews, and document collection. Within this case study design, I methodically and carefully considered the data collection methods. Data collection methods were central in exploring the perceptions of teachers. The purpose of this bounded collective case study was to identify barriers in facilitating a nature-based learning environment as it relates to constructivism. Teachers' perceptions are important because they give insight into personal representation of knowledge and interpretation of a situation.

In order to collect data in a professional manner, I took necessary steps to build a relationship with the staff of the site. With the director, I developed a positive relationship prior to commencing my research. Because I had no prior personal or professional connection with her, developing a reciprocal trusting relationship was important in building trust with her staff. Since the director trusted me and was excited about the research, her staff was more eager to accept me. However, I remained cognizant to supress my passion regarding the benefits of a certified NEOC at the facility at the expense of affecting observations and interviews.

The data for the study consisted of observations of eight teachers facilitating a NEOC, eight post hoc semistructured one-on-one interviews, and the review of specific archival documents that were provided to me by both the participants and the director. The archival documents requested and reviewed from the teachers were: (a) NEOC lesson plans; (b) communication to parents regarding the NEOC; and (c) nature-based education training certificates. In addition to the archival documents requested from each participant, I requested a copy of the annual recertification application documentation from the director. Although I fully understood that archival documents do not allow me to explore teachers' perceptions, per se, the archival documents I obtained (i.e., lesson plans) showed me how the teachers were currently using/facilitating the NEOC.

Data Collection Instruments and Sources

Observations. Observation as a data collection tool involves collecting accurate and unbiased information. Lodico et al. (2010) pointed out that good observation includes an explanation of the physical setting, a description of the participants in the setting, individual and group activities and group interactions, participant conversation and nonverbal communication, and researcher behavior. Specific to my research, I initially observed each participant facilitating the certified NEOC for approximately 30 minutes using an Observation Protocol I developed, which outlined specific topics (see Appendix E). The participants were aware of my presence and activities. Therefore, my role was that of an observer as participant in that participation in the group was secondary to information gathering and data collection (Merriam et al., 2007).

While observing, I recorded in written form the activities and interactions of the participants' current practices in the NEOC. In addition to recording on the Observation

Protocol, field notes were hand-written in a small hand-held notebook using identifying notations that were accessed during data analysis. Hence, during observations I collected written field notes in order to create thick, rich descriptions and document detailed descriptions (what happened) and reflections (personal thoughts) in those notes (Creswell, 2009). For example, I observed and recorded whether teachers actively facilitated the NEOC or merely supervised children, and whether the teachers' behavior indicated that she appeared interested in the NEOC as a learning environment rather than just a play area. In addition, I reflectively noted some teachers appeared to genuinely enjoy being in nature more than others during their NEOC time. Moreover, Merriam (2007) explained that conducting observations provides knowledge of the context, specific incidents, and behaviors that can be used as reference points for the follow up interviews. With this in mind, interviews occurred sequentially with observations.

To maintain the confidentiality of each participant's identity, each participant was assigned a pseudonym to ensure that the participant's privacy was protected in the event that any participants were somehow made aware of others who were observed and interviewed. Thus, assigned pseudonyms remained the identification of the participant throughout the remaining data collection processes, including post hoc interviews and obtainment of archival documents. This pseudonym was written on participants' observation and interview protocols, as well as on the top corner of archival documents received from each participant. Soon after the conclusion of each observation, I electronically recorded the data in a narrative format within a case study database so that the data could be easily coded, analyzed, and stored or retrieved post research (Merriam, 2009). Each observational narrative was saved with the file name only listed as

Observation and Field Notes- initials of pseudonym in a password protected, encrypted file on my home computer. Post hoc interviews were conducted after each observation either later that same day or the next day.

Interviews. According to Creswell (2012), data collected via interviews provide the most important sources of information that cannot be gathered during observations. Creswell (2012) also maintained an additional advantage of conducting interviews is that the researcher is able to control and structure the information that is gathered. A disadvantage of conducting interviews is that the information is disseminated through the lens of the researcher, which leads to uncertainties as to whether the individual being interviewed is providing responses that are honest and whole versus providing responses that may be what the researcher wants to hear (Creswell, 2012). However, conducting an observation prior to conducting an interview afforded me the ability to minimize potentially misleading behavior in the NEOC because some interview questions may have guided the teachers to facilitate the NEOC in a manner different from their normal behavior.

Interviews are purposeful conversations directed by one person to gain information from one or more people (Bogdan & Biklen, 2007). In other words, the researcher in a case study gathers descriptive data that give insight into the participant's own interpretation of the central phenomenon. Furthermore, it is important to remember that the interview is conducted to gain understanding of a central phenomenon and not to pass judgment on the views of the participant (Creswell, 2012). Additionally, good interviewing involves deep listening and develops trustworthiness between the interviewer and interviewee. For this reason, I utilized individual semistructured

interviews rather than focus groups so that each participant could express his/her feelings, interpretations, and insights without the influence of others.

Before the actual interview began, it was important to secure permission for audiotaping the interview, inform the participants of the purpose of the study, and assure them of confidentiality (Creswell, 2012). Attached to the initial introductory email sent to potential participants was a copy of the Interview Protocol I developed to familiarize them with the interview process (see Appendix F). Koch et al. (2013) advised against developing leading interview questions, which could steer interviewee's responses to assumptions that are bound to exist about the central phenomenon. At the beginning of each interview, the Interview Protocol, with specific interview questions, was reviewed. With those guiding questions prepared, I then conducted semistructured interviews, approximately 30 minutes in length, with each participant who had been previously observed. After receiving the participant's permission, I recorded all interviews using two devices, an iPad and an iPhone 6, in order to allow me the ability to take written notes during the interview. Two devices were used in case there were technical difficulties with one or the other. Since I had previously used an iPad for recording, I was aware of how to operate the device and was pleased with the recording quality, inconspicuous nature of the device, and ease of use in pausing a recording to transcribe effectively.

For the purposes of this study, I conducted eight, one-on-one, post hoc, semistructured interviews in a conference room at the ELC while an assistant covered the teacher's class. Using data collected from multiple semistructured interviews allowed me to compare and illuminate the perceptions of each participant. In addition, conducting semistructured, one-on-one, post hoc interviews allowed me to ask open-ended questions

based on those observations to solicit responses that are specific to the purpose of this study. Open-ended questions encourage dialogue between the interviewer and interviewee (Merriam, 2009). Additionally, Merriam (2009) maintained that interviews are conducted when there is an interest in past events that may not be able to be replicated. Although Bogdan and Biklen (2007) suggested that multicase studies might be more complicated, the authors also suggested that after the first case is completed that subsequent cases become easier and take less time than the initial case because of the replicated processes. As Bogdan and Biklen suggested, after I conducted the first interview, subsequent interviews were easier and took less time to complete. The first interview took approximately 35 minutes to conduct, and the other interviews were approximately 25 minutes in duration.

The semistructured interviews were guided by a preestablished, researcher developed, list of 10 open-ended questions. The interviews were scheduled by the director to begin subsequent to the observations, two days before my arrival at the ELC. Prior to asking any interview questions, I established rapport through short, introductory conversations not related to the topic of this study. The succinct general introductory conversation was followed by reiterating the purpose of the study, the research procedures, and methods to protect confidentiality. It was important for all participants to clearly understand how all identifying information, such as names of participants, was kept confidential to safeguard confidentiality and promote candid responses. In addition to protecting confidentiality, participants were reminded that their participation was voluntary and that they may choose to withdraw from the study at any time without consequences. The semistructured nature of the interview questions allowed the

participants the flexibility to respond to 10 open-ended questions that were not leading and did not solicit yes/no only responses (Creswell, 2012; Merriam, 2009). In addition, semistructured questions afforded me the ability to ask the questions in any order I saw fit, based on the observation (Merriam, 2009). Furthermore, the frustrations and barriers in facilitating a NEOC that I have experienced at my own facility did not enter into discussions with participants in order to eliminate bias. However, at times during the interviews I found myself agreeing with some of the barriers the participants mentioned. As a safeguard to prevent agreeing or disagreeing with the participants, I had to remind myself to refer to the interview questions, listen intently, and respond in only neutral comments.

Using the guided interview questions, participants were asked to express their perception regarding barriers to facilitating the NEOC and strategies they have found effective to overcome any perceived barriers. In addition to the 10 interview questions, my notes from the Observation Protocol and my field notes were used in an unbiased nature to probe for and elicit additional information. This information may reveal itself to be relevant to my study and allow the participants to enhance or clarify their own responses (Creswell, 2012). Each participant interviewed was audio recorded and labeled with the assigned pseudonym. Audio recording the interview, along with peer review of transcripts and member checks helped manage researcher biases, reliability, and validity (Creswell, 2012). Member checking was used so participants could access the accuracy of the data and minimize ethical issues. Additionally, using an audio recording and interview protocol helped minimize any anticipated ethical issues that might bring harm to the participants, such as risks, confidentiality, deception, and informed consent

(Creswell, 2012). All interview data were transcribed verbatim so that the data could be coded, analyzed, and stored or retrieved at the conclusion of the research. Organizing the data into a case study database when multiple individuals are being sampled is the most effective and efficient way to keep track of the collected data during the analysis processes, which were triangulated with observations and archival documents.

Documents. In addition to the observations and interviews, archival documents were requested from the director and each participant. The archival documents received contained clues and provided additional insights into types of activities that teachers had planned during their scheduled time in the NEOC throughout the school year (Merriam, 2009). In addition, collected archival documents provided a richer source of information that increased validity of observational and interview data (Creswell, 2012). Merriam (2009) suggested that documents are a ready-made source of data where the researcher can use skills and intuition to interpret supportive data in qualitative studies. Furthermore, documentary material is stable and therefore can be considered more objective than observations and interviews. Effectively, archival document collection data already exists and are usually easy to obtain.

I asked each participant to provide photocopied archival documents at the time of her scheduled interview. Participants were also given an option to email the archival documents to me after the scheduled interview date if they had forgotten them. The four requested archival documents from the director were (a) letters to the parents regarding the NEOC generated from the office, (b) staff development agendas, (c) evidence of nature-based teacher training, and (d) reports submitted for NEOC certification/recertification. The director provided 100% of the requested documents. The

four requested archival documents from the participants were (a) letters/flyers to the parents regarding the NEOC, (b) nature-based training certificates, (c) documentation of community or volunteer NEOC opportunities, (d) NEOC lesson plans, and (e) posted rules for the NEOC. Four (50%) participants provided archival documents during the interviews, and four (50%) participants said they forgot to make copies of the requested documents. One (13%) participant emailed archived documents the day after the interview was completed. All of the archival documents received were examined for completeness and usefulness (Creswell, 2012; Merriam, 2009). In addition, all archival documents were de-identified so that names of participants and schools were not present. After examining the archival documents, the documents were triangulated with observational and interview data to determine descriptions and themes in data analysis.

Bogdan and Biklen (2007, p. 117) posited "ordinary events become data when approached with a particular frame of mind--that of a researcher." The aforementioned observations, interviews, and document collection took place over a total of four days in order to accommodate the participants' workdays and schedules. To document data collection over the course of those days, I used a combination of audio recordings, verbatim transcriptions, rigorous field notes, and interview notes. At the end of each day, in order to preserve recall, I reviewed everything I had collected that day. Additionally, I utilized the practice of reflexivity when journaling my personal thoughts. Reflexivity, according to Koch et al. (2013), refers to critical thinking about one's own professional opinions, biases, and judgments in order to reflect on how they might influence the results of my study.

Data Analysis

Merriam (2009) noted that in qualitative studies collection and analysis of data can be done simultaneously to organize, refine, and direct subsequent data collection. The benefits of collecting data simultaneously include developing further questions, concurrently exploring literature, and improving critical observation skills (Bogdan & Biklen, 2007). Keeping the research question in mind, I simultaneously collected and analyzed data, which allowed me to make judgments regarding the direction of data collection. I began by collecting data widely, but with analysis in the field I was able to make decisions in order to narrow the focus and scope of the data collected.

To help guide me in an initial direction, regarding the first research question, I explored categories of teachers' perceptions of barriers in the NEOC as related to staff development, preparation of lesson plans, weather and/or climate, curriculum, family involvement, community involvement, administrative support, and financial support. Separately, regarding the second research question, I explored categories of teachers' perceptions of strategies to overcome perceived barriers in the NEOC as related to staff development, preparation of lesson plans, weather and/or climate, curriculum, family involvement, community involvement, administrative support, and financial support. Once the categories were identified, I began to search for themes, patterns, and relationships within the data. As suggested by Bogdan and Biklen (2007), searching the data for regularities and patterns developed subcategories and categories, and eventually led to identification of themes. I tallied and coded the observational and interview data into themes under each category within each research question. In particular, I utilized

Microsoft WORD and Excel to document the data collected so analysis could occur in an organized manner.

Within the WORD documents and Excel spreadsheet, I used a color-coding system by classifying things, persons, and events using classifying markers. As an example, anything observed or written from the interview that addressed perspectives regarding staff development was coded blue. Using the color coding system allowed me to identify patterns, or themes, as I attempted to understand and explain the central phenomenon. Coding, an inductive process, allows for development of a deep analysis of the collected data from which major and minor themes can be identified (Creswell, 2012). The coding took place over a period of several weeks during which I read through the data, conducted preliminary coding, generated initial categories, analyzed categories, reread notes and interviews, and re-coded as necessary. A coding matrix was developed in Excel for each guiding question: (1) barriers that exist that prevent teachers from facilitating student/teacher engagement with the natural outdoor environment designed to NEOC standards (see Appendix H) and (2) strategies to improve facilitating student/teacher engagement with the natural environment designed to NEOC certification standards (see Appendix I). Participant responses were coded, organized into categories, and developed into themes. A mark was placed in each participant's column of the matrix if the code was mentioned in the interview or observed during observation. This process was repeated until the categories became exhausted.

Once I tallied the data, in a separate column within each spreadsheet, I included any personal reflection and field notes written during the observation and about each interview under each category. The archival documents were triangulated to corroborate,

increase accuracy and credibility, and reduce researcher bias of the observational and interview data. I reviewed transcribed verbatim interviews (see Appendix G), field notes, my research journal, and collected documentation.

Accuracy and Credibility

For this study, participants reviewed transcripts to validate the accuracy of my interview data. During the data collection stage, I emailed each participant a copy of the transcribed interview to review for accuracy. Each participant was instructed to read the transcribed interview and notify me if he or she wished to revise, change, or omit any responses (Creswell, 2012). None of the participants opted to revise change, or omit any responses. It is important that the participants review for accuracy and validate any data collected in addition to being given an opportunity to correct, elaborate, or fine-tune any information to ensure that I did not misunderstand anything that was said in the interview (Merriam, 2009). Another method used to increase overall credibility and validity of my study was triangulation of multiple sources of data (Creswell, 2012; Merriam, 2009). For this study, data collected from observations, interviews, and archival documents were triangulated. Creswell (2012) and Merriam (2009) suggested that multiple data collected in qualitative studies are triangulated to increase credibility and validity of research studies. Data triangulation uses inductive reasoning that allowed me to check observational data against interview data against relevant archival documents to this project study's central phenomenon (Creswell, 2012; Merriam, 2009).

While qualitative methodologists often do not agree on sample sizes needed for case studies, they generally agree that the researchers should collect data from enough participants to achieve saturation (Marshall et al., 2013). Towards the end of the data

collection no new information developed. Instead, topics recurred, especially in the interviews, when the participants repeated ideas, concerns, barriers, successes, and experiences in the NEOC. I considered the data collection and analysis saturated when, during data analysis, no new themes occurred (Lodico et al., 2010).

Discrepant Cases

Dealing with discrepant cases was possible with eight potential participants. According to Creswell (2014), discrepant cases are those that hold inconsistencies with the generally identified themes. However, acknowledging and reporting the existence of these outlying perspectives contribute to a more in-depth understanding of the central phenomenon. When a discrepant case emerged, I reanalyzed the data determining if additional themes or categories existed. A discrepant case existed when one participant could not think of any barriers to facilitating the NEOC whereas every other participant could name several barriers. Further reference to this discrepant case is discussed in the findings of this study.

Data Analysis Results

The purpose of this collective case study was to explore teachers' perceptions of barriers to facilitating an existing NEOC. After the data were collected and analyzed, an aggregation the findings assisted in arranging responses to the identified problem and subsequently developed research questions. For this project study, the process by which data were generated and gathered consisted of observations, interviews, and document collection. The participants were welcoming in agreeing to observations of their current methods of facilitation and interactions within their NEOC. During each interview, all participants were willing to share experiences and their views related to facilitating the

NEOC and any perceived barriers, as well as strategies they used to overcome those barriers. In addition, participants provided examples and details to further support shared experiences by contributing documents such as lesson plans, parent communication, and training certificates. Subsequent to the data collection, data analysis systematically organized the data to generate findings, developed ideas related to those findings, and interpreted the findings related to current literature (Bogdan & Biklen, 2007). The inductive process of data collection and analysis in qualitative studies takes small pieces and combines them to form a more broad description of the findings (Lodico et al., 2010). In analyzing the data, I prepared, organized, reviewed, explored, and coded the data into categories. From the codes I built themes that helped to report and interpret the collected data.

Keeping the guiding questions in mind regarding barriers that may prevent teachers from facilitating an NEOC and strategies to improve facilitation, I observed and interviewed participants with the results of the data analysis identifying the following themes: teacher involvement, regulations and rules, volunteers, materials, and weather. From the Excel coding spreadsheet, I developed diagrams to visually organize the results. The first diagram (see Appendix J) was developed from the data analysis, which identified barriers that prevented teachers from facilitating student/teacher engagement with the natural outdoor environment designed to NEOC standards. The second diagram (see Appendix K) was developed from the data analysis, for strategies to improve facilitating student/teacher engagement with the natural environment designed to NEOC certification standards. The combination of participants' experiences along with the use

of direct quotes in the subsequent sections contributed to the rich, in-depth details under each research question. Therefore, the findings were organized by research question.

Findings

The first research question asked "According to teachers in one Texas preschool/kindergarten, what barriers may exist that prevent teachers from facilitating student/teacher engagement with the natural outdoor environment designed to NEOC certification standards?" When conducting my research at this site, I used a qualitative case study design, supported by in-depth interviews, observations, and document collection, and discovered major themes indicating the existence of barriers to facilitating a NEOC. Participants shared opinions of barriers that existed for teacher involvement, regulations and rules, volunteers, materials, and weather. In response to the interview questions, no barriers were found at this particular site regarding finances, administration, or community. As suggested by Merriam (2009), the results of the data are reported through particular description, patterns, and interpretive commentary from the participants.

Barriers

Teacher involvement. For the most part, the interviews reflected on staff development acquired by the participants in the area of nature-based play and certified NEOC requirements. Staff development was defined as a combination of continuing education opportunities outside of the early learning center's organization, school director/teacher led development, and colleague collaboration. A barrier identified by the participants was the inconsistency of teacher training. Generally, there was agreement that most of the intensive training occurred during the initial certification of the NEOC in

2009. Subsequent to that time, teacher training had been reduced, not continuous, and often only occurred when it was self-initiated by the individual teacher. Wanda (W. Webb, personal communication, February 26, 2015) summed up this combination of methods when she stated the following:

> I know when we first got to be a Nature Explore classroom we had lots of information on it and we did lots of training on it and then over the years we just talk about it a lot in teacher meetings, on the playground, between teachers, in ways that we can use the space better for the children, better for us.

Many teachers agreed that with the availability of more training the staff would become more knowledgeable about nature based playgrounds and, therefore, facilitate the NEOC better. Training specific to the certified NEOC was also seen as lacking and a barrier to facilitating their designed outdoor space. Phyllis commented "I would say there haven't been a lot of specific things towards the playground as a whole. I think more the kind of programs we do, especially in kindergarten, incorporate the playground" (P. Hart, personal communication, February 26, 2015).

An additional barrier uncovered was that the school did not require lesson plans specific to the NEOC. While some teachers felt this was not necessary because they incorporated the outdoor area into other parts of their curriculum, others felt dedicated lesson plans would improve facilitation. Other curriculum subjects required more time to plan and, consequently, received a higher priority for a teacher's time. Marsha, a teacher of an older group of children stated that "we embrace, and we think play is very important, but academics are also important. In kindergarten we have a lot of other things

that keep us from prioritizing that [NEOC] at a higher level" (M. Adams, personal communication, February 26, 2015). Moreover, there are challenges for teachers to develop balanced and developmentally appropriate lesson plans that blend science and early childhood. One of the teachers, who is a self-proclaimed naturalist and who has taken a lead role in facilitating the NEOC, shared a bit of frustration regarding incorporating science and early childhood education when she commented the following:

> From a naturalist's standpoint you get a lot of great scientists who don't know how to necessarily translate that information for children. We're trying to get everyone somewhat cued into what's going on around us in our playground and in our living classroom outside. (A. Moss, personal communication, February 27, 2015)

Several teachers agreed that a barrier to facilitating their NEOC was that there was not a single person dedicated to developing and coordinating plans for the teachers to follow. However, there was a recurring theme that there were most definitely some teachers who were more involved and proactive in the NEOC. During the interviews teachers shared that some of the teachers sought out new ideas, whereas others were content to sit back and wait to be told how to interact with their students in the space provided. It was recognized that the school consisted of teachers who possessed a variety of experiences and interest with nature-based play. This difference was expressed by one teacher, Marsha, when she stated "I don't mean this in a negative way at all, but I'm surprised sometimes to hear some of the questions about our nature playground – teachers who have been here for so long - just not knowing what things are" (M. Adams, personal communication, February 26, 2015). Independent research and self-initiated

continuing education were primarily led by three staff members at the ELC. These women took a personal interest in improving the functionality of the NEOC. They would then bring their findings and expertise back to the school to share with their colleagues. The efforts of these few were greatly appreciated by the staff. Many teachers attributed time to be the barrier that kept them from pursuing additional experiences that might increase their interest in facilitating a NEOC.

Regulations and rules. Because the ELC was licensed by the state of Texas it was required to meet specific minimum standards for compliance. Examples of these included fall zone cushioning criteria, equipment height, safety precautions, animals allowed, and child/teacher ratios. Several teachers saw some of these requirements as barriers to allowing children a freer range of exploration on a nature-based playground. One teacher, Phyllis, explained how the children often want to take off their shoes to feel the sand, mud, or water, but licensing rules prohibit that on a playground (P. Hart, personal communication, February 26, 2015). In the past, the school held a Stone Soup gathering where the children grew vegetables from their gardens and then chopped them up to cook soup over a propane stove. The exposure to hot liquids and sharp items was against licensing regulations so that activity had to be curtailed. Another teacher, Heidi, explained that the children still grew the vegetables but parents now chopped the vegetables and cooked the soup. According to her it really took away the connection of the process for the children (H. Frost, personal communication, February 27, 2015). An additional barrier perceived was that the teachers do not always know all of the licensing regulations so they might have planned an activity for the NEOC only to find that it was not allowed.

The state of Texas licensing rules are very specific when it comes to animals that are allowed around young children. For example, children are not allowed to touch poultry or reptiles for fear of contracting salmonella. Animals are part of nature and encouraged in a NEOC playground. The licensing rules become a barrier but must be considered when introducing any animal into a NEOC or allowing children to get close to animals that have made the space part of their natural habitat. "We had talked about after we hatched the chickens that it would be fun if on warm days we would be able to have them outside, but they have to be confined because of licensing" (J. Smart, personal communication, February 27, 2015).

In addition to licensing regulations, the ELC had specific playground rules to ensure the safety of the students. The many trees in the NEOC beckoned students to climb them: unfortunately, there was a rule in place that students had to keep part of their body touching the ground. Another rule limited the areas that could be dug so that there were not random holes on the playground where children could sprain or twist their ankles. Outdoor spaces have inherent dangers that unfortunately limit play and exploration without boundaries. The teachers agreed that barriers exist in a NEOC in that there is an increased risk of injury simply because it involves outdoor play, which is often more physical. A barrier Heidi identified was that today's playgrounds "are designed for the remotest accidents now. They are just too safe. We still try to tweak it because we value some of that risk-taking" (H. Frost, personal communication, February 27, 2015).

Volunteers. Barriers to facilitating a NEOC were also identified in the area of volunteers. Previously mentioned were some barriers of involvement from teachers, so this section will focus on barriers identified with family and community volunteers.

Families and their involvement were considered to be an integral part of a successful NEOC. A frequently discussed barrier to facilitating an effective NEOC was the lack of family involvement, which ultimately placed an undue amount of burden on the teachers. Some teachers expressed that they thought there was enough family involvement and support while others adamantly stressed the need for more family involvement including Marsha who stated the following:

> I don't think we have much involvement. We have our playground and our Fall Fun days and the parents come and help with those, being involved with the children and cleaning up, but on a regular basis we don't really have those parents. I know there would be parents that would step up, but it would be the same parents that do that. (M. Adams, personal communication, February 26, 2015)

Another teacher agreed that a barrier to facilitating an effective NEOC was the limited amount of family involvement by her statement:

> I try not to be too judgmental, but it is just different. We don't share the same values placed on things for lots of different reasons. It used to be easy to get five or six parents to do something; it's like pulling teeth now. If people do show up it's the same two or three people always carrying the burden of that work. (H. Frost, personal communication, February 27, 2015)

However, Jessie shared her resistance to family involvement when she shared this:

> Families like to come more. Sometimes, I also encourage children to be very independent. Some children behave differently when parents are around and that's not actually a benefit for their children. So I don't call them as much as I would

> like, and also I don't want them constantly coming to school so some other children think, 'Why is my mom or dad not in school?' I don't want them to feel that way. I have more than enough volunteers. (J. Sands, personal communication, February 27, 2015)

Teachers agreed that barriers existed to family involvement because of the increased number of working parents, overscheduled family time, and the difficulty of working around so many different schedules. One teacher, Pam, thought that a barrier to parent involvement might be an uncertainty of roles and that "parents want to help but they don't know how to ask" (P. Cox, personal communication, February 26, 2015). For the most part, the participants agreed that family involvement was important to facilitating an effective NEOC but there was not a consensus as to how much was enough.

One barrier identified for enlisting volunteers from the community entailed the planning on the teacher's part that had to occur. One teacher shared that this was time consuming and often just didn't happen, not from lack of desire but rather from lack of time. "Honestly, it takes organization on our part and I think that's hard" (M. Adams, personal communication, February 26, 2015). Barriers that existed when community members volunteered included the requirement for background checks and allowing strangers around young children. As with family involvement, community members may not know the roles or activities in which to volunteer.

Materials. The certified NEOC that was researched encompassed approximately one acre of land. There were numerous trees, plants, grasses, vines, animals, fish, and natural resources available to the staff and children, all within a fenced area to keep the children safe. The spaces and materials within the NEOC were clearly defined and often

labeled, such as the building area, climbing area, eyes only area, gathering area, water area, and the meadow (See Appendix L).

Several of the interview questions and collected documents (See Appendix M) addressed materials available to the teachers and students to help facilitate the NEOC better. These materials included animals, natural blocks, natural climbing structures, gardens, plants, tools for digging, items for water science, and natural musical instruments. Most of the participants agreed there was a wealth of materials they had already utilized but that there were still so many more untapped materials yet to be discovered. As described by Amy:

> This has been a staple in the community for so long, so I think our program is well supported in that way. It's so well loved. Everybody that I speak to that has experience refers to this space as special and unique and a great way for children to be educated and a great way for our children to start their educational journey. (A. Moss, personal communication, February 27, 2015)

However, the biggest barrier shared by nearly all the teachers was in the fact that so many of the natural materials were consumable. For example, Wanda remarked "When we started, we had all these pine cones and gourds and they get broken or some animal eats or takes them" (W. Webb, personal communication, February 26, 2015). On the morning of the site visit, there was a large bowl of birdseed put out on a table with cups and ladles in the NEOC for the children to explore. By the end of the day, the bowl was empty and the birdseed had been distributed throughout the playground. Some of the items placed in the NEOC for exploration purposes last only several hours while others could last months. Some items are lost when the children throw materials over the fence.

Often materials are consumed when the children take items home in their pockets, such as rocks, seed pods, mulch, or sand. The mulch and sand need to be replaced annually because of its redistribution and consumption. A barrier expressed was that teachers are unsure of the source and responsibility of material replacement. When asked the question regarding who replaced the lost or consumed materials the response from one teacher was "That's a good question, I think it's Jamie" (P. Hart, personal communication, February 26, 2015). It was agreed by many teachers that they would gladly take the initiative to replace the consumable materials but time and effort often interfered. "I think it all comes down to time and energy. At the end of the day, being with kids all day, you're tired. To work on those things after all of that-for me personally, that can be very difficult" (H. Frost, personal communication, February 27, 2015).

An additional barrier regarding consumption of material was due to sensory exploration by children on the NEOC. While the children, with their natural curiosity, explored the NEOC, often bugs were squashed, insects captured, flowers and berries picked, butterfly wings plucked, and caterpillar chrysalises picked off leaves. Amy described a rose bush that was barren up to about four feet, just up to a child's reach, and loaded with flowers above that point (A. Moss, personal communication, February 27, 2015). Many teachers agreed that there was a fine line between allowing for exploration and preserving the natural setting, but the interpretation of that line varied from teacher to teacher.

Material maintenance was also a barrier concerning many teachers. Materials were moved and distributed throughout the playground, and with 125 children playing on the NEOC daily, materials got broken. The chickens and rabbits needed to be fed and

their cages needed to be cleaned. It was agreed that material maintenance is a constant activity; but reiterating a previously mentioned barrier, there was not one specific person assigned to that role so the responsibility was unclear. It was obvious to most teachers there was one person who primarily volunteered in that position and took the lead to facilitate material replacement and maintenance. However, that teacher had additional teaching responsibilities and because of time constraints something which may have taken thirty minutes to fix might not be repaired for months.

Constraints of time and priority also set up a barrier for adding new activities and materials to the NEOC. Teachers must research and consider regulations, rules, and safety before adding new materials. A barrier to creating new areas involving wildlife included the children's noise level, which may scare wildlife away or attract unwanted animals. Teachers also expressed concern about the large amount of time and effort projects took in the past, which included shopping for and collecting materials, building structures, enlisting volunteers, and completing the work. Decidedly, all teachers agreed adding new areas of exploration was necessary to keep the NEOC from becoming stagnant.

Weather. Because the outdoor classroom setting is exposed to natural elements, weather and climate were addressed as barriers facilitating the NEOC. Observations and interviews addressed elements of temperature, precipitation, wind, pollen, severe weather threats and advisories, and seasonal changes. Texas is known for extreme heat, tornados, severe storms, flash floods, and high ozone days. These elements were discussed with regard to their relationship to the impact they had on the NEOC, including barriers and suggested solutions. The outside temperature was cold, 40-45 degrees, on the days I

collected data. The teachers shared that although this might be a barrier for some schools they always take their students outside for their entire 30-minute recess time or as long as the temperature permits. Wanda commented "The weather impedes it just because you can't get outside as much. When it's cold and wet we usually don't spend much time outside because it's kind of miserable" (W. Webb, personal communication, February 26, 2015).

In addition to these weather barriers, part of the NEOC was the church property's natural retention pond, which created muddy areas when it rained. Heidi shared the following comment: "Mud is mud, and when we get a lot of rain, there's a lot of water that gets in. We get some giant puddles back here" (H. Frost, personal communication, February 27, 2015). Jamie added, "Every once in a while someone falls in, and the ponds are only a bit deep, but they would get soaked. It would not be a pleasant thing" (J. Smart, personal communication, February 27, 2015). Many of the teachers saw these weather related occurrences as barriers but worked out strategies, discussed in the next section, to overcome them.

No barriers identified for administration or finance. I found it is interesting and of value for this research to report the results of two specific interview questions asked of the participants. The participants' responses to the two interview questions, related to the guiding questions regarding barriers to facilitating an existing NEOC, did not identify any barriers associated with the administration or finances. Additionally, observations and collected documents did not uncover any support to the contrary. The administration consisted of the school advisory board and the director of the early learning center. Although not considered administrators, there were two teachers who

assumed roles of leaders and advisors of the NEOC because of their interest, knowledge and experience with nature-based education. Their names were repeatedly mentioned during participant interviews as being instrumental in successfully facilitating and overcoming barriers in the NEOC. One of the leaders of the NEOC, Amy, shared that "The teachers come to us. I think the staff knows that the three of us are the people to come to in regards to nature-based education. The teachers are as curious as the kids so they come right up to us and ask questions" (A. Moss, personal communication, February 27, 2015). Positive comments from teaching peers included "Jamie was trained in nature-based play, brought it to us, and made it happen for us" (W. Webb, personal communication, February 26, 2015).

There was a unanimous sense at the school that the positive and supportive leadership of the administrator/director was a key factor in the success of the NEOC. "She does a really great job of balancing of continuing education hours with very interesting topics and workshops. She is trying to get everyone at least somewhat cued in to what's going on around us in our playground and in our living classroom outside" (A. Moss, personal communication, February 27, 2015). The administrator attended many nature-based workshops, supported the teachers in staff development, provided financial support for material, enlisted volunteers for projects, and listened to the teachers' suggestions for improvements to the NEOC. The school's advisory board interacted with the director and not directly with the teachers. Therefore, it was the director's responsibility to seek financial approval for decisions related to the NEOC. The staff members felt that when the advisory board was involved in decision making the director was definitely an advocate for the NEOC program.

Fundraisers and donations from teachers, families, and the community alleviated the financial burden of maintaining the nature-based playground and were discussed with primarily positive attitudes by the participants. Most participants agreed if they submitted a request for materials the director was there to support them and provide the materials they requested. However, the school did organize small fundraisers to replenish the natural materials that get consumed in a nature-based playground. The kindergarten students held a week-long event called Pioneer Days where the children worked all week to hand make items to sell to teachers, parents, friends and family at the end of the week. All the proceeds from this event went into the NEOC. The school was also in the middle of a large capital campaign to raise money for new buildings to house classrooms. The director shared that because the school valued the NEOC and all of its positive benefits for young children, there was a substantial amount in the budget to relocate, redesign, and rejuvenate the outdoor space.

Strategies

The second research question asked "According to teachers in one Texas preschool/kindergarten, what strategies will improve facilitating student/teacher engagement with the natural outdoor environment designed to NEOC certification standards?" Despite numerous identified barriers to facilitating an existing NEOC, the ELC where my research was conducted developed positive and productive strategies to overcome these barriers of teacher involvement, regulations and rules, volunteers, materials, and weather. The teachers targeted the identified barriers in the previous section to develop useful strategies to preempt or overcome challenges in the NEOC.

Teacher involvement. In general, the participants in the study found that their colleagues at the ELC had a desire to effectively facilitate the NEOC and overcome barriers, which in turn would benefit the students. In reference to her colleagues, Amy stated that "In talking with other teachers everyone is open, and they are amazing people" (A. Moss, personal communication, February 27, 2015). Strategies to overcome barriers in the area of teacher involvement included those pertaining to staff development, lesson planning, and a teacher's experience and interest. In further developing the staff's knowledge of nature-based play, and specifically their NEOC, colleagues collaborated on ideas to improve facilitation of their space. Jamie commented that "A lot of times we'll just sit and think about how we can do this a little differently-what would be better for our space" (J. Smart, personal communication, February 27, 2015). Some teachers observed other teachers whom they thought did a more effective job of engaging children in the NEOC.

Those teachers who were more active participants researched websites, as well as other nature-based programs such as WILD, and brought that information back to share with their colleagues. WILD is a program that helps create a reciprocal, balanced relationship between people and nature. Another strategy the director used was to invite guest speakers to the school so all staff members benefited from additional knowledge. At times the best strategy to improve facilitation of the NEOC came as situational learning opportunities in their own space. For example, when children found turtles and grubs on the playground, several teachers collaborated to share their knowledge and learn from one another (W. Webb, personal communication, February 26, 2015). The school

had a professional library stocked with books regarding nature-based play to help teachers increase knowledge, comfort, and proficiency in facilitating their NEOC.

Although one barrier identified was the lack of formal lesson plans for the NEOC, teachers developed strategies to incorporate the outdoor space into their existing plans. Sometimes the teachers moved the lessons outdoors when more space was needed. All the teachers referenced to several planned events that were partially held in the NEOC, such as Winter for the Birds, Fall Fun, Stone Soup Day, and Pioneer Days. The strategy was to incorporate the NEOC into their lessons without completely separating it into its own curriculum.

Regulations and rules. Most of the teachers agreed the best strategy to overcome regulations and rules barriers was for them to be knowledgeable of the state of Texas licensing requirements. These requirements were reviewed during staff meetings and discussed in a collaborative method when situations arose. It was also evident that the playground and specific area rules helped to reduce some of the barriers that caused concern, such as safety, injuries, risks, and concerns about housing animals. The ELC had a fenced area, on the perimeter of the NEOC, called The Meadow where there were ponds, fish, bridges, a variety of plants, and high grasses. The strategy to reduce risks was to only open The Meadow when there were parent volunteers present. "The Meadow specifically needs parent volunteers so we have enough eyes on everyone" (P. Hart, personal communication, February 26, 2015). Although the difficulty in enlisting parent volunteers was perceived as a barrier, the school was able to offer this unique experience to the children many times throughout the school year because of the efforts of one teacher developing a signup sheet for volunteers (See Appendix K).

Volunteers. The volunteers who contributed to the success of the NEOC program consisted of teachers, parents, and community members who had direct connections or were familiar with the value of the ELC within the community. These direct connections attracted volunteers who wanted to be a part of the unique nature-based area of the early learning center. The volunteers at the school were historically current and former families who had attended in the past. One participant had an insightful observation.

> The history of our school is that so many of us have a personal relationship with this campus too. We were parents before we were teachers here--a lot of us. I think there's that love and that flows through us and personally that's what drew me as a parent here--this yard and this space sold me immediately. So, I think most all of us have that same experience that that's why if anything we're all on board. It's a very important part. (M. Adams, personal communication, February 26, 2015)

One recognized productive strategy was to send invitations to families inviting them to volunteer or attend special events. Reminders were sent as the scheduled day came closer. Although it took time and not all teachers became involved, clean up days were organized to instill a sense of ownership of the NEOC with the families. Two strategies discussed but not yet implemented included requiring a specific amount of volunteer hours per year from families or assessing a NEOC fee when families registered.

Beyond family involvement the participants expressed their ways of thinking about community involvement in successfully facilitating the NEOC. The school in this study has had a 50 year tradition of community partnerships with the large university located across the street from their campus. This partnership was valued and utilized by

all participants interviewed. An example of this partnership was in Heidi's description of an event held annually. The school displays a bird museum, which consisted of 30 bird specimens loaned from the university. The university provides an expert on birds to speak with the children. This prompts the students to collect feathers and look for birds in the trees (H. Frost, personal communication, February 27, 2015). The university partnership also extends to the summer science camp (See Appendix K) when the university provides, free of charge, access to a huge salt water fish tank located on the university campus. Jamie expanded on this partnership when she shared the following:

> We've got a pretty good relationship with a lot of people at [university name] where we can say, 'Hey, we're doing a chemistry unit can you come and do a part of your chemistry road show?' One of the parents of a former student is in the chemistry department so he's like "Oh yeah, we can come do some stuff. (J. Smart, personal communication, February 27, 2015)

Because the university is in close proximity, one strategy available to the school was to invite student teachers to complete their practicum, which benefited both. In the past, the school also partnered with the local fire station, organic gardeners, businesses, and Boy Scout troops within the community.

Materials. When identifying barriers to facilitating a NEOC, materials surfaced to be the most often mentioned. However, the ELC has developed several strategies to be proactive in preventing or diminishing the frequency of those barriers. In order to replace consumable materials, donations and fundraisers from classes, families, and the community are used to raise money. Low cost items such as gutters, scarves, and hoses were purchased at discount stores rather than through expensive school supply

catalogues. Many items were recycled, reused, or grown in their own gardens such as the food for the bunny. Another strategy was to encourage the students to engage in activities that did not consume materials such as birdwatching or digging in the sand.

A "pick free" zone was advocated by one of the participants to decrease the amount of consumption of the natural materials on the NEOC. Amy said "I think that limiting some of their sensory exploration to--let's explore with our ears, let's explore with our eyes, but we don't need to explore it with our hands" (A. Moss, personal communication, February 27, 2015). Options, completely opposite to a "pick free" zone were provided to the students in the NEOC in the form of the many gardens available for planting and are considered "picking areas." The teachers needed funds for materials, including the gardens, for replacement or addition of materials to the NEOC. The administration was dedicated to budgeting money to the teachers to use for materials as well as a general NEOC budget for the school. This strategy of alleviating financial burdens on teachers to replace materials prevented barriers that may have occurred.

Maintenance strategies consisted of keeping the areas delineated so the children knew where materials belonged or where to return supplies (see Appendix G). These areas were well labeled so that there was school-wide consistency in maintenance requirements. Some of the teachers took responsibility for specific areas to maintain and replenish. For example, one teacher had a bubble table that she refreshed with clean solution, wands, and utensils. At her discretion she wheeled it out to the NEOC for all the classes to use, but she assumed all responsibility for that activity. Another strategy had to do with introducing a few things at a time to reduce material consumption and increase

student interest. Finally, some of the animals were moved inside the classrooms to help with maintenance as well as to keep them out of the inclement weather.

Weather. The most frequently mentioned strategy to combat the unpredictable and sometimes severe weather in Texas was the attitudes of the teachers to allow and encourage exploration. Getting messy was seen as a developmentally appropriate activity in the life of a child. The early learning center embraced the philosophy of children receiving natural consequences for their actions and was supported in a statement by Heidi, "Part of our style of teaching is natural, logical consequences and we don't mind mud and dirt. There is a fine line to it, between too muddy and just a bit muddy. I mean puddles can be joyful" (H. Frost, personal communication, February 27, 2015). All children were required to have a change of clothing at school. Rain boots of various sizes were provided for the children so they could stomp and play in the giant puddles. In agreement, another teacher expressed the benefits, which might otherwise be seen as barriers, to a muddy playground when she said "curiosity is piqued when children ask themselves 'What will happen if I splash this puddle or run the cart through the mud'? (W. Webb, personal communication, February 26, 2015). One indicator of support for the NEOC came when a parent told a teacher at pick up time that it must have been a fun day because her child was so messy.

On extremely cold days, the school provided a mitten box, filled with mittens of all sizes. The children sorted, matched, and used their fine motor skills to put on the mittens. On the extremely hot days, the school opened up the water areas for exploration and play. According to Jessie, who taught three year olds, the children were introduced to a thermometer marked at the temperature, which allowed the opening of the water play

(J. Sands, personal communication, February 27, 2015). Even though the children couldn't name the numbers, they could understand what a thermometer measured. In essence, these were potential barriers that were turned into positive learning experiences.

In addition, covered porches and patios provided a good strategy to continue the outdoor play on rainy days. According to Pam, the awnings provided protection from the rain while still allowing children to play outdoors and observe what the precipitation might bring or change to the outdoors (P. Cox, personal communication, February 26, 2015). Another teacher agreed with the beneficial strategy of dealing with weather when she stated "Every classroom has a back porch, it's more of an extension of their free time that's classroom time but it's outside on the back porch, not the playground" (H. Frost, personal communication, February 27, 2015). Many teachers were in agreement that using good strategies, when faced with inclement weather, would continue to provide unique opportunities to get close to nature. Wanda shared a comment about a time when the weather significantly changed the appearance of the NEOC when she said "They like seeing what's out there, and exploring, and noticing that maybe there are not as many things to see on the playground, maybe there aren't as many animals, the trees look different (W. Webb, personal communication, February 26, 2015).

Overall, several barriers and strategies to facilitating an effective NEOC were identified through observations, interviews, and document collection. Barriers included staff development, regulations and rules, volunteers, materials, and weather. However, for every area theme that held a barrier, the early learning center had considered a strategy to help overcome that barrier. The findings of the data collection and analysis are considered valid as explained in the subsequent section.

Validity

Validity determines whether the findings are accurate, and many terms, such as *trustworthiness, credibility, and authenticity* are used to define this concept in qualitative research (Creswell, 2009). Ensuring internal validity in a qualitative study is paramount in showing that the findings represent reality. Merriam (2009) noted that reality is always changing and, therefore, is relative to the purposes and circumstance of the current research. According to Lodico et al. (2010), both internal and external validity are often referred to as credibility in qualitative studies in that the researcher is accurately portraying how the participants "feel, think and do" (p. 273) to develop a deep picture of the participants and their setting. Keeping this in mind, several strategies were used in my data analysis to support credibility, including member checks, peer examination, clarifying research bias, and triangulation.

Member checks include ongoing dialogue with the informants regarding the true value of the data collected and the ruling out of possible misinterpretations from the researcher's perspective (Lodico et al., 2010; Merriam, 2009). During the interviews, I asked the participants to clarify any potentially ambiguous statements. Additionally, once the interviews had been transcribed verbatim, they were sent to each participant to review for accuracy and true representation.

It is important to enter into research with no bias or preconceived notion of what might result from the data collected. This is complicated because we all bring prior experience to the current experience. Also difficult is to enter a research situation void of assumptions. In my particular project study, I assumed that some teachers were experiencing potential barriers to facilitating a Nature Explore Outdoor Classroom

(NEOC) to its maximum potential. I could justify this from my experience in speaking with numerous administrators who had some difficulty making their ideas and plans for a NEOC come to fruition. However, I put this assumption aside in order to conduct my study. Another assumption made was that the staff at the selected site in my project study had the same passion for outdoor education as I do. This was probably not justified because I see some of those less than passionate feelings at my own school. Therefore, I utilized peer examination, also known as peer debriefing, to review my field notes for any indication of researcher bias. Peer examination involves enlisting a research-knowledgeable colleague to review the data collected, examine assumptions, identify biases, consider alternate ways to interpret data, and ask questions (Creswell, 2009). I have two colleagues who are university professors and who are familiar with bias in qualitative research studies. While protecting the participants' privacy, I shared my field notes with my colleagues in order to garner their identification of any confusions, assumptions, or biases present. None were found.

Many authors (Creswell, 2009; Lodico et al., 2010; Merriam, 2009) recommended triangulation as a good way of comparing and crosschecking data sources. Although Bogdan and Biklen (2007) considered the term *triangulation* in qualitative research often overused and imprecise, it is meant to convey the idea that multiple sources of data were collected to confirm findings. Despite the wording controversy, I used triangulation for supporting credibility in my study by using the multiple data sources of observation, interview, and document collection. Enhancing triangulation, I collected data through observations held at different times of the day, conducted interviews from people with differing perspectives, and collected documents from several sources.

Because case study research relies primarily on data collection based on observed actions and perceptions of the participants, there was the possibility of discrepant cases occurring. All participants were forthcoming in their interviews regarding barriers that prevented, and strategies that improved facilitation of student/teacher engagement with the natural outdoor environment designed to NEOC certification standards. Seven out of eight participants recognized barriers existed, however one participant only had positive things to say about the school and their NEOC. Considering a discrepant case such as this, I reminded myself to analyze the data from all the participants and report the codes, categories, and themes, which were repeated through the data analysis.

According to Merriam (2009), the observation and/or interview of one participant might fail to support, and even contradict, the general understanding and findings of the research. Koch et al. (2013) even suggested the researcher perform a negative case analysis where there is a deliberate search of the data for contradictory findings. Ultimately, in my research, I did find a contradiction that presented itself within the data. One teacher reported no barriers to facilitating the existing NEOC, whereas all other participants found one or more. I critically reflected, analyzed, considered the discrepant case data, and incorporated the findings into the research results. Based on the findings, a 3-day, 24 hour professional development program was designed and implemented to share the identified barriers to facilitating an existing certified NEOC with teachers who currently teach in a similar school setting. Section 3, The Project, includes the rationale, review of the literature, project description, evaluation plan, and implications for social change.

Conclusion

In conclusion, the qualitative case study was conducted in response to nature-based programs, specifically NEOCs that were developed but not being facilitated to their maximum potential. The study researched perceived barriers that teachers in one central Texas school encountered when attempting to facilitate their certified NEOC. Furthermore, those teachers shared strategies that were effective in overcoming the identified barriers. Barriers and strategies addressed the areas of staff development, regulations and rules, volunteers, materials, and weather.

Despite thorough consideration regarding choice of research methodology, data collection, and data analysis to produce a credible project study, I recognize the results of case study research are difficult to generalize to a larger population. However, by exploring potential barriers to facilitating and maintaining a NEOC, I propose to develop suggestions and solutions to improve programming, both at the selected school and at other similar schools in the state. Connecting local schools with other facilities that experience nature-based programming barriers may encourage a collaborative effort toward successful NEOCs and overall improvement in early childhood education.

Section 3: The Project

Introduction

The findings of this research study identified barriers to facilitating a Nature Explore Outdoor Classroom (NEOC). The teachers in the study particularly recognized teacher involvement, rules and regulations, volunteers, materials, and weather as the most significant barriers they encountered. Furthermore, the teachers presented and discussed strategies to overcome some of these identified barriers. In response to these findings and insights of the participants in this research study, I developed a 3-day professional development program (PDP) for the certified NEOC early learning center for which I am the director. I chose my early learning center for the PDP because some of the barriers to facilitating a NEOC that were identified through my research also exist there. With the interactive model of program planning (Caffarella, 2010) as the underlying foundation, the program also includes aspects of active learning, experiential learning, mindfulness, and learning communities. The interactive model of program planning and practices of adult learning mentioned above are explained and supported in future paragraphs.

Description and Goals

Planning educational and training programs for adults takes thought and coordination of ideas in order to present an effective learning environment. Program planning models are extremely useful for guidance to ensure successful outcomes. The interactive program planning model focuses on "the needs and ideas of learners, organizations, and/or communities as central to the program planning process" (Caffarella, 2010, p. 21). The model also has no real beginning or end and is not linear in

nature. The advantage of an interactive model is that several components and decision points can be addressed simultaneously.

The 3-day PDP I designed (see Appendix A) includes PowerPoint presentations that accompany lecture-style presentations. Subsequent to the presentations, participants engage in individual, small group, and/or large group reflections and discussions. Included in the program are several activities that implement active/experiential learning opportunities for the participants. This approach focuses on the idea that learning from experiences connects what adults have already learned to the current learning taking place, and possibly to ways in which to apply the learning to future experiences (Merriam et al., 2007). Additionally, the PDP includes light breakfast, lunch, and snacks each day. Providing a comfortable climate, which includes access to food and drinks, creates a positive learning environment for participants (Vella, 2008).

The goals of this PDP are for participants to develop awareness of the requirements for a certified NEOC, to reflect on their own attitudes and experiences regarding nature-based education, to engage in active/experiential learning activities, to attend to *mindfulness* in the NEOC (Frauman, 2010), to develop learning communities that will continue beyond the 3-day event, and to participate in planning and executing a short NEOC lesson involving students and families. The following specific learner outcomes are developed for the PDP:

- Understand the 10 guiding principles for certification of a NEOC, including the following.
    1. Divide the space into clearly delineated areas for different kinds of activities.

2. Include a complete mix of activity areas.
3. Give areas simple names.
4. Identify each area with a sign or other visual cues.
5. Be sure every area is visible at all times.
6. Use a variety of natural materials, including trees and other live plants.
7. Choose elements for durability and low maintenance.
8. Maximize beauty and visual clarity in the overall design.
9. Personalize the design with regional materials, and ideas from children and staff.
10. Be sure the space meets all regulatory standards for your region.

- Use critical reflection to discover current attitudes regarding nature-based education and how past experiences in nature might contribute to that attitude.
- Participate in experiential learning activities during hands-on opportunities provided in the NEOC, paying attention to encountered barriers and strategies.
- Experience mindfulness, actively processing information within one's surrounding context, in the NEOC.
- Develop and contribute to a learning community with colleagues based on interests in the NEOC.
- Plan and implement an activity/lesson involving students and their families in the NEOC.

As a result of achieving these learner outcomes, the participants in the PDP will become more aware of their expectations in the NEOC, attitudes regarding the NEOC, and ability to plan, engage, and facilitate an effective NEOC. Change is the ultimate goal as related

to acquiring new knowledge and building skills or examining personal beliefs and values (Caffarella, 2010). The change can be individual, organizational, community, or societal.

Rationale

This PDP was developed as a result of the problem stated in Section 1 and the results shared in Section 2. The problem was that despite a well-designed national program serving as a model, schools at local levels are facing challenges in a variety of outdoor settings when attempting to facilitate an environment where children can connect and thrive in the joys of the natural world (Jacobi-Vessels, 2013). Results yielded several perceived barriers to and strategies for facilitating an effective NEOC as identified through observation, interviews, and document collection. Barriers included teacher involvement, regulations and rules, volunteers, materials, and weather.

I chose to develop a PDP as the most appropriate and practical method to disseminate the findings from the research in order to address the above-stated problem. PDPs, as avenues for teacher improvement or change, have been widely acknowledged as important in improving teaching practices (van den Bergh, Ros, & Beijaard, 2015). Additionally, Opfer and Pedder (2010) found a number of studies that showed that teachers' knowledge improves and attitudes and beliefs change after participating in an effective PDP. Schostak et al. (2010) reported that PDPs are effective when professionals are able to determine their own learning and fit the "how" and "why" into their own practice by determining their own learning needs. During the PDP, participants will determine their own barriers and strategies as related to the ones identified in the findings of this study. The problem of identifying and overcoming challenges in a NEOC will be

addressed during the PDP by using lecture, visual aids, group discussions, reflection, experiential learning, and evaluation.

As a result of the data analysis, it was discovered that seven out of eight participants in the study shared the desire and perceived the necessity for more staff development in order to better facilitate their NEOC. Furthermore, by developing the program around a constructivist framework, with components of reflection and active/experiential learning, learners are better able to make meaning of their experience. This constructivist framework works well for both students and teachers. Klein and Riordan (2011) stated that "for teachers to actively engage students, teachers must be actively engaged in ongoing professional development that mirrors such experiences" (p. 36).

The proposed PDP, using the interactive model of program planning, works well in my type of workplace learning environment, as demonstrated by positive teaching changes, because the needs of the learner are given central importance. In preparing for a successful learning environment for both student and instructor, I am specific about the purpose of the learning tasks and how those tasks align with outcome and learner objectives. According to Galbraith (2004), "developing learning activities contains three aspects: selecting which types of learning activities to use, developing new learning activities, and sequencing learning activities" (p. 107). Planned and well-defined learning activities address instructional methods, learning accommodations, resources, and materials. Additionally, the learning tasks include inductive work, input, implementation, and integration with learner-centered mindful planning (Vella, 2008). Furthermore, in

developing this PDP, consideration was given for the target population, size of the group, and time frame for completion.

Review of the Literature

Professional Development Programming

Teachers perceive most professional development activities to be ineffective or irrelevant (van den Bergh et al., 2015). Leaders in the constructivist theory of learning (Bruner, 1986; Dewey, 1910; Knowles et al., 2012; Piaget, 1966; Vygotsky, 1978) posited that learning comes when people make sense of their environment and is dependent on their past and current knowledge (Merriam et al., 2007). Professional development programs based on constructivist theory reflect an understanding that learning is not a passive process of acquired learning but rather a constructed process of building knowledge through active learning, experiences, interpretation, and reflection (Zehetmeier, Andreitz, Erlacher, & Rauch, 2015). Additionally, Jonassen (1999) recognized that a characteristic strength of a constructivist PDP involves participants acknowledging multiple representations of the complexity of the real world. Therefore, PDP planners can purposefully consider and execute elements of constructivist theory in order to stimulate change in teachers' outdoor classroom practices.

Recently, science education reform researchers have stressed the need for students to understand the nature of science, including environmental science (American Association for the Advancement of Science, 1993; National Research Council, 2012). However, in order for students to gain knowledge of science, it is essential that teachers know how to effectively teach in a natural setting. Unfortunately, on too many occasions teachers have fallen into complacency within outdoor activities, regarding them as a

break from the classroom and simply time for students to release some energy. According to Bortolotti, Crudeli, and Ritscher (2014), teachers' tradition of standing around the playground chatting with one another should be replaced with paying attention to children's curiosity in their natural surroundings and encouraging them to explore the environment around them.

In a 2012 study by Ernst and Tornabene on preservice early childhood educators' perceptions of outdoor settings as learning environments, teachers overwhelmingly agreed with the importance of experiences in nature for children's cognitive, socio-emotional, and physical development. However, those same educators did not always associate nature experiences with outcomes such as developing questioning and investigation skills. Bortolotti et al. (2014) reminded readers that education should be an ongoing activity and outdoor time should not be seen as a time of disengagement with children, but rather as an opportunity to let learning flourish.

Ernst and Tornabene (2012) suggested the need for in-service training focusing on environmental education for preschool children. This presents a challenge and motivation to make the outdoor education PDP more meaningful for participants. During the initial stages of a PDP, it is essential that teachers are part of the planning process (Caffarella, 2010). Burke (2013) posited that to instigate meaningful change, teachers must want to improve their practice and need to be involved in choosing what they learn. First, it is important to know the participants' level of experience or activity with the outdoors, reasons for participating in the PDP, cultural background, and prior knowledge about the NEOC and environmental education (Frauman, 2010). Then, educators need to develop personal awareness and appreciation for their place in the natural environment and

develop enthusiasm for sharing that world with young children. Ultimately, the strongest predictors of teachers' intention to use natural outdoor settings are their perceptions of how difficult it is to interact with outdoor settings, how much they personally relate to nature, and how important they think nature is to a child's health and well-being (Ernst & Tornabene, 2012).

Understanding some of the characteristics of unsuccessful PDPs in changing teachers' attitudes and perceptions about outdoor education, I developed my PDP with a focus on leadership strengths and successful models. Superior PDPs are planned and led by people who exhibit qualities of proactive leadership, strategic empowerment, collegiality, and voracious learning themselves (Burke, 2013). Shooter, Paisley, and Sibthorp (2009) agreed that leader attributes important for professional development in outdoor education include ability (technical and interpersonal), benevolence, and integrity. Researchers in the aforementioned 2009 study indicated that through conscious display of these attributes, leaders could positively influence a person's trust in the natural environment. With PDP leadership committed to creating positive teacher outcomes and changes in teaching style within a NEOC, effective PDPs can make a difference.

High-quality PDPs positively impact classroom practices and therefore impact child outcomes (Piasta, Logan, Pelatti, Capps, & Petrill, 2015). As reported by Donnelly and Argyle (2011), PDPs have been successful in improving teachers' views of natural science and ultimately creating a positive impact on classroom instruction and student learning. In this study, researchers found that teachers used practices that encouraged student-teacher interactions rather than focusing on rote memory and an abundance of in-

class seatwork. Active learning and experience are cornerstones of the development of constructivist teachers (Klein & Riordan, 2011). Therefore, research supports integrating constructivist theory into the PDP using active learning, experiential learning, mindfulness, reflection, and learning communities to make meaning out of the NEOC for successful outcomes.

Active Learning

The principles of active learning draw on constructivist learning theory, which indicates that learners construct their own knowledge through interaction with the authentic environment from which they learn (van den Bergh et al., 2015). Dewey, the grandfather of active learning, believed that the ideal state of learning is when intrinsic interest meshes with a learner's goals (Rathunde, 2010). Furthermore, Dewey (1910/1991) posited that active learning is engagement with immediate experiences that allows students to enjoy learning in the moment, attach it to all of their many past experiences, and head in the direction of a goal. Students appreciate that learning can be rewarding, fun, playful, enjoyable, and serious, and that it can also lead to lifelong learning. Moreover, active learning is described as learning by doing, which epitomizes the idea of active learning in education (Quay & Seaman, 2013).

It has long been recognized that understanding and excitement about natural science come from self-directed, voluntary exploration (Ballone-Duran et al., 2009). Through a carefully planned PDP, that excitement can extend to learning spaces, which extend beyond the classroom to natural environments. Quay and Seaman (2013) considered outdoor learning an action-oriented process based on a discovery approach that appeals to all senses for observation and perception. Therefore, a PDP pertinent to

outdoor education should include a component that addresses the relationship between sensory experience and knowledge building.

Burke (2013) stated that "high-quality professional development must be centered on student learning, allow for collaboration among staff for an extended period of time, and promote active learning for teachers in their schools and classrooms" (p. 36). In a 2009 study, Duran et al. showed that teacher beliefs regarding active learning were positively and significantly impacted by a unique professional development program that included hands-on/minds-on investigations. Not surprisingly, feeling actively involved in an activity resulted in participants using more complex reasoning strategies, especially when the outcome was believed to be personally relevant (Frauman, 2010). When professional learning and action happen together, according to Zehetmeier et al. (2015), knowledge and skill go together and result in more meaningful practical development. Additionally, participants increased overall comfort and instructional skills in a natural environment when professional development for early childhood educators included hands-on experiences and reflection (Zehetmeier et al., 2015).

Experiential Learning

Kolb (1984), a modern theorist of experiential learning, advocated a holistic perspective on learning that combines experience, perception, cognition, and behavior. Experiential learning in education goes one step beyond active learning, in that "learning occurs only if we engage with the experience in a meaningful way by reflecting on the situations we are involved in because only such an interaction with the external environment will result in learning" (Dobos, 2014, p. 5086). According to Klein and Riordan (2011), every experience is unique to each individual, and a learner constructs a

personal representation of knowledge that may change depending upon experiences. In support of experiential learning, Dallat (2009) noted that some of the best learning opportunities come from actual experiences in which people take responsibility for themselves and the consequences are real and meaningful.

Outdoor learning experiences allow students to engage in their world both from perspectives of nature and culture in meaningful and authentic ways (Ellison, 2013). The outdoors is intimately tied to place, space, activity, process, and ways of being in a more complex way than previously thought (Zink & Burrows, 2008). In fact, students learned natural science best when abstract ideas were associated with a student's prior knowledge and concrete experiences within familiar contexts, further developed, and then applied to related concepts in the future (Eick, 2012). Furthermore, learning in an outdoor environment holds considerable potential for students to learn more deeply about themselves where they receive direct, meaningful, and unbiased feedback (Ernst & Tornabene 2012).

Recently, proponents of experiential learning have added the importance of place-based learning as part of the experiential learning process (Mannion, Fenwick, & Lynch, 2013; Wang, Kim, Lee, & Kim, 2014; Zehetmeier et al., 2015; Zink & Burrows, 2008). Mannion et al. (2013) described experiential place-based learning as a "place-responsive pedagogy that involves the explicit efforts to teach by means of an environment with the aim of understanding and improving human-environment relations" (p.792). Place-based education should also be participatory, experiential, and reciprocal. It must become more than merely a setting in which learning occurs, but rather a tool or a text from which knowledge is drawn and constructed (Ellison, 2013). According to Zehetmeier et al.

(2015), innovations spread faster when they are accessible, when they take place where they should become effective, are personally shared with others, are owned by the person implementing them, and are started in learning environments. Interestingly, Beames (2012) suggested using metaphors as a part of experiential learning to help participants make greater sense of their experiences by attaching concrete images to abstract ideas that are difficult to explain. This process is more powerful when the participants generate their own metaphors, for example a third grade class could choose to be like a pack of wolves exploring the NEOC.

By implementing school-based professional development, which is experiential in nature, innovative instruction such as differentiation, constructivist theory, discovery learning, inquiry-based learning, simulations, critical thinking, reflection, problem solving, technology-based learning, and performance-based assessment through demonstration, observation, collaboration, fieldwork can be integrated into a teacher's indoor or outdoor classroom curriculum (Burke, 2013). Experiential professional development is immersing teachers in a unique experience, creating curiosity, or introducing challenging tasks that require skill development, providing opportunities to demonstrate skill progress and/or mastery and applying that learning to other situations (Klein & Riordan, 2011). In a study specifically using the interconnected model of teacher professional growth, researchers Wang et al. (2014) found that professional development was much more effective when direct connections to teachers' everyday teaching were implemented. A primary goal and typical outcome of experiential learning is the transfer of knowledge. Zink and Burrows (2008) noted that experiential outdoor

education enhances a student's learning and experience, which crosses over to a multiple of dimensions and curriculum.

Klein and Riordan (2011) reported that most professional developments have been plagued by passive and irrelevant instructional techniques, including rote memory, compartmentalized knowledge, and surface understanding of content. However, when an experiential approach is used to conduct PDPs, improvement in practice occurs through demonstration, observation, collaboration, fieldwork, and reflection (Burke, 2013). Moreover, an effective leader of the PDP acts as a guide or facilitator, helping participants access their innate desire to connect with the natural world, develop ways to do so, and reflect on a personal level. Therefore, experiential learning consists not only of a single direct sensory exposure, but rather as a part of a cycle where reflection plays an outstanding role (Bortolotti et al., 2014).

Reflection and Mindfulness

Roessger (2015) pointed out that the conventional view of adult learning theorists, Kolb, Mezirow, and Schön, advocates that reflection should follow experiential learning. Specifically, Mezirow (2003) posited that communicative learning relies on reflective discourse to move from concrete to abstract concepts. Brookfield (1987) suggested learners reflect back to their attitudes, rationalizations, and habitual ways of thinking and acting. This allows individuals to view their own motivations, actions, and justifications. We learn differently when we learn to perform rather than learn to understand. Further, crucial to experiential professional development is reflection, deconstructing the experience in order to understand what actually happened prior to transferring and applying the new knowledge in the outdoor classroom (Klein & Riordan, 2011).

Reflection, as shared by Zehetmeier et al. (2015), represents a key strategy for gaining new knowledge (both external and internal), which allows the further development of one's own practice. In developing one's practice, Dobos (2014) asserted that learners who reflect tend to collect information before reaching a conclusion. Moreover, "through direct experiences that are interesting and goal-relevant, learners can internalize and better understand their own agency in the learning process" (Sibthorp et al., 2015, p. 26). Schostak et al. (2010) indicated that a participant in a PDP should possess the capacity for insight and reflection which often means going beyond what is quantitative but rather qualitative, such as gathering the essence of the entire learning experience.

In light of the importance of reflection in experiential learning, several introspective opportunities are presented to the participants in the planned PDP. As noted by Cherrington and Thornton (2015), "The best evidence of synthesis of effective professional development, linked to enhanced pedagogy and children's learning, emphasizes the importance of participants actively investigating and reflecting on their practices" (p. 310). Also, in a 2015 study, Pehmer, Groschner, and Seidel reported that when teacher professional development involved dialogue and reflection their students' situational learning processes and cognitive elaboration strategies improved. Furthermore, a deepened connection with self and creation and an increase in global awareness of nature, people, and the created world developed when reflection and discourse are part of a PDP (Ritchie, Brinkman, Wabano, & Young, 2011). Moreover, reflection encourages teachers to think deeply about their ideas, question themselves, and

create a culture of respect for others' ownership of their own knowledge (Wang et al., 2014).

According to Ritchie et al. (2011), reflection, specific to a PDP focusing on connecting with nature, is a broad concept that includes the interconnected experiences and introspection that come together to form a pathway towards resilience and well-being. In the natural environment, reflection is crucial because feedback is immediate and the consequences more meaningful than in the classroom (Zink & Burrows, 2008). Additionally, Eick (2012) believed first-hand experiences of nature provided a foundation upon which environmental principles are better learned. Lived experiences that are goal relevant and interesting to the learner foster a propensity for lifelong learning as well as self- regulated learning, which controls attention to enhance motivation and quality of learning (Rathunde, 2010).

In order to practice effective reflection, one must be cognizant of the surroundings and experiences occurring. According to Frauman (2010), mindfulness is "expressed by actively processing information within one's surrounding context, and it is more likely when a setting or situation: (a) is varied, interactive, and involving, (b) facilitates perception of control, (c) appears relevant to one's interests, and (d) is perceived as unique, new, or different" (p. 225). Mindfulness is simultaneously paying attention to a person's surrounding environment while interpreting it (Frauman, 2010). During experiential and reflective practices in the PDP, a person's mindfulness helps achieve professional educational goals and objectives, facilitates learning, and leads to overall satisfaction of training.

A holistic and integrated approach supports several dimensions of teachers' professional development through competence in goal-directed work (active and experiential learning), self-criticism and introspection (reflection), and communicative and cooperative work (learning communities) (Zehetmeier et al., 2015). Brookfield (1987) has argued that critical reflection must include an examination of the social context. It is through the development of learning communities, within and beyond a PDP that continues to make learning meaningful.

Learning Communities

Learning communities are emerging in school-based professional development as a means of continuous improvement that is both action-oriented and results-oriented. Collaborative in nature, learning communities improve practice and student outcomes where teachers learn together and form a powerful sense of community and support (Cherrington & Thornton, 2015). Furthermore, Cherrington and Thornton (2015) posited that learning communities are made up of professional educators working together with an intentional purpose to create and sustain a culture of learning for students and adults.

According to van den Bergh et al. (2015), several factors have been identified that resulted in the increase in effectiveness of professional development. Included among those are integrating new knowledge into classroom practices, engaging in meaningful discussion and learning together with colleagues. In fact, teachers believe that experiential professional development promotes a collaborative learning community because it incorporates purposeful meetings, peer observations, and feedback (Burke, 2013). Most certainly, effective professional development has moved away from the one-shot workshops and trainings to sustained professional development and is the key to

teachers' growth (Wang et al., 2014). In a study by Mannion et al. (2013), a learning community made up of teachers was taught how to effectively facilitate an outdoor classroom by getting to know the area, focusing on one educational activity, adapting to an outdoor setting, recording how it went, generating new knowledge and practices, and collaborating, reflecting, interpreting, and considering their findings. Novice or hesitant teachers especially benefited from the collaborative and supportive process.

Burke (2013) concluded that teachers preferred professional development that possessed reform-orientation activities such as teacher study groups to traditional workshops or courses. Moreover, Wang et al. (2014) emphasized engaging teachers in interactions that develop communities of learners who build knowledge together to create a group that controls and monitors its own learning. When communication is genuine, relationships are formed in an environment of mutual respect and trust (Dallat, 2009).

Summary

By implementing the aforementioned methods of professional development, teachers move from traditional intensive off-site pedagogical training to on-site, interactive, experiential, reflective, communicative, and supportive training that most likely lead to meaningful changes in the classroom. Moreover, Bortolotti et al. (2014) found that teachers positively responded to training in an outdoor learning environment and that it significantly improved the quality of the relationships with self, children, families and natural settings. Furthermore, results of a study, which included 65 preschool educators, showed professional development learning opportunities in the area of natural science were positively associated with children's learning (Piasta et al., 2015).

Numerous databases, including ProQuest Database, EBSCO, Educational Resource Information Center, Google Scholar, and Walden Dissertations were searched for information related to my topic of professional development. Using these multiple sources, implementing the technique of Boolean database searches in the Walden library, saturation of information was achieved when information started to repeat itself. Furthermore, I scoured the reference list of articles I read to find similar or related articles to research. I cited current references, within the past five years, whenever possible. However, some older references, classical works, were used for to give support for theoretic foundations. The overall consensus from over 40 books and articles supports the idea that effective professional development involves practice-oriented experiences, opportunities for reflection, and activities situated in the classroom and school context, in addition to sustained activities such as learning communities (Wang et al., 2014). In other words, an effective outdoor learning PDP is one where awareness and involvement occur in the present moment, where actions and consequences enhance new thinking, and where appreciation for multiple perspectives increases while interpreting the outdoor environment.

Implementation

When developed using a good plan, an effective PDP introduces the potential for a physical, social, and/or academic change; uses multi-sensory techniques; employs novelty, conflict, or surprise as attention getters; uses questions to probe; facilitates participant control; and makes personal connections (Frauman, 2010). The interactive model of program planning (Caffarella, 2010) serves as the base for the PDP developed for this project study. Additionally, the interactive model of program planning focuses on

learner change, recognizes the non-sequential nature of the planning process, discerns the importance of context and negotiation, attends to last-minute changes, honors and takes into account diversity and cultural differences, accepts that program planners work in different ways, and understands that program planners are learners. This planning model helps to set the stage for a successful PDP by describing what needs to be done and providing specific practical suggestions to maximize participant involvement and change.

The PDP begins with an assembled team of three educators, the leader plus two teachers who represent the participants. The development team clearly defines the goals and objectives for the PDP. Additionally, plans include where the learning is to be applied and what constitutes successful transfer of learning. Because the participants will be the executers of the change, it is imperative that their voices are heard when planning. Based on those goals, a 3-day schedule is developed that includes aspects of knowledge acquisition, experiential learning, reflection, learning communities, and transfer of knowledge (see Appendix A).

The first day commences with a light breakfast and welcomes participants into a comfortable and inviting environment in order to create a positive climate for learning from the moment the participants arrive. The 24 participants assemble at four tables of six participants each. The participants are familiar with each other as staff members at the same preschool/kindergarten. To begin the formal portion of the PDP, the presenter distributes handouts outlining the daily schedules and objectives. Participants view a PowerPoint presentation (see Appendix A) to support information in the handouts as well as the subsequent lecture portions of the presentation. After a brief break, the history of

outdoor play, research of the benefits of environmental education, and current nature-based educational practices are shared with participants.

The first activity of the PDP involves the participants reflecting on their own experiences and attachment to nature. Subsequent to reflection, participants share their thoughts with their tablemates. Keeping the participants' comfort in mind, the workshop organizers provide lunch in the existing NEOC. After reconvening to an indoor classroom, the presenter provides a detailed description regarding the requirements and expectations for a certified NEOC. Many of the participants are new since the original certification process took place in 2009 and therefore, were not actively involved in that process. After another short break and light snack, participants engage in experiential learning that is targeted in the second activity, takes place in the NEOC, and focuses on mindfulness of the surrounding environment. Participants engage in activities including a/an (a) *Scavenger Hunt* looking for details that are often overlooked in the NEOC, (b) *Upside-Down Adventure* seeing the NEOC from a different and unusual perspective, and (c) *Colors in Our NEOC* (see Appendix A) searching for subtle differences in the NEOC using paint chips from a local hardware store.

On the second day of the PDP, participants are again welcomed with a light breakfast and time for comradery with colleagues. Next, based on findings from the research in Section 2, the presenter discusses barriers to facilitating a NEOC. After each identified barrier, participants have time to reflect on their own experiences with those potential barriers within their small table groups. At the end of the reflection time, one spokesperson from each table shares some thoughts with the whole group. Reminded of the benefits of experiential learning for transfer of skills, participants engage in the third

activity that takes them back into the NEOC for *What Do I Do with Mud*? Inclement weather creating mud is a barrier identified in the research study; therefore, participants are asked to brainstorm ideas to overcome this barrier in the NEOC. Lunch is provided in the NEOC where, hopefully, participants are now feeling more comfortable, observant, and engaged. After lunch, the presenter suggests strategies to overcome the barriers identified during the morning session, and further ideas for strategies are brainstormed by the participants during small group reflections. A specific barrier identified in Section 2 was the consumption of materials on the NEOC. As a strategy to overcome that barrier, participants are given materials to actively create a *No Pick Zone* in the NEOC during the fourth activity in the PDP.

On the third day, breakfast and a welcoming environment once again greet the participants. The morning session involves discussing the importance of family and community involvement to overcome many barriers in the NEOC. Furthermore, suggestions and ideas for integrating existing curriculum into the NEOC are highlighted. This gives participants practical ways to transfer their knowledge from the PDP to the NEOC and classrooms. Before lunch, participants know that they will be developing a lesson plan to be executed later that afternoon. Therefore, it is expected that some discussion and reflection will occur over the lunch break. Activity 5, *Developing a NEOC Lesson*, requires the participants to develop a 30-minute lesson (one/table) for a family that will come to the NEOC that afternoon and be assigned to them. Participants are given time to set up their lessons before families arrive at the NEOC. Once families arrive, participants execute Activity 6, *Sharing Our NEOC*, culminating the 3-day PDP.

When the family activity ends, participants conclude the workshop by completing an evaluation (See Appendix A) of the PDP for its meaningfulness and effectiveness.

Potential Resources and Existing Supports

For the designed PDP, a potential resource that must be in place is administrative support for the topic and training. Not surprisingly, Ellison (2013) posited that educators wishing to incorporate experiential outdoor learning should have the support of a school or district wide pedagogy. The administration has demonstrated support of pedagogy of nature-based learning by developing a NEOC based on recommendations and principles set in place by The Arbor Society and Dimensions Educational Research. Initial certification of the NEOC took place in 2009 and the administration has supported maintenance and recertification of the space on a continual basis. Additionally, funding for the PDP is available through budgets approved by the administration.

Teachers who are involved and interested in using the NEOC as a unique and special part of their curriculum are a big support to educating and involving other teachers who might not understand the value it adds to the school. The teachers who volunteer to be part of the planning team support the PDP by offering a perspective from a learner standpoint. Additionally, teachers with an affinity for food preparation or technology can be a great resource for the setup of meals and AV equipment.

With over 250 families at the school, many who chose it because of the NEOC, there should not be a challenge in recruiting four families to participate in the culminating activity of the PDP where teachers actively implement their designed lesson plan specific at the NEOC. Families have shown support in the past by donating materials, helping on cleanup days, and sponsoring large areas by donating funds.

Community resources and support exist in business contributions to develop areas of the NEOC. A local pediatric dentist contributes a significant amount of money on a yearly basis to add something new to the NEOC. Several local universities send their student teachers to the school to observe or conduct student teaching. These budding educators bring current knowledge and practice to our school environment and are a welcome resource. Past community support has included garden clubs, rotary clubs, alumni, and local businesses.

On a larger level there are resources and support available through the before-mentioned organization that certifies NEOCs in the United States and Canada. They provide design consultants, staff developments, publications, and a website with numerous resources. Certified NEOC schools are given their own page on a specifically designed website, which allows access to the latest news and research on children and nature, and encourages sharing of ideas.

Potential Barriers

Barriers that may exist in promoting this PDP pertain to participant openness and motivation, time, funding, weather, technology, unexpected occurrences or changes, and post-PDP commitment to transfer of learning. In order to create an effective PDP, participants must possess an openness to learning, implement focused attention to the learning environment, and be open to thoughts about different contexts, perspectives, and new ways to behave in the program and setting (Frauman, 2010). Ernst and Tornabene (2012) recognized that some teachers may not have had early nature experiences, lack comfort in nature, and lack perceived competence teaching environmental education. Therefore, early in the PDP there is a time for reflection to gain an appreciation as to

where participants stand in their experience, comfort, knowledge of nature, and specifically the NEOC.

Moreover, time could be a potential barrier for the teachers who participate in the PDP. Even though teachers in the state of Texas are required to have 24 hours of continuing education per year, the dates and times might not be convenient for all participants to attend all of the 24 hour PDP. Conflicting schedules, children's activities, and illnesses often contribute to less than perfect attendance. Time constraints could also impact the further development and continuity of learning communities, which begin as part of the PDP.

Despite a set planning budget, there might be fluctuations in the cost of items or unanticipated costs that occur. A contingency budget should be put in place just in case it is needed. A realistic potential barrier that can be anticipated but not avoided is the weather. If, on one or more days of the PDP, the weather is too rainy then the planned activities could not take place in the NEOC. This would greatly impact the experiential learning portion of the PDP. As a planner, I must consider how that could be handled in the event of inclement weather.

Technology is always a considered potential barrier despite good planning. Because part of the PDP uses using PowerPoint presentations, a computer and large television screen will be used. I must check connections and output prior to the start of the PDP but also anticipate the small chance of a power outage, lost files, no audio, or no video. Last minute changes and unexpected events should be considered even though the hope is they will never happen. For this PDP some last minute changes might include an unknown allergy to the food items provided, participants who refuse to contribute to

group reflections or activities, or families who fail to show up for the culminating activity.

Lastly, because some teachers recognize a higher level of responsibility to work out their own solutions to problems in a natural setting (Zink & Burrows, 2008), participants may not transfer knowledge and skills beyond the PDP. Sometimes it is easier to revert to pedagogy that is comfortable and familiar rather than add new teaching ideas to one's teaching repertoire.

Potential solutions to some of the aforementioned potential barriers include making connections of the presented subject matter of the PDP to participants' individual needs, which will likely increase openness and motivation. By publishing the dates and times of the PDP well in advance, participants should be able to solve scheduling conflicts in order to attend the full 3-day workshop. Additionally, having additional funds in the budget for unexpected expenses would solve potential financial shortcomings. Any monies left over could be spent on future improvements in the NEOC. Potential technology barriers could be avoided by conducting a dry run of the presentation early enough to resolve any issues that might arise. Furthermore, flexibility on the part of both presenter and participants to accommodate last minute changes and unexpected events is paramount in creating a positive and supportive PDP environment. Finally, continued support and programming to help participants transfer new skills into the NEOC should available after the conclusion of the 3-day PDP.

Proposal for Implementation and Timetable

Implementation for this project is developed for a small preschool/kindergarten in North Texas that has an existing certified NEOC for which I am the director. The PDP

will involve 3 planners, including myself, and 24 staff members. The PDP will satisfy most of the state requirements for annual continuing education credit and have a direct influence on the facilitation of the NEOC. Over the course of three days prior to the beginning of a new school year, teachers will be expected to attend the PDP. Each day will be eight hours long and consist of breakfast, lunch, breaks, lecture, PowerPoint presentations, activities, reflection, learning communities, and parent involvement. The PDP will have a variety of presentations in order to meet different learning styles of participants. A projected time frame for implementation of the PDP is August of 2016.

Roles and Responsibilities of Participants

My role is that of the leader of the planning team for the PDP that identifies the participants' previous knowledge regarding NEOCs and prioritizes needs. Identifying goals and creating learner outcomes are also the leader's responsibility. With guidance from me, the planning team prepares the presentations and activities, making sure that all materials necessary are ready for the participants when they come to the PDP. Furthermore, the leader should develop an evaluation plan that addresses the program's successes and failures. Ultimately, it is the role of the leader to encourage continuous growth and development of the participants. The primary roles of the participants are to come to the PDP with an open mind, be ready to learn new ideas, share thought through reflection, and consider how to transfer the new knowledge to the existing NEOC.

Project Evaluation

Information from participants regarding attainment of specified learning outcomes at the conclusion of a professional development program (PDP) serves as evidence of successful student learning. Supported by the literature (Burke, 2013; Dobos, 2014; Ernst

& Tornabene, 2012; Spalding, 2008; Suski, 2009), researchers have suggested that when conducting a PDP desired outcomes are structured for maximum achievements, growth, and transfer of knowledge. Learning and effectiveness can only occur when learning is transferred from the instructional environment to a real-life or authentic situation. Therefore, an evaluation of the program effectiveness must be conducted to ensure that needs and objectives are met.

Type of Evaluation

An objective-based approach to evaluate the PDP will be used to identify if the PDP was effective in helping participants reach the anticipated learner outcomes stated and discussed during the initial day of the PDP. The learner outcomes are helpful in shaping the evaluation of the PDP. The designed evaluation will be twofold, both formative and summative. Formative evaluations occur during student learning to address issues as the PDP is happening (Spaulding, 2008). Summative evaluations are obtained at the conclusion of a program and are typically presented in a final report (Spaulding, 2008).

Evaluation done to improve or change the direction or outcome of a program while it is in progress is called a formative evaluation (Cafarella, 2010). Formative evaluation statements will be presented to the participants each day at the conclusion of each activity. For example, at the end of day one's first activity regarding experience and connection to nature, participants will be asked to rate how this PDP activity affected their understanding of their own perspective of nature and its connection to the NEOC. This formative evaluation of the PDP aligns with the first learner outcome; participants will be able to reflect and share their own experiences and attachment to nature, and

identify how this might translate to effective or ineffective teaching in a NEOC. Therefore, a teacher's improvement in design, delivery, and management of facilitating a NEOC can improve during the course of the PDP. Research conducted by Bognar and Bungic (2014) has shown that teachers should actively participate in evaluation and that their comments and suggestions stimulate improvement in all stages of the teaching process.

A formal, written summative evaluation will be administered at the conclusion of the 3-day PDP. The self-developed summative evaluative questionnaire is designed for this specific setting, content, and participant group to acquire perceptions about the overall success of the PDP (Lodico et al., 2010). A five point Likert scale will be used to identify the participants' level of agreement or disagreement to 10 statements related to the learner outcomes and overall program presentation. The levels include strongly agree, agree, neutral, disagree, strongly disagree. As the program planner, I recognize that the summative evaluation provides valuable information to me, encourages all participants to self-reflect on their learning, helps to make better teaching decisions, projects for future transfer of learning, and suggests improvements for subsequent PDPs (Suskie, 2009). The PDP evaluation, including informal formative evaluation questions and the formal summative questionnaire are displayed in Appendix A.

Justification for Using This Type of Evaluation

Program planners must ensure that evaluations become an integral part of developing a successful adult learning opportunity. Moreover, evaluations must have purpose, be systematic, and consist of careful collection and analysis of information (Wall, n.d.) to determine whether transfer of learning has taken place. For my project,

objective-based formative and summative evaluations were designed to help indicate if a transfer of learning occurred. According to Shandomo (2010), effective professional development, as indicated in completed summative evaluations, improves the participants' deeper understanding of their own teaching styles and challenges their approach to the traditional mode of practice, as well as defines their own growth toward greater teacher effectiveness.

Overall Goals of the Project Evaluation and Performance Measures

The overall goals of the project evaluation are for participants to acknowledge awareness and growth in their relationship with nature, relate how it affects their teaching, review the principles set forth for certification of a NEOC, identify barriers and strategies in the NEOC, engage in experiential learning opportunities within a natural environment, develop a lesson plan for the NEOC, and implement that nature-based lesson with families. Through lecture, presentations, reflection, discussion, activities, and evaluations, participants' performance will be measured informally through formative evaluation and formally through a summative evaluation at the conclusion of the PDP. The 3-day PDP will be considered successful if most participants indicate that learning and transfer of knowledge has occurred. An additional measure of success will be if participants become more comfortable and effective in overcoming barriers when facilitating a NEOC in order to improve student learning. Evaluating the participants' success during the PDP will in effect evaluate the success of the PDP itself. When participants judge the PDP outcomes in a positive manner, the value or worth of the training can be deemed successful (Caffarella, 2010). Recognizing that evaluating this PDP is a reiterative process, one that is constantly ongoing, I will also support the success

of the PDP by observing and monitoring stakeholders' facilitation of the NEOC and providing future professional development as necessary.

Stakeholders

The key stakeholders involved in the evaluation of this project include school administrators, teachers, students, families, and community members. Those stakeholders are integral to the facilitation and success of an effective NEOC. When planning the current and future PCPs for the NEOC, I will consider the stakeholders' needs and honor the varying interests, which could more likely result in a successful negotiated final project. I now consider diversity and cultural differences from a planner's perspective much more than I did six months ago. In the past I did all the planning by myself, but this project and the interactive model of program planning have shown me that using a diverse, balanced, and cooperative team enriches program planning. When stakeholders are part of the planning process, they are much more invested in the learner objectives and program outcomes.

Implications for Social Change

Local Community

The PDP developed for this project meets the needs for the local stakeholders, especially the teachers involved in facilitating the existing NEOC at a private neighborhood preschool/kindergarten. These needs include informing administrators of teachers' attitudes towards facilitating the NEOC, training teachers to better utilize the existing NEOC, improving student participation in the NEOC, and including families and the community to become involved in the NEOC. Because teachers in the school are required to use the NEOC on a daily basis as part of their curriculum, they contribute to

overall benefits, which exist for the children who attend. The teachers become more knowledgeable about their connections with nature, learn how to better engage students, and identify avenues to seek additional resources. There are a limited number of certified NEOCs in the state of Texas, and this school has the only one located in the Dallas/Ft. Worth metroplex, which adds to its importance. By creating ongoing learning communities in the PDP, groups can organize people with special interests specific to the local area. Furthermore, family and community involvement expand the social implications by inviting them to be a part of this unique educational experience.

The overall social change from this project will be to bring our society, young and old, together to spend more time outdoors, which has become significantly diminished in our current educational programs and lifestyles. With increased positive experiences in nature, children and adults are more likely to pass their enthusiasm for the benefits of those experiences for generations to come. This project has the capacity to reignite knowledge, excitement, curiosity, wonder, experimentation, and respect for nature and its impact on overall humanity in a society that moves at a fast-pace and often forgets to stop and smell the roses.

Far-Reaching

Although the research and PDP were conducted and designed around NEOCs located in suburban areas, there are numerous indicators that this study could have far-reaching potential for schools implementing nature-based play as part of their curriculum. For schools that already hold certification for their NEOC, over 100 in the United States, stakeholders could use this project as a model for improvement at their local level. For schools considering certification, the facilitators could use the information presented to

proactively help prevent barriers in their future NEOC. Additionally, the information presented through the research and PDP might spark an interest to include nature-based play in an environment where it had never been considered. Nature-based education is experiential, serves a real-world purpose, creates a sense of place for children, and addresses social and environmental problems by developing responsible citizens (Ellison, 2013). My intention is to publish this project on a website that has the far-reaching potential to be read by teachers of all types of schools: suburban, urban, and rural, and bring to light the ability to overcome barriers to facilitating a NEOC and positively impact young children's interaction and learning in nature.

Conclusion

The project developed and described in this section resulted from research conducted to identify barriers to facilitating an existing NEOC. Specific to a group of teachers in a private suburban school a constructivist based PDP has been designed to include lecture, experiential learning, reflection, and learning communities. Implementation of the PDP includes three days of training with frequent formative evaluation taking place as well as a formal summative evaluation at the end of the third day. Opportunities for social change at the local level exist along with the potential for far-reaching social change for children's learning in natural settings.

Section 4: Reflection and Conclusions

Introduction

Reflections and conclusions are important in the culmination of any project to discern its value, impact, and lasting effects. This final section of my project study brings forth many reflections, considerations, recommendations, and conclusions derived from the great amount of time and effort devoted to my project and the topic of barriers to facilitating an existing Nature Explore Outdoor Classroom (NEOC). Project strengths identify the power for change that can occur; however, limitations that stand in the way of that change are also discussed. A major step in overcoming any barrier is recognizing limitations and recommending remediation steps.

Reflection on my growth in scholarship is also included in this section. Scholarship has been the greatest area of growth for me in this personal and educational journey. I had over 30 years of experience in education when I began my doctoral pursuit nearly 4 years ago. However, I was not prepared for the vast amount of knowledge, critical thinking, and application I would achieve through this process. Throughout the process, I was humbled by the scholarship of my colleagues, professors, capstone committee, and experts in the field.

This section also contains discussion of and reflection on my project's development and the evaluation to be administered to understand the project's effectiveness in overcoming barriers in the NEOC and improving nature-based teaching for the participants. Educational leadership, an integral part of project design and evaluation, is reflected upon from the perspective of how well I will be able to present information and engage the participants so that transfer of learning can take place. As a

good leader, I must challenge those around me to change and become better teachers by listening to their needs, strengths, limitations, desires, and goals. In addition to my educational leadership reflection, included in this section is a self-analysis of my role as a scholar, practitioner, and project developer.

The final two parts of this reflective section include introspection on how my project may have a social-change impact and a discussion regarding implications, applications, and directions for future research. Prior to starting my first class, Foundations: Higher Education and Adult Learning, I was aware of Walden University's stance on the importance of social change. Not a class went by in which social importance and change were not linked to the content or assignments. The entire doctoral journey, including the project, is of little value if it does not stimulate positive change for society, locally, or globally.

Project Strengths and Limitations

The goal of the project was to identify barriers to facilitating an existing NEOC. A strength of the project is that it began with identifying a real problem within my local school. An additional strength in this research is that I studied a site completely unfamiliar to me. Researching a site familiar to me, such as my own workplace, would most likely have opened the doors to more researcher bias (Creswell, 2012). After a thorough review of the literature, I designed the research portion of the project. I chose a qualitative case study methodology for the research because that approach was effective in collecting data from this bounded system. Through observations, interviews, and document collection, along with subsequent data analysis, I was able to develop strong

interpretations and conclusions that revealed barriers to facilitating a NEOC identified by the participants at that specific site (Lodico et al., 2010).

With the solid support of the findings of the data analysis, I developed a professional development program (PDP) to address barriers to facilitating a NEOC. The project was developed to be presented at the local level; however, it can certainly be presented on a larger scale and modified to meet local needs. The PDP begins with a review of the principles and standards for a certified NEOC. This allows participants who are new to this type of nature-based education to understand the expectations for this designed space. The information is also valuable to veteran NEOC users to refresh their understanding and commitment. Therefore, from the very beginning of the PDP, the participants become a united group learning and working toward the same goals and learner outcomes.

Audiovisual aids and PowerPoint presentations strengthen the lecture portions of the PDP by addressing different types of learners. In addition, the implementation of reflection, discourse, and formative evaluations throughout the PDP encourages participants to link and make connections to new knowledge and to experiences in their past. Moreover, experiential learning opportunities, through several hands-on activities, help to support strong transfer of learning (Caffarella, 2010). Continued support and transfer of knowledge come from the development of learning communities in the PDP. Because the PDP involves place-based instruction and the inclusion of stakeholders, the impact of the project expands well beyond the small training classroom. The particular strength of the project is that it focuses on transfer and execution of new knowledge, which can create change in existing NEOCs.

Limitations exist in most every situation, and in this project I identified several. Teachers vary vastly in knowledge, experiences, and comfort within a natural environment (Bortolli et al., 2014). When participants are asked to connect what they are learning to past experiences, some might not have an experience base from which to draw. There is also a wide spectrum of attitudes and acceptance of the benefits of nature-based play (Donnelly & Argyle, 2011). Every teacher's motivation to incorporate the NEOC into the curriculum is different. Additionally, teachers who attend the PDP may not be fully invested in the number of hours involved and the continued commitment required for change.

Recommendations for Alternative Approaches

Recommendations for remediation of and alternative approaches to some of the aforementioned limitations include having patience and flexibility during the research process. During this process, I often brought on stress that was not warranted in the long run. I learned that fortitude, dedication, thoroughness, open-mindedness, and consistency are what moved the progress and integrity of the project along. I also learned that bias is a very difficult trait to eliminate from research (Creswell, 2010). By being more aware of my propensity to allow bias to influence my research, I will be more likely to determine whether I allow it to exist by always including member checks, peer debriefing, attention to voice, or external audits.

Limitations identified in the PDP are hard to completely eliminate, but awareness of their existence will help in addressing the issues. It is important to know the audience attending the PDP, including members' past experiences, motivation for attendance, ability to transfer knowledge, and commitment to change (Vella, 2008). Providing solid,

credible support that highlights the benefits of effectively facilitating a NEOC should help to remediate resistance to developing lessons integrating the outdoor space. Furthermore, providing resources to teachers and delivering continued, consistent professional development that focuses on NEOCs will help to increase teachers' comfort levels while teaching in a natural setting (Shooter et al., 2009). Finally, promoting and supporting learning communities that are inclusive of families and community members will help to sustain interest and effective teaching in the NEOC.

Perhaps an alternate definition of the local problem would have led to research on the extraordinary events that take place in a NEOC rather than a focus on the barriers to facilitating one. By introducing interesting, clever, and new ideas into an outdoor environment, the facilitators could effectively replace stagnant activities that are not interesting or create barriers in a NEOC. In short, the goal of this project is to improve facilitation of an existing NEOC, which could be achieved by identifying either facilitation barriers or strengths.

Scholarship

As previously mentioned, my biggest area of growth has been scholarship. Before I began this program, my sources for professional growth were a few trade journals, Internet searches, colleague discussions, and conferences. Through this program, I became much more aware of how to find credible sources, check for peer-reviewed articles, question an author's motivation, and contemplate differing views on topics. Today's search for information often occurs through the Internet, and I used my newly acquired knowledge to deem a website credible simply through the URL address. I

learned how to delve deeper into a topic by springboarding from one article to others, using reference pages and citation links on web searches.

Technology is an area of scholarship in which I made huge gains. I thought I was technologically savvy when I started the program, but as I near completion of the project, I can appreciate all that I have learned and how much there is still to explore. Experiencing information gathered through the vast search avenues on the Internet continually amazed me and often overwhelmed my mental input capacity. I joined my colleagues scholastically as we learned how to use online management systems, data analysis software, videocasts, podcasts, group dropboxes, and conference calls.

My world of scholarship expanded through classroom discussion posts where prompted questions from professors and colleagues demanded the use of critical thinking skills. I learned that scholars ask questions, rebut ideas, provoke thought, support academic growth, and challenge one another to make social change. Scholarship also involves listening to people who have identified problems that need to be addressed and move in a direction to search for solutions. Ultimately, I learned that scholarship is not only about gaining knowledge, but also about taking that new knowledge and applying it to situations, resulting in positive change.

Project Development and Evaluation

This project was developed from a lifelong passion for the outdoors and the desire to share the benefits of nature with educators through research-supported data. I was instrumental in developing and acquiring certification for the first NEOC in the state of Texas. The great potential for engagement with the natural environment was available to the teachers, but they were not always facilitating it effectively. Therefore, the project's

goals were developed to fill gaps and weaknesses in the facilitation of the NEOC. By researching a distant early learning center similar to my local school, I was able to reduce bias and conduct research in a more credible manner. In PDP development, my target audience was the teachers at my local school due to its familiarity, convenience, and the potential impact it might have on my educational investment in the future.

A major consideration in project development was keeping the audience comfortable and engaged. The activities were specifically designed to transfer learning from knowledge gained to useful and engaging classroom practices. Infusing discourse, self-reflection, and experiential learning throughout the PDP will help support that transfer of learning. I learned that a combination of formative and summative evaluations will provide feedback over the course of the PDP, allowing for further discussion or a change in the direction of the information presented. The evaluations do not have to be long and laborious for participants to complete. By developing short, concise, thought-provoking questions, I am able to receive good information about the project's success. Most importantly, I learned that further action needs to be taken as follow-up to the evaluations so that a difference can be made.

Leadership and Change

A good leader is instrumental in leading change and subsequently supporting that change. I believe that my project study has the ability to change the ways in which teachers personally interact with nature and share that new knowledge with children through intentional lesson plans and nature-based curriculum. A good leader also integrates the goals of the teachers with the goals of the program. As an educational leader, I have always respected diversity and the variety of experiences each teacher

brings to a classroom. Through this project, I am able to contribute more experiences from which teachers may draw, specifically those based in nature. I have also learned to recognize differences in people, relate to their strengths, and respect weaknesses, fears, and hesitations in an outdoor setting. As a leader, I am an integral part of the team to make a change that takes time and commitment. An effective leader must invigorate and provide time for positive social change.

Analysis of Self as Scholar

I have always been a goal-driven individual who sets timelines for the completion of projects. This doctoral journey has taught me about patience and thoroughness. My initial goal was to complete my degree in 3 years. However, as I became a better scholar and practitioner, I learned that research takes time to fully develop, conduct, analyze, convey, and execute for a meaningful purpose. It has been nearly 4 years since I started this journey, and I have grown in unimaginable ways. In reading articles on my topic, I found myself drawn to dozens of other interests for future study. I found a wealth of resources through a variety of technologies available in this day and age. The breadth of interest and support for nature-based education stimulated me as an educator and impressed me as a scholar.

Analysis of Self as Practitioner

Through the doctoral process, I became even more aware of the benefits, applications, and opportunities that exist and that will help me as a practitioner. Most enlightening is that I recognize that I am wholeheartedly a constructivist in the way in which I learn, teach, and lead. I recognize the value and great impact experiential learning can have for learners of all ages. In the future, any teaching I engage in will have

aspects of constructivism as part of the lesson. As a practitioner, I want those I teach to construct their own meaning of knowledge by combining new information with prior experiences. The doctoral journey challenged me in this type of thinking and learning and has forever changed my view on how individuals learn.

In my current position, I lead 33 teachers as the administrator of a private preschool. I now stand as a confident mentor as I guide my staff through the implementation of curriculum, especially nature-based curriculum. Learning theories make more sense now when I relate them to different types of educational delivery methods and am constantly reminded that all learners are different. I have engaged in research firsthand and now understand how rigorous the process can be to produce credible and reliable journal articles. As a practitioner, I also realize how important it is to consider the stakeholders involved in the educational process. It cannot just be about what I want to teach, but rather what those I am teaching desire to learn.

Analysis of Self as Project Developer

As part of my current employment position, it is my responsibility to present monthly staff meetings for continuing education. The PDP developed as part of the capstone project helped me recognize aspects of planning that I had not pursued in the past, including rationale, review of the literature, and social implications. I have developed many professional development workshops in the past. Most were 1 to 3 hours long and consisted of lecture, PowerPoints, and a smattering of hands-on activities. This doctoral journey has taught me how adults learn and how to develop learning environments to create change. The PDP developed as my project was based on solid research that gave it credibility and meaning. I had never led a professional development

workshop in which I had invested so much time in reviewing the literature. It made me think about the hundreds of continuing education programs I had attended and how knowledgeable the speakers must have been on those particular topics. The ones I learned from the most were the ones in which I felt that the speakers embraced their topics. As a project developer, I know now that I must know my topic well, understand the research that supports it, and exude enthusiasm for the information I share. I know how to make the environment comfortable for the participants. Experiential learning is powerful, and I will use its strengths for transfer of learning in the development of all of my future professional developments.

Potential Impact on Social Change

There is so much potential for social change to be achieved through this project. At the local level, teachers may become more aware and appreciative of the resources available to them for nature-based education. The children and families of our school may benefit from expanded knowledge, investigation skills, curiosity, and respect for the environment. This project may renew an awareness of the outdoors that has greatly diminished in society over the last several decades. By learning respect and appreciation for nature, including animal relationships, children learn social skills for interacting with one another. Instead of stomping on an insect, children learn to cultivate empathy that transfers to a respect for all living things (Torquati et al., 2010). Children learn how ecosystems work and how communities thrive when participants work in harmony with one another. This teaches collaborative learning and living, which can have a significant social impact for children as they mature. Additionally, children who learn to respect and value animals and plants around them will be more likely to take an interest in protecting

and preserving the environment in which they, and millions of others, live into adulthood (Jacobi-Vessels, 2013).

On a state level, the project has the potential to bring like-minded schools together to promote, expand, and improve their outdoor classroom curriculum within a similar regional climate. Nationally, this project in conjunction with larger organizations that promote nature-based education could have a significant impact on changing the way our schools educate young children within a natural setting. Internationally, children develop similarly and can benefit from teachers integrating nature into their curriculum. Far-reaching social change can occur when educators from around the world come together with research supported benefits to nature-based education to positively impact the growth and development of children.

Implications, Applications, and Directions for Future Research

Stated throughout this paper, children benefit from outdoor classrooms. Application of good professional development programs to educate teachers, families, and communities will continue to build programs that support effective NEOCs. Opportunities must exist for adults to learn how to engage in the natural environment so that they can transfer knowledge and experiences to young children. Schools can continue to improve their on-site NEOC, offer teacher training, and arrange for off-campus field trips. Certified NEOCs are encouraged to recertify and connect with other schools within their state that are certified. Those schools should be challenged to become involved in the Arbor Day Foundation, the certifying organization, to connect with the other hundred schools with a NEOC. By connecting with local and national

NEOC schools, teachers can identify barriers to facilitation that are common to all and some that are specific to their individual facility.

Further research is warranted investigating barriers at additional certified NEOC within the state and around the nation. Additional qualitative studies could explore NEOCs of different sizes and locations to compare barriers identified. A quantitative study could use statistical data collected regarding privately-funded versus publicly-funded NEOCs, correlating funding to barriers identified. An additional suggestion for further research might include a mixed-method approach where the researcher combines interviews, observations, and document collection that develop into themes with support from numerical data regarding barriers to facilitating a NEOC.

Conclusion

The project study was initiated to identify potential barriers to facilitating an existing NEOC. In reflecting about the project and my own personal growth, I learned a vast amount about my project and myself. My knowledge regarding research development increased exponentially. I learned that qualitative research contains human components that are not always cut and dried and capable of statistical measurements. Data analysis is tedious and time consuming as codes are developed from interviews and observations. Additionally, it is apparent that every project has strengths and limitations that must be considered and acknowledged. I learned an immense amount about scholarship, project development, and evaluations. However, I believe I learned more about myself as a scholar and practitioner to help guide my practice and leadership for years to come.

As a scholar, practitioner, and leader, I have both the great ability and responsibility to my profession to make positive social change. Armed with a solid understanding of constructivism and experiential learning as avenues to effective transfer of learning, I can develop rich, engaging, and powerful professional development programs.

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Appendix A: The Project

Schedule

Day 1

8:00-8:30 Light Breakfast & Introductions

8:30-9:30 Overview of 3-day Workshop

Schedule

Objectives

9:30-10:00 History of Outdoor Play

10:00-10:15 Break

10:15-10:45 Benefits of Outdoor Play

10:45-11:30 Current Research on Environmental Education Practice in Preschool Setting

11:30-11:45 Activity 1: Personal Reflections of Connection with Nature (individual & small group)

11:45-12:15 Lunch (provided)

12:15-12:45 Nature Explore Outdoor Classroom - Design

12:45-1:30 Nature Explore Outdoor Classroom - Principles

1:30- 2:00 Nature Explore Outdoor Classroom - Resources

2:00-2:15 Break

2:15-2:45 Activity 2: Part 1: Mindfulness in the NEOC – Scavenger Hunt

2:45-3:15 Activity 2: Part 2: Mindfulness in the NEOC – Upside-Down Adventure

3:15-4:00 Activity 2: Part 3: Mindfulness in the NEOC – Colors in Our NEOC

Day 2

8:00-8:30 Light Breakfast (Colleague collaboration)

8:30-9:15 Barriers to Facilitating a Nature Explore Outdoor Classroom
- Teacher Involvement
- Regulations and Rules

9:15-10:00 Barriers to Facilitating a Nature Explore Outdoor Classroom (continued)
- Volunteers
- Materials

10:00-10:15 Break

10:15-11:15 Barriers to Facilitating a Nature Explore Outdoor Classroom (continued)
- Weather
- Administration
- Finances

11:15-11:45 Activity 3: What Do I Do With Mud?

11:45-12:15 Lunch (provided)

12:15-12:45 Strategies to Overcome Barriers in a NEOC
- Teacher Involvement
- Regulations and Rules

12:45-1:30 Strategies to Overcome Barriers in a NEOC
- Volunteers
- Materials

1:30-2:15 Strategies to Overcome Barriers in a NEOC
- Weather
- Administration
- Finances

2:15-2:30 Break

2:30-3:00 Activity 4: Part 1: Creating a "No Pick Zone" – Team Design

3:00-4:00 Activity 4: Part 2: Creating a "No Pick Zone" – Execute Design

Day 3

8:00-8:30 Light Breakfast (Colleague collaboration)

8:30-9:15 Importance of Family and Community Involvement in NEOC
- Benefits to children and families
- Benefits to families and community

9:15-10:00 Importance of Family and Community Involvement in NEOC (continued)
- Benefits to children and adults learning together
- Communication and partnerships among home, school and community

10:00-10:15 Break

10:15-10:45 Integrating Curriculum into the NEOC
- Science
- Language Arts

10:45-11:15 Integrating Curriculum into the NEOC
- Math
- Social Studies

11:15-11:45 Integrating Curriculum into the NEOC
- Art
- Fine Motor/Gross Motor

11:45-12:15 Lunch (provided)

12:15-1:15 Activity 5: Developing a Lesson for Students and Families

1:15-2:15 Break and Prepare Materials for Activity 6

2:15-3:15 Activity 6: Sharing our NEOC with Students and Families

3:15-4:00 Conclusion and Evaluation of Professional Development Program

Learner Outcomes

At the conclusion of the professional development program the participant will:

- Understand the ten guiding principles for certification of a NEOC including;
    1. Divide the space into clearly delineated areas for different kinds of activities.
    2. Include a complete mix of activity areas.
    3. Give areas simple names
    4. Identify each area with a sign or other visual cues.
    5. Be sure every area is visible at all times.
    6. Use a variety of natural materials, including trees and other live plants.
    7. Choose elements for durability and low maintenance.
    8. Maximize beauty and visual clarity in the overall design.
    9. Personalize the design with regional materials, and ideas from children and staff.
    10. Be sure the space meets all regulatory standards for your region.
- Use critical reflection to discover current attitudes regarding nature-based education and how past experiences in nature might contribute to that attitude.
- Participate in experiential learning activities during hands-on opportunities provided in the NEOC, paying attention to encountered barriers and strategies.
- Experience mindfulness, actively processing information within one's surrounding context, in the NEOC.
- Develop and contribute to a learning community with colleagues based on interests in the NEOC.
- Plan and implement an activity/lesson involving students and their families in the NEOC.

Power Point

Overcoming Barriers to Facilitating an Existing Nature Explore Outdoor Classroom

Presented by Shelley Easler, MA

WELCOME

- Enjoy a light breakfast and conversation with your colleagues. Introduce yourself to someone new. Find your nametag on the tables.
- The morning session will begin promptly at 8:30.

Overview of Workshop – Day 1

8:00-8:30	Light Breakfast & Introductions
8:30-9:30	Overview of 3-day Workshop Schedule Objectives
9:30-10:00	History of Outdoor Play
10:00-10:15	Break
10:15-10:45	Benefits of Outdoor Play
10:45-11:30	Current Research on Environmental Education Practice in Preschool Setting
11:30-11:45	**Activity 1**: **Personal Reflections of Connection with Nature** (individual & small group)
11:45-12:15	Lunch (provided)
12:15-12:45	Nature Explore Outdoor Classroom - Design
12:45-1:30	Nature Explore Outdoor Classroom - Principles
1:30-2:00	Nature Explore Outdoor Classroom - Resources
2:00-2:15	Break
2:15-3:30	**Activity 2: Mindfulness in the NEOC**
2:15-2:45	Part 1: Scavenger Hunt
2:45-3:15	Part 2: Upside-Down Adventure
3:15-4:00	Part 3: Colors in Our NEOC

Overview of Workshop – Day 2

8:00-8:30	Light Breakfast
8:30-9:15	Barriers in Facilitating a NEOC Teacher Involvement & Rules and Regulations
9:15-10:00	Barriers in Facilitating a NEOC Volunteers & Materials
10:00-10:15	Break
10:15-11:15	Barriers in Facilitating a Nature Weather, Administration, & Finances
11:15-11:45	**Activity 3: What Do I Do With Mud**
11:45-12:15	Lunch (provided)
12:15-12:45	Strategies to Overcome Barriers in a NEOC Teacher Involvement & Rules and Regulations
12:45-1:30	Strategies to Overcome Barriers in a NEOC Volunteers & Materials
1:30-2:15	Strategies to Overcome Barriers in a NEOC Weather, Administration, & Finances
2:15-2:30	Break
2:30-4:00	**Activity 4: Creating a "No Pick" Zone**

Overview of Workshop – Day 3

8:00-8:30	Light Breakfast
8:30-9:15	Importance of Family and Community Involvement in the NEOC Benefits to families and children Benefits to families and communities
9:15-10:00	Importance of Family and Community Involvement in the NEOC Benefits to children and adults learning together Communication and partnerships
10:00-10:15	Break
10:15-10:45	Integrating Curriculum into the NEOC – Science & Language Arts
10:45-11:15	Integrating Curriculum into the NEOC – Math & Social Studies
11:15-11:45	Integrating Curriculum into the NEOC – Art & Fine Motor/Gross Motor
11:45-12:15	Lunch (provided)
12:15-1:15	**Activity 5: Developing a Lesson for Students and Families**
1:15-2:15	Break and Prepare for Activity 6
2:15-3:15	**Activity 6: Sharing our NEOC with Students and Families**
3:15-4:00	Conclusion & Evaluation of Professional Development Program

Learner Objectives

At the conclusion of the professional development program the participant will:

- Understand the ten guiding principles for certification of a NEOC including;
  1. Divide the space into clearly delineated areas for different kinds of activities.
  2. Include a complete mix of activity areas.
  3. Give areas simple names
  4. Identify each area with a sign or other visual cues.
  5. Be sure every area is visible at all times.
  6. Use a variety of natural materials, including trees and other live plants.
  7. Choose elements for durability and low maintenance.
  8. Maximize beauty and visual clarity in the overall design.
  9. Personalize the design with regional materials, and ideas from children and staff.
  10. Be sure the space meets all regulatory standards for your region.

Learner Objectives (cont.)

- Use critical reflection to discover current attitudes regarding nature-based education and how past experiences in nature might contribute to that attitude.
- Participate in experiential learning activities during hands-on opportunities provided in the NEOC, paying attention to encountered barriers and strategies.
- Experience mindfulness, actively processing information within one's surrounding context, in the NEOC.
- Develop and contribute to a learning community with colleagues based on interests in the NEOC.
- Plan and implement an activity/lesson involving students and their families in the NEOC.

History of Outdoor Play

- Generations ago children spent more time exploring their outdoor world.
- Generational break from nature over the past 3 decades.
- Parents worry about child abductions, environmental allergies, and injuries.
- Technology draws children indoors
- Children demonstrate unfounded fears due to lack of exposure to nature.
- Terms "biophobia and "ecophobia" emerge

(Louv, 2008; Rosenow; 2008, Sobol, 1996)

Benefits of Outdoor Play

- Children develop cognitive skills through observation, sight, sound, touch, smell, and taste.
- Children develop more brain connections
- Children learn to make meaning of their environment
- Children grow in social and emotional skills
- Children learn negotiation and risk-taking skills
- Children gain physiological benefits

(Clark and Moss, 2011; Jacobi-Vessels, 2013, Pellegrini & Bohn-Gettler, 2013)

Current Educational Practices

- Increased number of outdoor learning classrooms being developed and certified
- Increased research regarding benefits of environmental education and nature-based play
- Increased emphasis on Nature of Science
- Increased coordination of indoor and outdoor curriculum

(American Association for the Advancement of Science, 1993; Rosenow, 2013)

Activity 1: Personal Reflections of Connections with Nature

- Individually complete self reflection handout (10 minutes)
- Discuss reflections at your table (15 minutes)
- Complete the formative evaluation questions (5 minutes)

Nature Explore Outdoor Classroom

- **3 Standards for Certification**
  - Ten **guiding principles** in developing well-designed outdoor spaces which encourage children to make deeper connections to their natural surroundings
  - **Staff development** which includes partnerships with colleagues, families and communities
  - **Family involvement** in designing, developing, and facilitating the outdoor space and activities.

(Cuppens et al., 2008)

10 Guiding Principles

1. Divide the space into clearly delineated areas for different kinds of activities.
2. Include a complete mix of activity areas.
3. Give areas simple names
4. Identify each area with a sign or other visual cues.
5. Be sure every area is visible at all times.

10 Guiding Principles (cont.)

6. Use a variety of natural materials, including trees and other live plants.
7. Choose elements for durability and low maintenance.
8. Maximize beauty and visual clarity in the overall design.
9. Personalize the design with regional materials, and ideas from children and staff.
10. Be sure the space meets all regulatory standards for your region.

Activity 2: Mindfulness in the Nature Explore Outdoor Classroom

- Take Activity 2 handout outside to the NEOC and follow instructor for directions
- Participate in 3 activities (1 hour)
  - Upside-Down Adventure
  - Colors in the World
  - Nature Scavenger Hunt

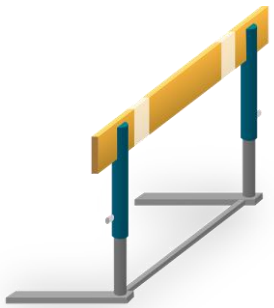
- Return inside and complete the formative evaluation questions (5 minutes)

Welcome to Day 2

- Enjoy a light breakfast and conversation with your colleagues.
- The morning session will begin promptly at 8:30.

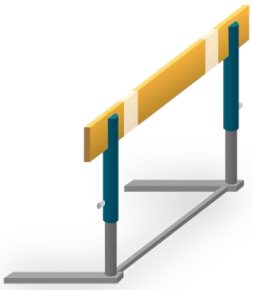
Barriers to Facilitating a Nature Explore Outdoor Classroom

- Teacher Involvement
  - Staff Development
  - Lesson Planning
  - Experience and Interest
- Regulations and Rules
  - Licensing Requirements
  - Playground Safety
- Volunteers
  - Families
  - Community



Barriers to Facilitating a Nature Explore Outdoor Classroom (cont.)

- Materials
  - Consumables
  - Maintenance
  - New Interest Areas
- Weather
- Administration
- Finances

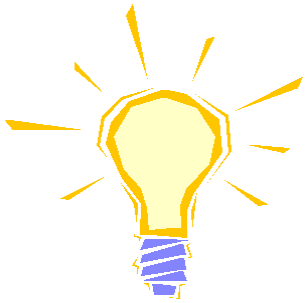


Activity 3: What Do I Do with Mud?

- Take Activity 3 handout outside to the NEOC and follow instructor for directions
- Considering mud as a barrier to engagement in the Nature Explore Outdoor Classroom, you will develop strategies to overcome that barrier (20 minutes)
- Return inside and complete the formative evaluation questions (5 minutes)

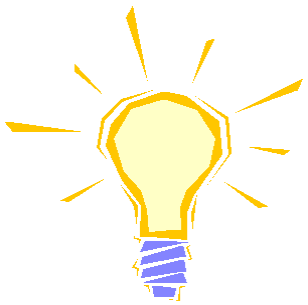
Strategies to Overcoming Barriers in a Nature Explore Outdoor Classroom

- Teacher Involvement
  - Staff Development
  - Lesson Planning
  - Experience and Interest
- Regulations and Rules
- Volunteers
  - Families
  - Community



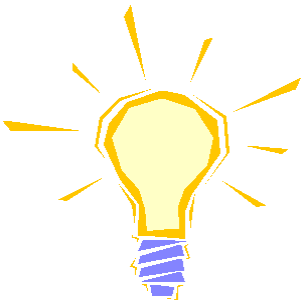
Strategies to Overcoming Barriers in a Nature Explore Outdoor Classroom (cont.)

- Materials
  - Consumables
  - Maintenance
- Weather
- Administration
- Finances



Strategies to Overcoming Barriers in a Nature Explore Outdoor Classroom (cont.)

- Materials
  - Consumables
  - Maintenance
- Weather
- Administration
- Finances



Activity 4: Creating a "No Pick Zone"

- Using Activity 4 handout and materials provided design a "No Pick Zone" with your assigned group (30 minutes
- Using the tools and materials provided, execute your design in the designated space in the NEOC (45 minutes)
- Return inside and complete the formative evaluation questions (15 minutes)

Welcome to Day 3

- Enjoy a light breakfast and conversation with your colleagues.
- The morning session will begin promptly at 8:30.

Importance of Family and Community Involvement in the Nature Explore Outdoor Classroom

- Children and families come together for unique experiences
- Families and community become more involved in a child's education
- Children and adults learn together
- Communication and partnerships among home, school, and community are enriched

Integrating Curriculum into the Nature Explore Outdoor Classroom

- Science
- Language Arts
- Math
- Social Studies
- Art
- Fine Motor/Gross Motor

Activity 5: Developing a Lesson for Students and Families

- Choose a seat at a table labeled with a subject which interests you. (Limit 5/table)
- Use Activity 5 handout to guide your table of participants in developing a lesson plan for students and families to take place in the NEOC later this afternoon (25 minutes)
- Complete the formative evaluation questions (minutes)

Activity 6: Sharing our NEOC with Students and Families

- Welcome families into our Nature Explore Outdoor Classroom (5 minutes)
- Implement the lesson plan, developed by your learning community, with your assigned family (20 minutes)
- Return back to the classroom and complete the formative evaluation questions (5 minutes)

Summative Evaluation

- Please complete the summative evaluation
- Rate your responses using the following scale:
  - 5 – Strongly Agree
  - 4 – Agree
  - 3 – Neutral
  - 2 – Disagree
  - 1 – Strongly Disagree

Thank you for your attendance and participation!

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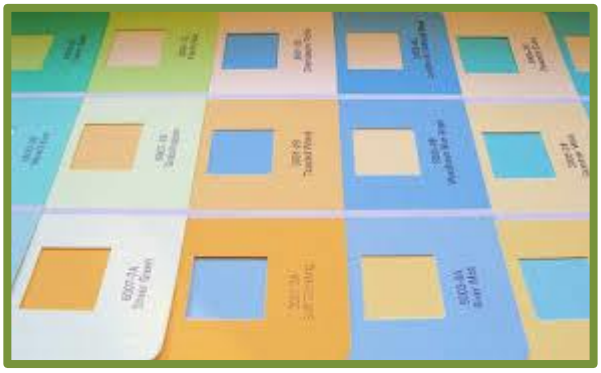
Activity Sample

Colors in Our Nature Explore Outdoor Classroom

Objective: To strengthen observation skills and support positive personal connections with the natural world, specifically the Nature Explore Outdoor Classroom.

- Gather in the Nature Explore Outdoor Classroom
- Choose at least 3 windowed paint chips in a variety of colors.



- Explore the NEOC and try to match the colors to something you find in nature.
- Notice the subtle color differences of the colors.

Formative Evaluation Statements:

- Mindfulness in the NEOC
    - This activity helped me consider my mindfulness of nature during my past and present interactions in the NEOC.
    - This activity helped me increase my sense of mindfulness in nature-based environments.
    - This activity will help me transfer the idea of mindfulness in nature to my classroom teaching.

Formative Evaluation

After each activity please complete the following evaluation regarding your opinion of the professional development program. Circle your response to the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
Activity 1: Personal Reflections of Connection with Nature					
This activity helped me identify memories (positive and negative) with nature.	1	2	3	4	5
This activity helped me identify my past and current interactions with nature.	1	2	3	4	5
This activity helped me relate my memories and interactions with my present relationship to nature.	1	2	3	4	5
This activity helped me recognize how my present relationship with nature impacts my ability to teach in a nature-based environment.	1	2	3	4	5
Activity 2: Mindfulness in the NEOC					
This activity helped me consider my mindfulness of nature during my past and present interactions in the NEOC.	1	2	3	4	5
This activity helped me increase my sense of mindfulness in nature-based environments.	1	2	3	4	5
This activity will help me transfer the idea of mindfulness in nature to my classroom teaching.	1	2	3	4	5
Activity 3: What Do I Do With Mud?					
This activity helped me identify my prior perception of muddy areas in the NEOC.	1	2	3	4	5
This activity helped me develop strategies to overcome the potential barriers of muddy areas in the NEOC.	1	2	3	4	5
This activity, which focused on overcoming barriers in the NEOC, will transfer to my teaching in the outdoor classroom.	1	2	3	4	5

Formative Evaluation (continued)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Activity 4: Creating a "No Pick"Zone					
This activity helped me consider and find examples of consumable vs. non-consumable materials in the NEOC.	1	2	3	4	5
This activity helped me identify advantages and disadvantages of a "No Pick" zone in the NEOC.	1	2	3	4	5
My participation in this "No Pick" zone activity will enhance my teaching in the NEOC.	1	2	3	4	5
Activity 5: Developing a NEOC lesson for Students and Families	1	2	3	4	5
This activity helped me learn how to develop a lesson plan specific to the NEOC.	1	2	3	4	5
This activity helped me to see the benefits of belonging to a learning community when developing a NEOC lesson plan.	1	2	3	4	5
I am likely to continue planning/sharing ideas within a NEOC learning community in the future.	1	2	3	4	5
Activity 6: Sharing our NEOC with Students and Families					
This activity helped me identify my initial expectations about the outcome of the family activity.	1	2	3	4	5
This activity helped me identify my conclusions about the outcome of the family activity.	1	2	3	4	5
This activity will influence my future lesson planning to include families and the community in the NEOC.	1	2	3	4	5

Additional comments (optional):

_____

_____

_____

_____

_____

Summative Evaluation

Please complete the following evaluation regarding your opinion of the professional development program. Circle your response to the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
I learned the 10 guiding principles for certification of a NEOC and understand that they represent a well-rounded mix of experiences that can occur outdoors for children.	1	2	3	4	5
I engaged in critical reflection to discover my current attitudes regarding nature-based education and how past experiences might contribute to this attitude.	1	2	3	4	5
I participated in experiential learning activities during hands-on opportunities provided in the NEOC, paying attention to encountered barriers and strategies.	1	2	3	4	5
I experienced mindfulness, actively processing information within my surrounding context in the NEOC.	1	2	3	4	5
I developed and contributed to a learning community with colleagues based on a common interest in the NEOC.	1	2	3	4	5
I thoughtfully and thoroughly planned an activity/lesson involving students and their families in the NEOC.	1	2	3	4	5
I effectively implemented an activity/lesson involving students and their families in the NEOC.	1	2	3	4	5
The presenter used a variety of teaching methods (lecture, audio-visual, hands-on, reflection, groups, etc.) to create an effective learning environment.	1	2	3	4	5
The indoor facilities (climate, restrooms, tables, chairs, lighting, etc.), NEOC, materials, and food provide were conducive to learning.	1	2	3	4	5
The professional development program provided encourages and supports me in the transfer of new knowledge to my classroom and the NEOC.	1	2	3	4	5

Additional comments (optional):

_____

_____

_____

_____

Appendix B: Letter of Cooperation

Dear Shelley Easler,

I grant permission for you to conduct the study entitled "Barriers to Facilitating an existing Nature Explore Outdoor Classroom" at [redacted]. As part of this study, I authorize you to recruit ten (10) staff members using purposive sampling to identify and gain access to prospective participants. I authorize you to identify staff members through phone calls and/or email communication. I authorize you to request written informed consents from participants prior to participation in the study. I authorize you access to and review of documentation that will provide you with relevant information to gain deeper insight and understanding of the facilitation and support of your Nature Explore Outdoor Classroom. I authorize you to observe each participant for 30 minutes while he/she is actively engaging in the Nature Explore Outdoor Classroom. I authorize you to conduct individual participant face-to-face interviews lasting approximately 30-45 minutes each, to audio record all participants' interviews, to take written field notes on an interview protocol form during each participant's individual observation/interview, and to collect demographic data from participants. I authorize you to allow participants to take part in member checks of written interview transcripts. I understand that you will provide a summary of the project study findings to participants and myself. I understand that individuals' participation in the study project will be voluntary and at their own discretion and that all personally identifiable information will be treated confidentially. That is, participants' names will not be associated with specific observations or interview content. I further understand that no audio- or video-recordings of students will be collected.

I understand that our organization's responsibilities include (1) providing an email list of all staff members who meet participant criteria, (2) granting you permission for ten (10) staff members to participate in the observation and interview process, (3) providing available documentation which provides relevant information to the study which may include lesson plans, daily schedules, training certificates, home/school correspondence (blinded as to recipient), and staff development agendas, and (4) providing one interview room. I understand that my organization reserves the right to withdraw from this project study at any time for any reason. I confirm that I am authorized to approve research in this setting. I understand that the data collected will remain strictly confidential and will not be provided to anyone outside of the project study team without permission from the Walden University IRB.

Sincerely,

Name: [redacted]

Title: Head of School

Name of Institution: [redacted]

Appendix C: Introductory Email to Potential Participants

Hello, my name is Shelley Easler and I am a doctoral study at Walden University. Your name and email address were provided to me from your school's office as someone who might be interested in participating in this doctoral project study. Your participation is completely optional. You are invited to take part in a research study of identifying possible barriers to facilitating an existing Nature Explore Outdoor Classroom. Participants will be comprised of staff members from your early learning center who currently facilitate your Nature Explore Outdoor Classroom.

Criteria for participant selection in this case study will include staff members who are at least 18 years of age, have at least 3 years early childhood teaching experience, have at least one year's experience in your school's Nature Explore Outdoor Classroom, have received internal or external training on how to facilitate a Nature Explore Outdoor Classroom, and have a willingness to share your experiences with me.

This study will take place at [redacted] in February with a specific date to be determined. Attached to this email you will find a Participant Consent Form which details the procedures of the study.

As a thank you for your individual participation in the study you will receive a $25 VISA gift certificate at the conclusion of your interview. I appreciate your consideration of becoming a participant in this study which has the potential benefit to identify potential barriers to facilitating an existing Nature Explore Outdoor Classroom, which in turn could lead to suggestions and solutions to improve programming.

Please return email me and attach an electronically signed Participant Consent Form at [redacted] before February 20, 2015 to confirm your participation in the study.
Electronic signature consists of typing your name in the signature line and saving as a new document.

Sincerely,

Shelley Easler, M.A.
Doctoral Candidate
Walden University

Appendix D: Participant Consent Form

You are invited to take part in a research study of identifying possible barriers to facilitating an existing Nature Explore Outdoor Classroom. The researcher is inviting staff members from your early learning center who currently facilitate your Nature Explore Outdoor Classroom to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Shelley Easler, who is a doctoral student at Walden University.

Background Information:
The purpose of this study is to explore potential barriers encountered by preschool educators in facilitating an existing Nature Explore Outdoor Classroom which has been designed specifically to encourage children to engage in activities within a natural environment.

Participant Criteria:
Criteria for participant selection in this case study will include staff members who are at least 18 years of age, have at least 3 years early childhood teaching experience, have at least one year's experience in your school's Nature Explore Outdoor Classroom, have received internal or external training on how to facilitate a Nature Explore Outdoor Classroom, and have a willingness to share your experiences.

Procedures:
If you agree to be in this study, you will be asked to

- Allow the researcher to observe your interaction in your site's Nature Explore Outdoor Classroom for one 30 minute session.
- Participate in a one-on-one, 30-45 minute interview with the researcher, subsequent to the observation. You will be provided a copy of verbatim interview transcripts to check for any discrepancies.
- Provide some available documentation which supports involvement in the Nature Explore Outdoor Classroom such as, but not limited to, training certificates, daily schedule, lesson plans, newsletters, and family/community involvement correspondence. Any identifying information should be removed from any submitted documentation to preserve privacy.

Here are some sample interview questions:

- How much staff development do you receive related to facilitating a Nature Explore Outdoor Classroom?
- How much time do you spend per week preparing to facilitate lessons in the Nature Explore Outdoor Classroom? Is that enough time or not? Explain your answer?
- Have you ever encountered barriers to facilitating a Nature Explore Outdoor Classroom? If so, please explain.

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at [redacted] or Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this study would not pose risk to your safety or wellbeing other than possible fatigue during the interview. The study's potential benefit is the ability to identify potential barriers to facilitating an existing Nature Explore Outdoor Classroom, which in turn could lead to suggestions and solutions to improve programming.

Payment:
As a thank you for your individual participation in the study you will receive a $25 VISA gift certificate at the conclusion of your interview.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Paper data will be kept secure by housing it in a locked file cabinet. All digital data collected in this interview will be kept as a password-protected file on a locked computer secured behind a locked door. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via phone at [redacted] or email at [redacted].If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 02-03-15-0339680 and it expires February 2, 2016**.** The researcher will give you a copy of this form to keep.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below I understand that I am agreeing to the terms described above.

Electronic Signature of Participant _____

Date of consent _____

Researcher's Signature _____

Appendix E: Observation Protocol

Project: Barriers to Facilitating an Existing Certified Nature Explore Outdoor Classroom

Time of Observation:
Date:
Place:
Observer:
Participant Being Observed:

Procedures:
Observer as participant – The participants will be aware of my presence.
Participation in the group is secondary to data collection and information gathering.
Record all field notes in written form on Observation Protocol for each session.

The following topics will be observed for documentation

- Nature Explore Outdoor Classroom environment
  - Description of space
  - Materials available
  - Variety of materials
  - Natural vs man-made materials
  - Hazards
  - Weather conditions

- Teachers
  - Interaction with children
  - Inclusion of all children
  - Supervision vs teaching
  - Teaching style
  - Additional personnel in NEOC
  - Verbal interaction with colleagues
  - Verbal interaction with children
  - Use of available materials
  - Creation of new learning opportunities as they arise

Appendix F: Interview Protocol

Project: Barriers to Facilitating an Existing Certified Nature Explore Outdoor Classroom

Time of Interview:
Date:
Place:
Interviewer:
Interviewee:

Welcome and thank you for your participation in this interview process today. My name Shelley Easler and I am a doctoral student at Walden University conducting my project study on "Barriers to Facilitating an Existing Certified Nature Explore Outdoor Classroom." Thank you for consenting to this interview. The purpose of this interview is to gather information regarding your perspectives about facilitating an existing certified Nature Explore Outdoor Classroom which has been designed specifically to encourage students to engage in activities within a natural environment. Your input is very important and will be used to better understand my topic. You have been selected as staff member to participate in this interview process because you are at least 18 years old, have at least 3 years early childhood teaching experience, have at least one year's experience in your site's certified Nature Explore Outdoor Classroom, have received internal or external training on how to facilitate a nature-based classroom, and have a willingness to share your experiences with me.

The interview is anticipated to last approximately 30-45 minutes and will include ten (10) questions specific to your perceived barriers in facilitating the Nature Explore Outdoor Classroom. Interviews will be audio-recorded and brief field notes will be written on the staff interview questionnaire attached to this interview protocol form to ensure accuracy of any information you convey during the interview. Within one week following the interview, a verbatim transcript will be sent to you via email to check for accuracy. At any time during the interview you wish to discontinue, please feel free to inform me of this. All of your responses will be confidential. To ensure the ethical protection and confidentiality of participants involved in this study, personal data will be de-identified, and interviewees will be assigned a pseudonym. Reports will not include any information that will make it possible to identify you or your program. All digital data collected in this interview will be kept as a password-protected file on a locked computer secured behind a locked door. Any collected paper documentation will be housed in a locked file cabinet.

If you have any questions about this project study, please contact Shelley Easler at [redacted] or [redacted]. If you want to talk privately about your rights as a participant, you can call [redacted]. She is the Walden University representative who can discuss this with you. Her phone number is [redacted].

Interview Questions:

1. How much staff development do you receive related to facilitating a Nature Explore Outdoor Classroom? Please explain if you feel it is enough/not enough time.

2. How much time do you spend per week preparing to facilitate lessons for the Nature Explore Outdoor Classroom? Please explain if you feel it is enough/not enough time.

3. What are any barriers you have experienced to facilitating a Nature Explore Outdoor Classroom with regard to weather and/or climate?

4. What are any barriers you have experienced to facilitating a Nature Explore Outdoor Classroom with regard to curriculum materials?

5. What are any barriers you have experienced to facilitating a Nature Explore Outdoor Classroom with regard to family involvement?

6. What are any barriers you have experienced to facilitating a Nature Explore Outdoor Classroom with regard to community involvement?

7. What are any barriers you have experienced to facilitating a Nature Explore Outdoor Classroom with regard to administrative support?

8. What are any barriers you have experienced to facilitating a Nature Explore Outdoor Classroom with regard to financial support?

9. What are any other barriers to facilitating a Nature Explore Outdoor Classroom that have not been discussed?

10. What strategies have you used to improve student/teacher engagement when faced with any mentioned barriers encountered to facilitating a Nature Explore Outdoor Classroom?

Demographic Questions:

- What is your age category?
  - 18-35
  - 36-50
  - 51 or above
- How many years of experience do you have teaching early childhood education?
- How many years of experience do you have facilitating a Nature Explore Outdoor Classroom?

Appendix G: Sample Interview Transcript

Participant: WW (pseudonym Wanda Webb))
Interviewer: Shelley Easler
Date: 2/26/15
Start time: 11:46 am End time: 12:13 pm

Interview Protocol Review:

Welcome and thank you for your participation in this interview process today. My name Shelley Easler and I am a doctoral student at Walden University conducting my project study on "Barriers to Facilitating an Existing Certified Nature Explore Outdoor Classroom." Thank you for consenting to this interview. The purpose of this interview is to gather information regarding your perspectives about facilitating an existing certified Nature Explore Outdoor Classroom which has been designed specifically to encourage students to engage in activities within a natural environment. Your input is very important and will be used to better understand my topic. You have been selected as staff member to participate in this interview process because you are at least 18 years old, have at least 3 years early childhood teaching experience, have at least one year's experience in your site's certified Nature Explore Outdoor Classroom, have received internal or external training on how to facilitate a nature-based classroom, and have a willingness to share your experiences with me.

The interview is anticipated to last approximately 30 minutes and will include ten (10) questions specific to your perceived barriers in facilitating the Nature Explore Outdoor Classroom. Interviews will be audio-recorded and brief field notes will be written on the staff interview questionnaire attached to this interview protocol form to ensure accuracy of any information you convey during the interview. Within one week following the interview, a verbatim transcript will be sent to you via email to check for accuracy. At any time during the interview you wish to discontinue, please feel free to inform me of this. All of your responses will be confidential. To ensure the ethical protection and confidentiality of participants involved in this study, personal data will be de-identified, and interviewees will be assigned a pseudonym. Reports will not include any information that will make it possible to identify you or your program. All digital data collected in this interview will be kept as a password-protected file on a locked computer secured behind a locked door. Any collected paper documentation will be housed in a locked file cabinet.

S: Okay, so we'll just start with this first question.

P: That’s fine!

S: There are ten questions. The last one is what strategies have you used to overcome some of these barriers, so we can either talk about them with the questions or we can talk about them in the end, however they come across. So the first question is; how much staff development have you received or do you receive in facilitating that wonderful space you have out there?

P: Well, I know when we first got to be a Nature Explore classroom we had lots of information on it and we did lots of training on it and then over the years we just, we talk about it a lot, just in teacher meetings, or on the playground between teachers, ways that we can, you know, use the space better for the children, better for us. So we receive some staff development. I wouldn't say that is some specific amount of time that we receive it though. But we receive some staff development and then on our own we look into things we can do with the space or we can do within what we have.

S: And then you share that with our colleagues?

P: Yes, and then share it with colleagues. And I think the great thing about us having overlapping playground time is that we can do things with other teachers. Like, my aide today was planting plants with two different classes just because she enjoys planting and the kids are coming to her so she can do it with all the children and we've talked about it in the classroom, "Oh we are going to plant today, this is what we are going to plant in our garden," and they know that that space is where the gardening will happen.

S: And I noticed that space will really draw the children, she really drew a crowd.

P: Yes, she does and they really get excited, and some more than others really enjoy things like that, but I think we try to get them all to at least try it. Some of them don't want to get their hands dirty but they need to try that. They need to have that time to get their hands dirty and know that it’s okay. But they really, really enjoy all of those kinds of things. So I think that it’s good to bounce ideas off each other: planting things, versus being in the meadow, versus using the stage area for them to have outdoor learning just within themselves. Like I said, we received some but I don't feel like we receive it continuously. Sometimes we look into it on our own to see what we can do with it.

S: Do you feel like … you have to get the 24 hours of required continuing education every year, right?

P: Yes, yes.

S: Do you feel like you seek out staff development on topics based on the outdoor education?

P: I would say yes, sometimes. I know that we did, I think the acronym is WILD which is another outdoor thing that we've done that brought in more things that you could do within the classroom and then do with them outside also that showed the sequencing with chickens and the sequencing of frogs.

S: And was that a speaker that came in?

P: It was, JS here, who I think you're interviewing today or tomorrow, was trained in it and brought it in and did it for us. And it was really interesting and like I said it had a lot of outdoor stuff involved but it was things that you could do outside and bring inside or vice versa. So we had that as a staff development two or three years ago. So that was really interesting, just interesting ways that you could involve the children because I think that as they get older there is so much less time spent outside exploring nature, learning from what's around you so that any time they have at a young age to start intriguing them. I know my classroom is the last classroom out of here and we have the L porch and we have binoculars by the door and so sometimes I'll go have to kids watch for birds. "Mrs. W. I don't see any" and I'll say, "Well it's kind of loud outside and birds don't like the loud noise." "Okay I'll keep waiting," and they will just stand there and wait and wait. Little things like that that children don't have time as the get older, they wouldn't do that.

S: No, they don't, they don't. They don't have time. They are so busy!

P: No, they don't, I wish that I had time sometime to sit down and watch the birds!

S: I just love looking out there at how that playground almost facilitates itself. It's just how you have it set up, its design really facilitates it, and then the teachers are out there to go beyond that but really the way it's structured it just speaks to them. It says, 'come and play with me,' and they know the different areas.

P: And well they know all the different things they can play with. They know there's the stage, they know there are bikes, they know there's the car, the boat, the swings, the garden, there are so many different things. There's no reason to not have something to play with. If you don't want to ride a bike that day, oh well, go play on the boat, go explore a different part. And I know we've been known to have turtles into our playground, "Oh Mrs. W. we found a turtle! We found a turtle". "You know that's great! Watch it see what it does!"
S: Yeah, that's amazing and the animals out there, that's just great, it's just great!

P: Yeah, yeah.

S: So most of your staff development comes on site and through colleague collaboration?

P: Yes.

S: Great, great. Okay how about, how much time do you think you spend per week on facilitating lesson plans for Nature Explore? I mean do you write them in for part of your lesson plans or do you have certain times during the year you do special activities for that? How do you go about lesson planning for what goes on out there?

P: I don't really write lesson plans necessarily for playground time because I feel like the kids, our school is more of a discovery learning area, where the playground is there for them to learn however they want and we can step in to facilitate if we see a turtle or they see a grub in the dirt, to facilitate more learning opportunities there, but more for them to just experience what's out there and what's around them. But we do have certain events that are on the playground like we plant potatoes at certain time of year so that's set into our lesson plans. And we plant carrots and we do Winter for the Birds with the children. We have parents come and we make different kinds of bird feeders and spread them all around.

S: I saw that on the calendar that was really intriguing

P: Yes and the children enjoy it because they get to see what they've made and they notice, "Oh look the bird feeders are empty or look this one still has a lot of food left in it." So they get to experience all that. Those things that we have outdoor … JS also does that. She sets up those dates and times because we have parents come in, we have parent volunteers. They come in and help with those things that are specifically for that time frame.

S: So you have a person who leads that?

P: Yes, a person who leads that, yes.

S: That's great

P: So we have one in the fall, the Fall Fun, which is everything we've done on the playground. The children get to paint the different gourds and different squash and they get to build scarecrows, things like that. Then we do Winter for the Birds and then we have two to three times a year when we plant specific things in the garden. And like today we just had some more seedlings and our guinea pigs and bunnies love cabbage and lettuce and so we try to grow those so that we can then feed them to the animals that we have at school and the children really enjoy that. We grew a carrot and we fed that carrot to a bunny, of course that's great to see. And we've eaten from our garden. We grew purple cabbage last year or the year before and we used it

and made a chicken cabbage salad thing and we had it for snack and the kids ate it for the most part. I said, “This is from our garden, we grew this in school.”

S: We grow potatoes, some of the basic things. We haven't tried cabbage yet.

P: We usually start it as a seedling so it starts as something already solid and then it grows. But it works really well and then we can eat it or the animals, the bunnies or the guinea pigs will devour it. It’s fun to see all the different things they can grow and then consume themselves or share with someone else.

S: That’s on your Nature Explore?

P: Yes, that we have out there right at school so they can see it be eaten, so that it’s not like at the grocery store, the foods just there, but here, we grew it. I wish you could be here when we harvest because it’s really funny to see their faces when we harvest, especially carrots or potatoes, "OHHH look what I've found, look what I've found!"

S: And then next time when they are in the grocery store it’s so much more meaningful for them.

P: Yes, "Look at that potato!" and you know our potatoes don't grow like grocery store potatoes! They're not like massive, but we did have, Mrs. S.’s class had some really big carrots this year and they looked great and the kids were like, "Look what I found!" and it’s so much ownership of what just this small environment can do for them, just how important and empowered they feel from just being here.

S: Yes, it is! And it takes excited teachers.

P: I get so excited, like "Look at your giant carrot!"

S: What about with regards to weather? What kinds of barriers have you come across in the nature area with weather?

P: I know you and I had talked about mud and rain. Sometimes it gets muddier than it normally is. We have a lot of kids that have learned to wear rain boots. We have a lot of kids that have learned to just go around. The biggest thing is just, “what happens in the water when I splash, what happens if I run this cart?”... little things like that they just want to explore further. Well, “what if I splash the water, what will happen?” that curiosity of what will go on. When it's cold of course, today we went outside, and normally even if its chilly we'll go outside even if it’s for ten or fifteen minutes just because they need that outside time. They like seeing what’s out there and exploring and noticing that maybe there's not as many things to see on the playground, maybe there's not as many animals, the trees look different. Mrs. M. was saying that yesterday over by the chapel there's a tree that’s blossoming and the kids had noticed

that it looked different and they were asking, "What does that mean, why does it look different?" And she was questioning back. They were like, "It just looks different, I think something is changing, something is happening." So it's the little things like that that they notice when it's cold. "Well, we can't go outside as much." So I think the weather impedes it just because you can't get outside as much. When it's cold and wet we usually don't spend too much time outside just because it's kind of miserable. I would say we try to make it outside if it's not raining every day, even if it's a short amount of time.

S: Do you ever have parents complain when their outfits come home muddy?

P: We do not. We try to tell parents up front, we have a very - and I think a lot of parents love our school because we have an amazing playground, but in the end it gets muddy, it gets dirty, but we tell them don't send your kids in super nice clothes. They are going to get messy. They are going to get dirty. And some of the kids don't like being dirty and they'll ask to change their clothes so all of the children have a change of clothes on campus. A lot of them have learned to bring rain boots and a change of shoes in their backpacks or bring two pairs of shoes and leave one in their cubbies for when they get really dirty

S: That's a great solution

P: We do not have parents complain. I mean I had one mom one year say, "We just take our shoes and socks of in the garage before we get in the house or else the sandbox is in our home!" And that's what happens!
And in the classroom we've noticed that when we have muddy days I'm like, "Let's march inside, let's stomp the mud off of our feet," because, yeah, you drag mud back into our classroom but it doesn't seem to impede their playing once they're inside. And we, I don't know if you saw us, our snack tables are outside and unless it's raining, or super cold, we try to eat outside. Honestly we've had more discussions about the squirrels in the trees or the birds or things that they see around them when they're eating because they're still so they can notice more things around them while they're eating. And we've taught them that, we have water for snack, and they can water a plant when they are done with snack, "Oh, this plant looks thirsty today, why don't you water it with your extra water." Things like that, they wouldn't have that opportunity if they weren't somewhere where nature was right there.

S: It's just so inviting, and so different from a traditional playground. It's so good for them. How about curriculum materials, have you had any - I think for me, that's been the hardest. The materials are so disposable, consumable. How do you replace those materials, how do you keep the materials flowing into that nature?

P: Like you said they are consumable and get used up. When we started we had all these pine cones and all these gourds and they get broken or eaten or some animal takes it and I think we just have to replace them. And I noticed today, when you came

out with us there was the table of bird seed. Did you notice, by the time we left it was gone? I was watching the girls carrying the bucket and dropping it on the ground to feed the birds. They know what it's for but the wanted to do something different.

S: So who replaces those? And we are going to get into administration in a minute and finances but-

P: Well, I know there's also a sensory table on the playground and it's empty right now because it keeps raining and it keeps filling with water. Like I know at Christmas we had some Christmas tree branches in there like evergreen branches and they can touch it and feel it and we've had gourds in there and acorns in there and different things that children can touch. Honestly, on the playground a lot of it goes to Mrs. S., like she puts out the bird seeds, there's bird feeders outside my classroom that she refills with bird seeds, and all those kinds of things. But the pine cones and stuff, I know I've asked friends that live in East Texas, "Hey you live where there's lots of pine cones, next time you come, bring me a box," because we don't have pine cones here naturally. Those are things we have to ask.

S: So donations? Do teachers spend their own money?

P: Yes donations, well, I have a cousin who lives in Nacogdoches because they're natural out in his front yard, but I think the bird seed and stuff, the school just pays for it. And I don't know - if we ask for donations for certain things I'm sure that people would be willing.

S: Is there a budget for the Nature Explore?

P: I would assume that there is but I'm not sure. I know we have an outdoor education budget so I'm assuming that it would go into that the Nature Explore classroom would go into that. So I think they just have to get replenished when we notice there's no any more of these. But I think one of the things the children really enjoy on the playground - and you didn't get to see this today because its cold - is water, and thankfully it's replenished all the time because they just turn the sink back on but the sandbox becomes this lovely mud pit and that's when the children go home filthy.

S: And the sand is expensive to replace I know that too.

P: Yes, yes

S: And the mulch is expensive so it's a playground, an area, I want to call it a space because it is a playground but it's really a space -

P: Yes it's a nice space.

S: - that just constantly needs work.

P: Yes it is an outdoor classroom that still needs to be tended to. We try to make sure everything is safe like we were talking about licensing this morning things we have to have install. But I know we replace the mulch at least once a year and the sand - I believe we add new sand to it once a year also - just because after a while it gets dispersed, it moves around or whatever it does.

S: Do you think ultimately the finances fall, then, to the school? I mean if it's not there then the school or the administration would give you more money or provide that or let you know how much more that you get more. Or do you feel like it's a good scheduling of replenishing?

P: I feel like it's done on a good basis and I feel like things are switched out. There are different things at different times. I think that you could always do more, and we don't want it to be overdone. We don't want to do too much because that overwhelms what there is for the children to play with. There's so much right now that they don't need it.

S: And then it becomes very much more teacher directed.

P: Yes, than child directed. So that's why I really like when we have our playground events like our Fall Fun and our Winter for the Birds because even if it's somewhat directed they're like "here's the bird feeder." There are choices for them to choose. There are things for them to choose but it's only for these days on the playground. It's not like for the whole month we are going to make bird feeders. It's just these special days we are going to do this special outdoor project and then we do it again next year.

S: Do you feel like you have a lot of support from your administration on the outdoor education?

P: Yes, I feel that we do and I feel that everyone - administration and the staff, and the parents also - feel how important the playground is and our playground time and the things that go on. I feel that everyone here involved is very willing to do whatever they can.
S: So allude that into community because when I came today I saw the homeschooler group and that's a great community connection.

P: Yeah, they have those. Let's see, two of those older children went here and now home school and one of them has siblings that go here right now and so they take the time when we're not on the playground in the morning to spend the extra time doing things on the playground. I think that if you come up here on the weekend there are people that bring their kids to play. And you know it's a great place to play and in the summer its very much more shaded than a public park. There's more opportunity to be a little more shaded, for your child to play. I know in the afternoon when the parents pick up you'll see some lingering ones that are ready to play on the

playground to extend that day into something else because they love it. And kids that do our program called Encore, when the older kids come back on Wednesdays and Thursdays do some stuff, part of it's playground time and they get to go rediscover all those things that they discovered when they were here when they were younger and it doesn't matter what age they just seem to really like coming back and exploring all the different things that are on the playground.

S: Outside of alumni have you had other community organizations that have partnered with you or helped you?

P: Not off the top of my head that I know of, not that have done stuff necessarily with us at school

S: Can you think of any other barriers that we haven't talked about that keep you from doing what you want to do out there?

P: Well I know we talked about the meadow. I talked about how nature eats our fish and so that becomes a barrier because the kids are like, "Mrs. W. where are all the fish" and that leads into a discussion about like, "Where could they be?" "What could have happened to them?" So it leads into a good discussion with them but at the same time, there's no fish for them to catch or no fish for them to look at so that becomes a barrier. The weather, I'm trying to think.

S: I wonder if you could screen that somehow to keep the animals out, but I don't know.

P: Well, and I know that we've had water snakes that have made a home like over the summer when we are not there so I think the past two years we have drained it at the end of the school year so we don't get new creatures because no one's up here all the time in the summer with little voices to scare things away. In the school year they don't come.

S: We've had foxes, and all kinds of animals - possums, raccoons. We're right along a creek.

P: And there's a creek right over here that runs right along so other things have found their home in the meadow. So extra creatures that have come and there is a hawk that lives around here and normally we don't ever see carcasses we just see extra bird feathers which is exciting to the children, "Oh look at this pretty bird feather I found!" and it's fun because sometimes they'll ask you "What kind of bird is it?" We'll pull out our bird book and see if we can match what it might look like. And there used to be right over the sandbox - there's that long branch - and there used to be a blue jay nest and we could see the blue jays that live there. And they had babies and we have a lot of -

S: I saw this walking in just a few minutes ago

P: Oh yeah, I have one in my class too that hangs down

S: That's great, that's great.

P: And then on the slide structure that's in front of Kindergarten - if you look at the very top at the corners of the lid, the top sits on, morning doves have built nests in there and there's actually one in a potted plant outside of Mrs. S.'s room also, so it's fun for the kids to see, "Oh look they're building a nest, what are they doing with that nest?" Like the other day they called me, "Mrs. W, Mrs. W, there's a nest, do you see a bird in it?" So I'd go up there and look and say, "No I don't think it's here right now maybe it'll be back later."

S: So many learning opportunities!

P: And there's an owl over by threes, between threes and main church building, there's an owl that lives there and it's a young owl and I've seen it once but the children will tell me, "Oh Mrs. W. we saw the owl today," - just things like that that are so exciting! Who sees an owl at school? We'll have to see if it's there so you can see it while you're here. Just little things like that; who sees an owl every day at school? No one! Who sees birds every day at school? Very few children.

S: Yeah, that's great.

P: I mean, just little things, they come to school and they are so excited about it.

S: Well I can see why. It's a great space, it really is

P: We definitely enjoy it.

S: Let me go ahead and ask you these quick demographics and if you just tell me which age group you are between there.

P: Oh I'm still in the first one, for another month. Oh, no, a year and a half

S: Okay let's put it in there, and then how many years' experience do you have teaching early childhood?

P: I have been at this school for 11 years. Before that I worked in a Mothers-Day-Out program for about four years.

S: That's a long time, so about 15 years?

P: Yeah, It's been a long time.

S: So eleven years here at this school?

P: Yes.

S: And you've always had some kind of nature based playground.

P: Very much so, yes. It’s always been very open and I remember the family I worked for had children that came here and they really - I mean the meadow was starting and it just got bigger and the kids would come home, "Oh look at what we learned at school today!" They would all do amazing things that I think they get to experience now.

S: I can tell this is - because even your arbors are very well developed, those plants have been here for a long time, they weren't just planted last year.

P: Yes! They weren't planted recently!

S: Okay awesome, well thank you!

P: You're welcome!

Appendix H: Coding Matrix—Barriers

EXCEL Coding Matrix for Barriers That Prevent Teachers from Facilitating Student/Teacher Engagement with the Natural Outdoor Environment Designed to NEOC Certification Standards

Coding Matrix Barriers to Facilitating NEOC		Participants							
		WW (Wanda Webb)	JSS (Jessie Sands)	PH (Phyllis Hart)	PC (Pam Cox)	MA (Marsha Adams)	JS (Jamie Smart)	HF (Heidi Frost)	AM (Amy Moss)
Teacher Involvement									
Reduced training over the years	Staff Development	X		X	X	X	X	X	
Non-continuous training		X		X	X	X	X	X	X
Self-Initiated training		X		X	X	X	X	X	X
Non-specific training		X		X		X	X	X	X
More training equals more proficiency		X			X	X	X		X
Lesson plans are not required	Lesson Planning	X		X		X	X	X	
Developmentally appropriate balance in curriculum						X			X
Busy with other priorities		X				X	X		X
Emphasis put on academics in the classroom						X			
Other curriculum topics get priority		X						X	
No NEOC coordinator for plans				X			X	X	X
Research only done by a few staff members	Experience and Interest	X		X	X				X
NEOC relies on knowledge of science and nature		X				X			X
Varied level of experience		X		X					X
Varied level of interest		X				X			X
Increased workload		X							X

Coding Matrix Barriers to Facilitating NEOC (cont.)		WW	JSS	PH	PC	MA	JS	HF	AM
Regulations and Rules									
Minimum standards required by state	Licensing Requirements	X						X	X
Teachers don't always know licensing rules					X				X
Shoes required				X					
Animal regulations							X		X
Hot liquids and cooking regulations								X	
Injury risks	Playground Rules	X		X	X		X	X	X
Climbing hazards				X	X		X		
Digging under fall zones							X	X	
Too safe vs allowing for risk taking				X				X	
Volunteers									
Working parents	Families			X	X			X	
Children act differently when parents are around					X			X	
Parent/child schedules are tight				X	X				
Hard to work around schedules		X			X	X		X	X
Irregularity of volunteers				X		X		X	X
Same people over and over				X				X	X
Values of involvement have changed		X		X		X	X	X	
Time consuming to organize volunteers	Community					X			
Safety concerns with strangers on property							X		
Requirements for background checks							X		
Community unaware of volunteer opportunities				X	X	X			

Coding Matrix Barriers to Facilitating NEOC (cont.)		WW	JSS	PH	PC	MA	JS	HF	AM
Materials									
Materials get used up	Consumables	X		X		X	X	X	X
Materials get lost		X					X	X	
May last hours or days		X				X			
Children take things home		X					X	X	X
Children pick flowers, berries, leaves									X
Sand and mulch need replaced yearly		X		X					
Teachers not aware of source of material		X		X			X	X	X
Materials do not stay in designated area	Maintenance	X					X	X	X
Maintenance is constant		X					X		X
Time consuming						X	X	X	
No single staff member assigned to maintenance						X	X	X	X
Primarily one teacher (volunteer) who maintains NEOC		X				X	X	X	X
Currently less about creating than maintaining								X	
Animal care responsibility		X					X		X
Some things take months to repair								X	
Lack of time to add things	Adding New Interest Areas	X					X	X	
Lack of priority to add things							X		
Material collection process challenges		X						X	X
Considerations for regulations, rules, safety, animal type									X
Noise from children scares animals away		X							X
Becomes stagnant if material is not switched		X						X	
Weather									
Rain, thunder, lightning	Weather	X		X		X		X	X
Flash floods cause standing water		X							
Extreme conditions (hot, cold, ozone)		X					X		
Mud		X		X		X		X	

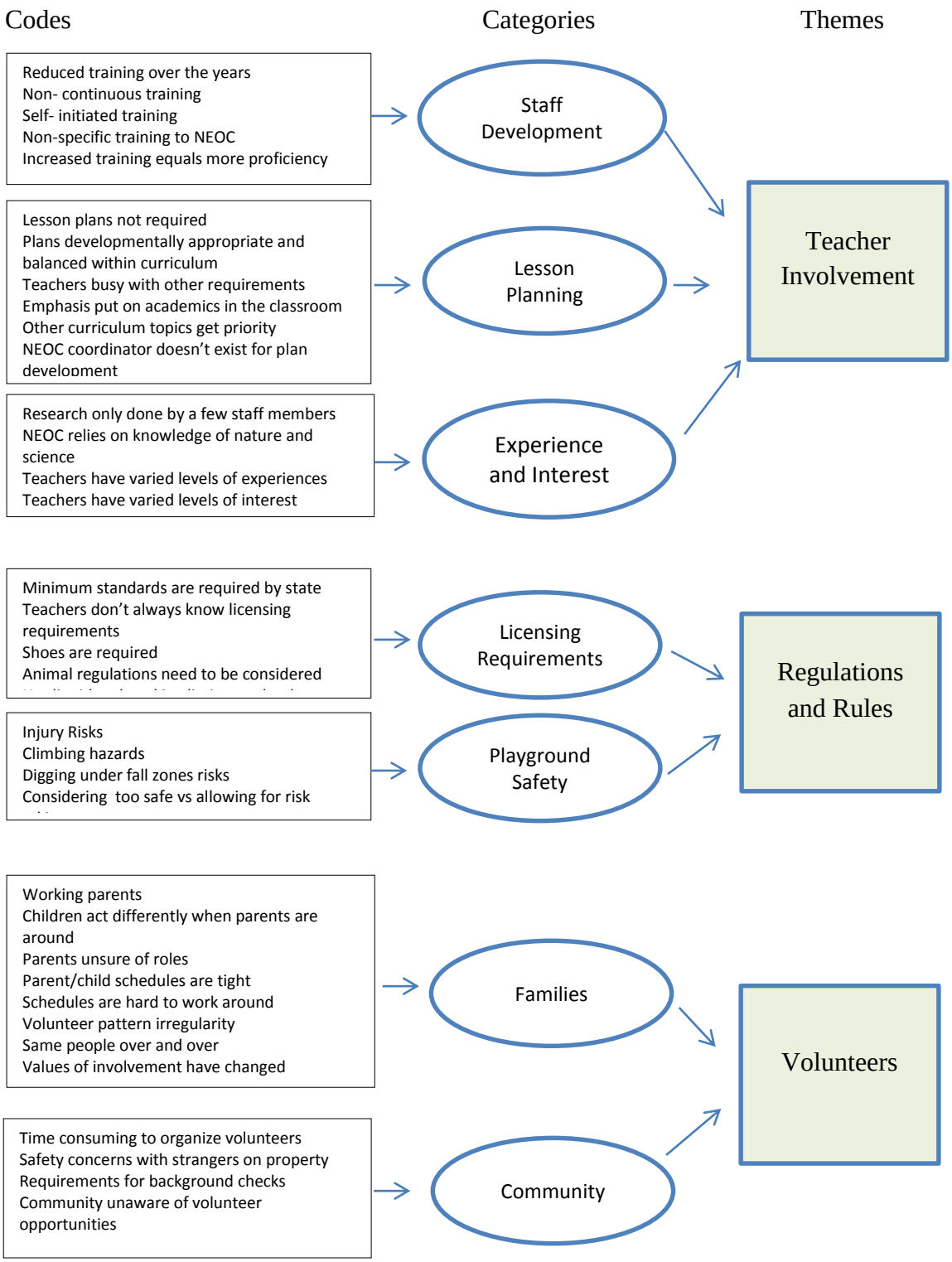
Appendix I: Coding Matrix—Strategies

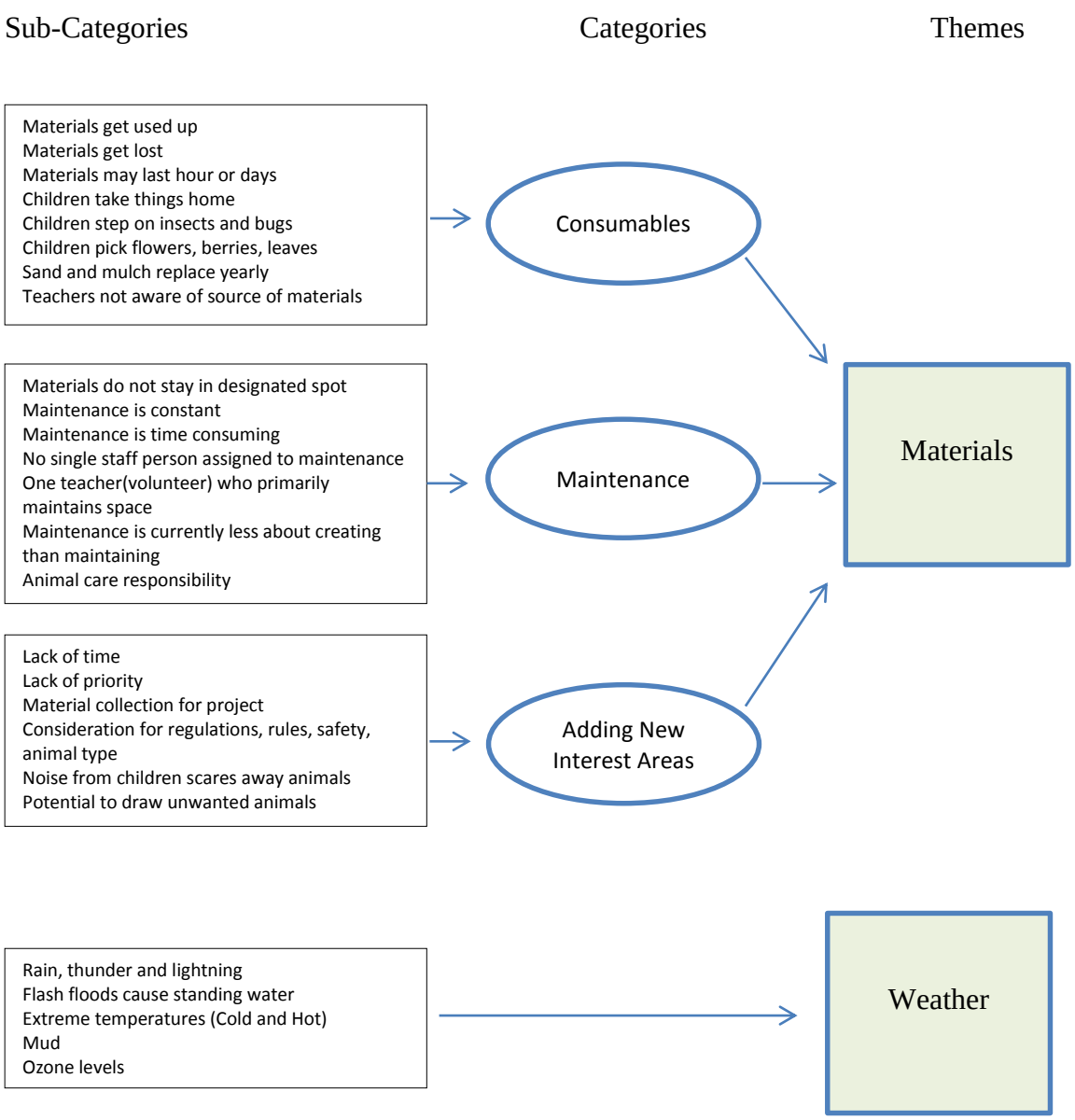
EXCEL Coding Matrix for Strategies That Improve Facilitating Student/Teacher Engagement with the Natural Outdoor Environment Designed to NEOC Certification Standards

Coding Matrix Strategies to Facilitating NEOC		WW (Wanda Webb)	JSS (Jessie Sands)	PH (Phyllis Hart)	PC (Pam Cox)	MA (Marsha Adams)	JS (Jamie Smart)	HF (Heidi Frost)	AM (Amy Moss)
Teacher Involvement									
Colleague collaboration	Staff Development	X	X	X	X	X	X	X	X
Observe teachers who engage well with nature		X		X		X		X	X
Investigate other nature programs		X			X	X		X	X
Invite speakers		X	X		X			X	X
Situational - Onsite opportunities		X		X		X	X	X	X
Incorporate NEOC into lesson plans	Lesson Planning	x	X	X		X		X	
Move inside classroom to the outdoors		x		X	X	X		X	
Plan special events (Winter for the Birds, Fall Fun, Stone Soup, Pioneer Days		X	X	X	X	X	X	X	X
Share experiences and interests	Experience and Interest	X	X	X	X		X	X	X
Increase comfort and proficiency		X				X		X	X
Offer books in professional library		X			X	X		X	
Share websites		X			X	X	X	X	
Regulations and Rules									
Know licensing regulations	Regulations and Rules						X		
Set specific playground rules		X	X	X		X	X	X	X
Set area rules				X			X	X	
Volunteers									
Send invitations for special events	Families	X	X	X	X		X		X
Organize clean up days						X	X		X
Consider required volunteer hours from parents						X		X	
Send reminders for help		X		X	X		X		
Several generations of families						X			X
University relationships			X	X	X		X	X	
Use of student teachers					X				
The Big Event				X				X	
Promote history of school in the community		X				X	X	X	X
Community staple for over 50 years				X	X	X		X	X

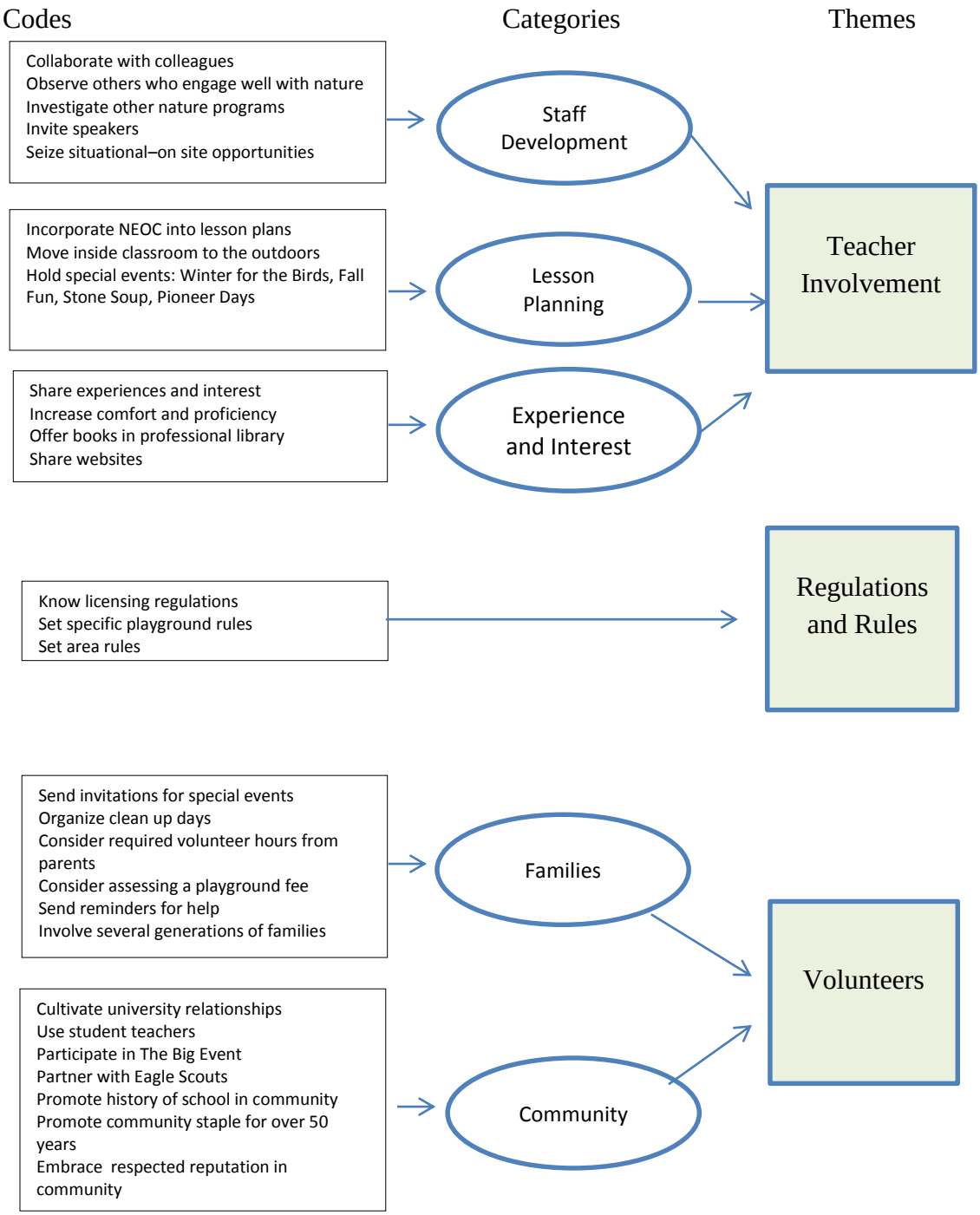
Coding Matrix Strategies to Facilitating NEOC (cont.)		WW	JSS	PH	PC	MA	JS	HF	AM
Well respected in community		X		X	X	X	X	X	X
Materials									
Donations	Consumables	X		X	X	X	X	X	X
Fundraisers		X		X	X		X	X	
Use low cost items & activities		X		X		X	X		
Recycle items							X	X	
Grow animal's food from garden									X
Give teachers NEOC budget		X			X	X			
General NEOC budget		X			X	X	X	X	X
"Pick free" zones							X		X
"Picking gardens"							X		
Add a little at a time	Maintenance	X		X					
Teachers take responsibility for specific areas				X			X		
Move some animals inside				X				X	
Contain materials in designated areas							X	X	
Weather									
Allow exploration	Weather	X	X	X	X	X	X	X	X
Natural consequence philosophy		x	X	X	X		X	X	X
Point out changes due to weather/season		X			X				
Wear appropriate clothing		X	X	X	X			X	
Have change of clothes		X	X	X	X				
Rain boots		X		X					
Mitten Box			X						
Covered porches for extension of classroom		X			X	X		X	X
Correlate to curriculum		x	X		X	X		X	X
Make a game out of clean up		X	X					X	

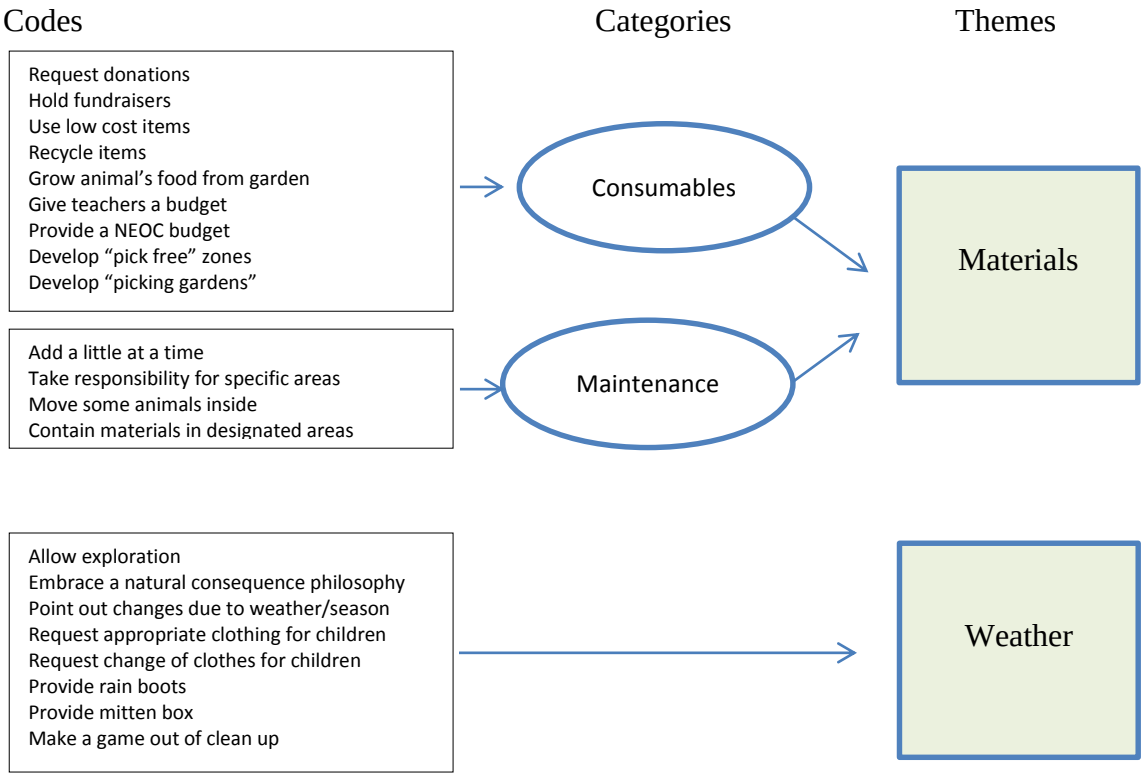
Appendix J: Visual Diagram of Barriers Coding Matrix




Sub-Categories
Categories
Themes
Materials get used up
Materials get lost
Materials may last hour or days
Children take things home
Children step on insects and bugs
Children pick flowers, berries, leaves
Sand and mulch replace yearly
Teachers not aware of source of materials
Consumables
Materials do not stay in designated spot
Maintenance is constant
Maintenance is time consuming
No single staff person assigned to maintenance
One teacher(volunteer) who primarily maintains space
Maintenance is currently less about creating than maintaining
Animal care responsibility
Maintenance
Materials
Lack of time
Lack of priority
Material collection for project
Consideration for regulations, rules, safety, animal type
Noise from children scares away animals
Potential to draw unwanted animals
Adding New Interest Areas
Rain, thunder and lightning
Flash floods cause standing water
Extreme temperatures (Cold and Hot)
Mud
Ozone levels
Weather

Appendix K: Visual Diagram of Strategies Coding Matrix




Codes
Categories
Themes
Request donations
Hold fundraisers
Use low cost items
Recycle items
Grow animal's food from garden
Give teachers a budget
Provide a NEOC budget
Develop "pick free" zones
Develop "picking gardens"
Consumables
Add a little at a time
Take responsibility for specific areas
Move some animals inside
Contain materials in designated areas
Maintenance
Materials
Allow exploration
Embrace a natural consequence philosophy
Point out changes due to weather/season
Request appropriate clothing for children
Request change of clothes for children
Provide rain boots
Provide mitten box
Make a game out of clean up
Weather

Appendix L: Delineated Space Photos

Appendix M: Samples of Collected Documents

[redacted] ELC
OUTDOOR PROGRAM

2014-2015
PLAYGROUND EVENTS

There are several ways students at [redacted] celebrate nature. Sometimes these activities are in addition to the instruction which occurs in the classroom.

During playground time, parents can volunteer to open The Meadow, an area which includes a shallow pond teaming with minnows and tadpoles during most of the year. The children are allowed to temporarily catch the minnows for observation.

Each class has a raised garden bed for growing vegetables with the help of parent volunteers. Children are also encouraged to help plant flowers in and around the playground.

Four times a year, parents organize playground activities which highlight the season or nature in some way or occur when the gardens are harvested. These events are:

Fall Fun in October * Winter for the Birds in January

Stone Soup in January * Super Tuber Day in May

I invite you to help a child discover the mysteries of our world. Please sign up to participate in these events during your child's teacher visit or open house.

[redacted]S ELC
OUTDOOR PROGRAM

If a child is to keep alive his inborn sense of wonder...he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in.

[redacted]

Opening The Meadow

Thank you for opening The Meadow for our children! Here are a few guidelines...

Things to do before allowing children in the Meadow:

- Check to make sure area is safe.
- Fill up Galvanized tub with water

Rules for children:

- Children are to use walking feet around the pond. They may use the wood bridge or the stone bridge. No jumping across the stream. Do not step on "fake rock" cover for pump.
- Flowers are for eyes only.
- Rocks may only be thrown in galvanized tub. No throwing them in the pond. Sticks may be used in the tub as well, not the pond. They can tear the liner.
- No swimming! ☺ If a child does get wet...and they will, send them out to their teacher to change their clothes.

Rules for Meadow Parent:

- Be present while you have children in Meadow. No cell phones.
- Do not leave children unattended in Meadow for any reason. If you need to leave, call a teacher over.
- You are in charge of the Meadow. Don't be afraid to ask a child to leave if they are being unsafe/not following rules. Don't be afraid to ask a child to wait until another child leaves the meadow before they come in if you already have a crowd. Ask a teacher for help if you need it.

Fall Meadow Sign Up

Please sign up below to open the meadow for your child's class. This means you will come at least ONE time during the WEEK at playground time, your choice of the day.

WEEK	NAME	EMAIL
Sept. 8-12		
Sept. 15-19		
Sept. 22-26		
Sept. 29- Oct 3		
Oct 6-10		
Oct. 13-17		
Oct. 20-24		
Oct. 27-31		
Nov. 3-7		
Nov.10-14		
Nov. 17-21		
Nov. 24-25		
Dec. 1-5		
Dec. 8-11		

The Purple Box for the Meadow has various drawing implements and paper. The children are encouraged to observe and record their observations. You may be asked to write descriptions.
The Blue Basket- for fishing days.

[redacted] Early Learning Center

Science Camp

Week 1 June 8-12

Week 2 June 15-19

Program meets from 9 AM to Noon

The cost is $160/week.

Come join us on an adventure of exploration and discovery as we learn about the world around us. All activities will occur in a typical [redacted] environment, with everything from 'eyes only' to in-it-up-to-your-elbows 'hands on' activities. [redacted] will direct this camp along with the help of the [redacted] staff. The program meets in the [redacted] building, but spends a lot of time on our wonderful, shady playground. Spaces in this very popular program will be on a first come, first serve basis. Your child may attend both weeks, but they will essentially be the same.

What to remember:

Your child needs sturdy shoes or sandals with straps. (Preferably not flip flops).

Your child should wear clothes that can get dirty.

Your child should bring a water bottle for everyday and a towel for the last day. Please label them!

Apply sunscreen and/or insect repellent before drop off as [redacted] teachers are not allowed to apply these items.

Please return this form with payment to the office to enroll your child.

Don't delay! These two camps fill up very quickly!

Please circle session you would like your child to attend.

June 8-12 June 15-19

Child's name_____

Child's teacher for 2014-2015 _____

Parents_____

Phone #_____ E-mail _____

Emergency contact (name and number)_____

Allergies_____

I give permission to my child_____ to participate in all activities during their week of Science Camp.

Sign_____ Date_____

[redacted]

FOR OFFICE USE
Date Received _____
Received by _____
Check # _____
Amount_____

[redacted]

From: [redacted] [jsheridan@stthomasels.org]
Sent: Friday, January 02, 2015 8:40 AM
To: [redacted]
Subject: [redacted]

Good morning! You are receiving this e-mail because you signed up to help with our Winter for the Birds playground event. This is the schedule for this Thursday and Friday.

Thursday-
[redacted]

Friday-
[redacted]

You will be helping the children make granola for their snack first and then at their outside time you will be helping them make bird feeders by dipping pinecones in melted shortening and birdseed, stringing cranberries, raisins and popcorn on craft wire and filling Cutie rind baskets with birdseed.

If the weather is yucky, then we will do it on the classes' porches and hang them on the playground later.

Any questions, let me know.

Thanks for your help!
[redacted]

Sunday, April 27, 2014

Dear Parents,

Spring is a time for children to experience the wonders of nature. They will be excited to witness praying mantises hatching from an egg sac, caterpillars metamorphosing to chrysalises and then to butterflies, and lady bug larvae turning into lady bugs. We are waiting for the hatching of chicks five days from this Monday.

I have been very amazed by the children's own recognition, after our discussion, regarding the importan of using only their eyes. Because of this, the incubator temperature has kept at exactly 100° for the eggs, and the caterpillars, lady bug larvae, and praying mantises have remained unstressed. I know how difficult it is for young children to resist touching the machine and other delicate animal habitats.

It is a great pleasure to see children's excitement whenever they discover the cycle of life. We are very protective of these moments being led and discover by the children all on their own.

Among the many things we appreciate daily in our classroom, we are grateful to be with emotionally healthy children.

Respectfully yours,

[redacted]

Certificate of Attendance

by Dimensions Educational Research Foundation Certified Trainers

is awarded to

[redacted]

Name

To certify that he/she has attended

Using Your Outdoor Classroom

Name of workshop

on the date of 4/23/10

Julie Rose

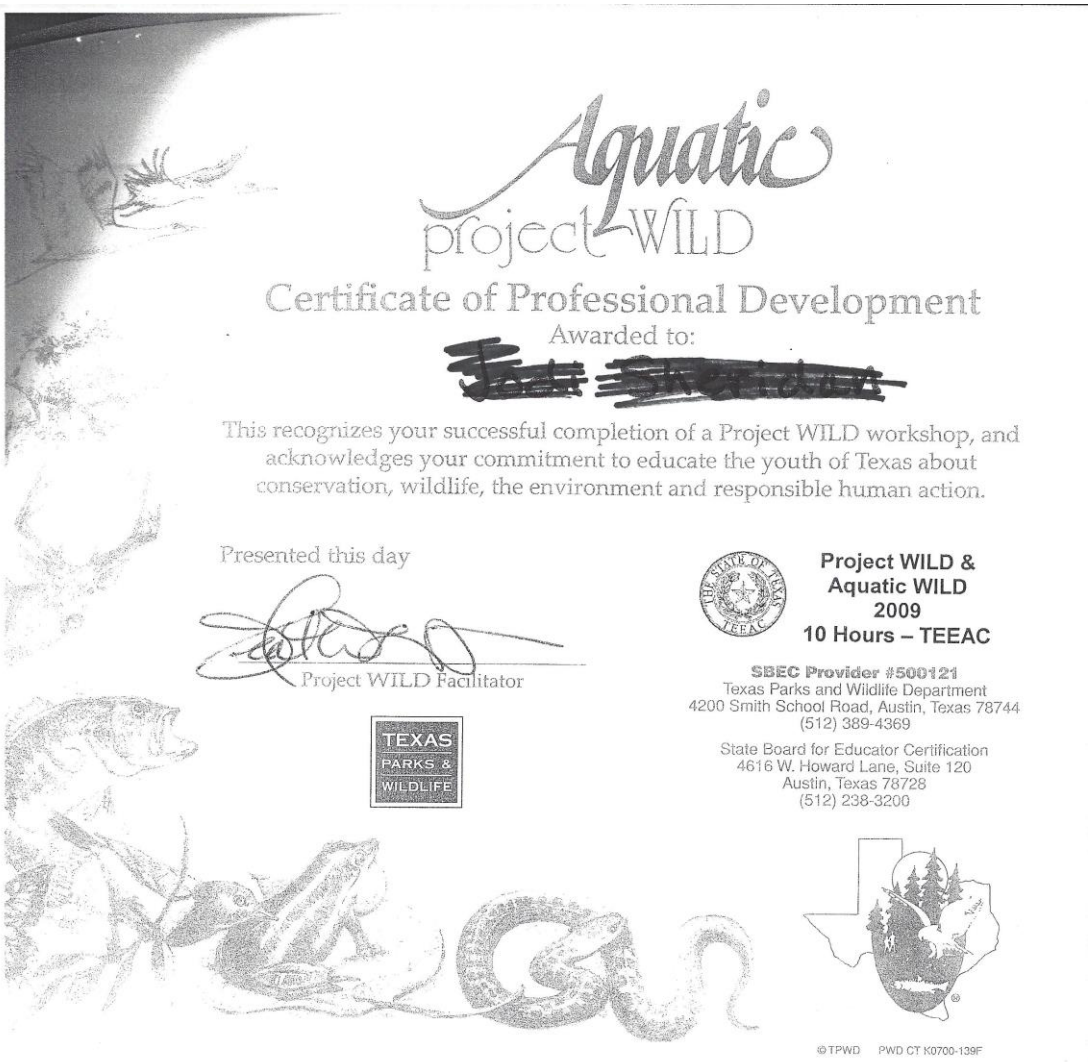
Workshops Director

3

Number of Contact Hours

NATURE EXPLORE®

A Collaborative Project of
Arbor Day Foundation and
Dimensions Educational Research Foundation



Aquatic project WILD

Certificate of Professional Development

Awarded to: [redacted]

This recognizes your successful completion of a Project WILD workshop, and acknowledges your commitment to educate the youth of Texas about conservation, wildlife, the environment and responsible human action.

Presented this day

Project WILD Facilitator

TEXAS PARKS & WILDLIFE

Project WILD & Aquatic WILD 2009
10 Hours – TEEAC

SBEC Provider #500121
Texas Parks and Wildlife Department
4200 Smith School Road, Austin, Texas 78744
(512) 389-4369

State Board for Educator Certification
4616 W. Howard Lane, Suite 120
Austin, Texas 78728
(512) 238-3200