The State of Outdoor Education in Northeast Tennessee: Preschool Teacher Attitudes Toward Outdoor Education

Cathy Landy
East Tennessee State University

Follow this and additional works at: https://dc.etsu.edu/etd

Part of the Early Childhood Education Commons

Recommended Citation

This Dissertation - Open Access is brought to you for free and open access by the Student Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact digilib@etsu.edu.
The State of Outdoor Education in Northeast Tennessee: Preschool Teacher Attitudes Toward Outdoor Education

A dissertation
presented to
the faculty of the Department of Early Childhood Education
East Tennessee State University
In partial fulfillment
of the requirements for the degree
Doctor of Philosophy in Early Childhood Education

by
Cathy Landy
August 2018

Dr. Amy Malkus, Chair
Dr. Jane Broderick
Dr. Pamela Evanshen

Keywords: Outdoor Education, Preschool Teachers, Attitudes, Outdoor Classrooms, Natural Playspaces, Early Childhood Outdoor Experiences
ABSTRACT

The State of Outdoor Education in Northeast Tennessee: Preschool Teacher Attitudes Toward Outdoor Education

by

Cathy Landy

The purpose of this study was to investigate the state of outdoor education in preschool classrooms in Northeast Tennessee, with a specific focus on preschool teachers’ attitudes toward outdoor education. This comparative, mixed-methods study focused in part on teachers’ current beliefs about outdoor education, how they use the outdoor environment, and whether their attitudes influence their lesson planning for outdoor education. Participants were preschool teachers in public, private, church-affiliated, and Head Start preschools in 4 counties in northeast Tennessee. The study sample consisted of 81 participants (80 female; 1 male). Ages ranged from 20-65 years ($M = 40.76$). The survey consisted of 42 questions, including demographics, outdoor education experiences, and attitudes toward outdoor education. Teachers were compared on several factors: attitudes toward outdoor education, their early experiences in the outdoors, and how they use the outdoor environment. Thirty-three outdoor environments in the aforementioned preschools were assessed using the Preschool Outdoor Environment Measurement Scale (POEMS) (DeBord, Hestenes, Moore, Cosco, & McGinnis, 2005). Eight preschool teachers from the pool of 81 participants were selected at random based on their school’s playground/outdoor environment assessment (high vs. low quality) and their own attitudes (positive vs. negative) toward outdoor education. Interviews were conducted to give a more complete picture of preschool outdoor education.
Results showed that preschool teachers had relatively high attitudes on outdoor education ($M = 75.86$, $SD = 7.99$) on a scaled score where 100 was the highest possible. Teachers who reported planning lessons for outdoor learning had slightly higher attitudes ($M = 76.9$, $SD = 7.6$) toward outdoor education than those who do not plan ($M = 74.1$, $SD = 9.0$), although differences were not significant $F(1, 76) = 1.134$, $p = 0.29$. Most teachers referred to the outdoor area as a playground (84%) and used it most frequently for supervised play (99%). These findings, along with others reported, indicate that although preschool teachers see the benefits of outdoor learning, there are still barriers to outdoor education.
DEDICATION

This study is dedicated to my children, grandchildren, and children around the world. May your days be blessed with hours of enjoyment and fun in beautiful natural surroundings. “Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts.”— Rachel Carson, The Sense of Wonder
ACKNOWLEDGEMENTS

A study such as this involved the contributions of many individuals in order to complete. I would like to take this opportunity to acknowledge and thank all those who helped me along this journey. First I would like to thank my husband, children and their spouses for all your love, patience, support and encouragement along the way and always; and especially to my grandchild who provided inspiration for this project! To my family, friends and colleagues who are too numerous to name (you know who you are!): a big thank you for pushing me along—encouraging, proofreading, typing, and most of all being my strength and sustaining me during the long days. I would also like to recognize the participants in this study—the dedication of the teachers and schools that participated is greatly appreciated.

I would like to express my deepest appreciation to Dr. Amy Malkus, my committee Chair, for her support, insight, understanding, and willingness to guide me through this process. To my committee members Dr. Pam Evanshen and Dr. Jane Broderick: thank you for introducing me to the most exciting program I have undertaken thus far—I couldn’t have done it without your kindness and friendship. I have learned so much in the field of early childhood and look forward to participating in more research with all of you!
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>2</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>4</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>5</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>12</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>14</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>16</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>16</td>
</tr>
<tr>
<td>Introduction to Outdoor Education</td>
<td>17</td>
</tr>
<tr>
<td>Outdoor Education in Preschool</td>
<td>18</td>
</tr>
<tr>
<td>Environment as Third Teacher</td>
<td>19</td>
</tr>
<tr>
<td>Teaching Outdoors</td>
<td>19</td>
</tr>
<tr>
<td>Benefits of Outdoor Play</td>
<td>20</td>
</tr>
<tr>
<td>Barriers to Outdoor Play</td>
<td>21</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>21</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>22</td>
</tr>
<tr>
<td>2. REVIEW OF LITERATURE</td>
<td>23</td>
</tr>
<tr>
<td>Introduction</td>
<td>23</td>
</tr>
<tr>
<td>Brief History of Outdoor Education</td>
<td>23</td>
</tr>
<tr>
<td>Current Trends</td>
<td>27</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>29</td>
</tr>
</tbody>
</table>
Jean Piaget.........................................................................................................................29
Lev Vygotsky.....................................................................................................................30
John Dewey......................................................................................................................31
Howard Gardner................................................................................................................32
Developmentally Appropriate Practices .................................................................34
Play and Nature Play......................................................................................................35
Environment as Third Teacher ....................................................................................37
Outdoor Classrooms and Natural Playscapes .........................................................38
Benefits of Outdoor Learning .......................................................................................48
Barriers to Using the Outdoor Classroom .................................................................51
Teacher Attitudes and Influences ..............................................................................52
Research Questions .....................................................................................................56

3. METHODOLOGY .........................................................................................................57

Research Design .........................................................................................................57
Population ...................................................................................................................58
Phase I—Survey ..........................................................................................................58
Sample .........................................................................................................................58
Measures ......................................................................................................................59

Preschool Teacher Outdoor Education and Attitude Survey (PTOEAS) ...................59

Validity and Reliability of Test Instrument ..............................................................60

Procedures ..................................................................................................................60
Phase II—Playground Assessment .................................................................61

Sample ........................................................................................................61

Measures .......................................................................................................62

Preschool Outdoor Environment Measurement Scale: Domain 3 ..........62

Procedures ..................................................................................................62

Phase III—Teacher Interviews ........................................................................63

Sample ........................................................................................................63

Measures .......................................................................................................64

Outdoor Education Interview (OEI) ..............................................................64

Validity and Reliability of Test Instrument .................................................64

Procedures ..................................................................................................65

4. RESULTS ..................................................................................................66

Demographic Information about Participants ..............................................66

Phase I—Survey Questions...........................................................................67

Q1: How Do You Refer to Your School’s Outdoor Area? .........................67

Q2: How Did You Use the Outdoor Area in the Past Year? .......................68

Q3: Top 3 Outdoor Activities for Outdoor Learning .................................70

Q4: Outdoor Education Includes Exploring (Check All That Apply) ........71
Q5: How Often Do Your Children Use the Outdoors for Learning? .....................73
Q6: How Much Time Do the Children Spend Outdoors Per Lesson? .................74
Q7: Who Accompanies the Children Outdoors? ...................................................74
Q8: Do You Prepare Lesson Plans for Outdoor Learning? .................................75
Q9: What Are the Most Important Benefits to Outdoor Education? .....................76
Q10: What Are Your Biggest Challenges to Teaching Children Outdoors? .........77
Q11: Who Do You Have Encouragement/Support From for Outdoor Education? ...........................................................................................................78
Q12: What Things Would Enable You to Teach More in the Outdoors? ..............79
Q13: Early Outdoor Experiences of Teachers ......................................................80
Q14: How Frequently Did You Go Outside as a Child? .......................................82
Q15: When Outside Playing, How Frequently Were You Supervised? ...............82
Q16: Would You Be Interested in Attending an Outdoor Training Workshop? ...83

Phase II—Playground Assessment .........................................................................84

Distribution of POEMS Scores .............................................................................85

Phase III—Interview Questions .............................................................................86

Interview Themes ..................................................................................................86

Research Questions .................................................................................................87
Central Research Question: What Is the Overall State of Outdoor Education in Preschools in Northeast Tennessee? .................................................................87

Descriptive Statistics for Teacher’s Attitude Toward Outdoor Education 87

Teacher Attitudes Toward Outdoor Education ..............................................88

Research Question 1 ..............................................................................................88

Formal Test for Population Differences ...............................................................90

Research Question 2 ..............................................................................................91

Research Question 3 ..............................................................................................93

Research Question 4 ..............................................................................................95

Research Question 5 ..............................................................................................95

Research Question Around POEMS Assessment ...............................................97

5. DISCUSSION ............................................................................................................................99

Phase I—Survey Questions.......................................................................................99

Benefits ................................................................................................................100

Barriers.....................................................................................................................100

Attitudes...................................................................................................................101

Phase II--POEMS.............................................................................................................102

Phase III--Interviews......................................................................................................104

Research Questions.................................................................................................106
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Highest Level of Education</td>
<td>67</td>
</tr>
<tr>
<td>2. Years of Teaching</td>
<td>67</td>
</tr>
<tr>
<td>3. How Do You Refer to Your School’s Outdoor Area?</td>
<td>68</td>
</tr>
<tr>
<td>4. Uses of Outdoor Area</td>
<td>69</td>
</tr>
<tr>
<td>5. Top 3 Outdoor Activities for Learning</td>
<td>70</td>
</tr>
<tr>
<td>6. Types of Outdoor Explorations</td>
<td>72</td>
</tr>
<tr>
<td>7. How Often Do Your Children Use the Outdoors for Learning</td>
<td>73</td>
</tr>
<tr>
<td>8. Time Spent Outdoors Per Lesson</td>
<td>74</td>
</tr>
<tr>
<td>9. Who Accompanies Children Outdoors?</td>
<td>74</td>
</tr>
<tr>
<td>10. Prepare Lesson Plans</td>
<td>75</td>
</tr>
<tr>
<td>11. Ranking of Benefits of Outdoor Education</td>
<td>76</td>
</tr>
<tr>
<td>12. Ranking of Challenges to Teaching Outdoors</td>
<td>77</td>
</tr>
<tr>
<td>13. Encouragement or Support</td>
<td>78</td>
</tr>
<tr>
<td>14. Most Important Themes for Teaching Outdoors</td>
<td>79</td>
</tr>
<tr>
<td>15. Early Outdoor Experiences</td>
<td>81</td>
</tr>
<tr>
<td>16. Playing Outdoors as a Child</td>
<td>82</td>
</tr>
<tr>
<td>17. Supervision During Outdoor Play as a Child</td>
<td>83</td>
</tr>
<tr>
<td>18. Interest in Training</td>
<td>83</td>
</tr>
<tr>
<td>19. Types of Preschools</td>
<td>84</td>
</tr>
<tr>
<td>20. Playground Scores – POEMS Assessment</td>
<td>86</td>
</tr>
<tr>
<td>21. Descriptive Statistics – Preschool Teacher Outdoor Education and Attitude Survey</td>
<td>88</td>
</tr>
</tbody>
</table>
22. Descriptive Statistics for the Preschool Teacher Outdoor Education and Attitude Survey (PTOEAS), for All Teachers and by Planning Status .................................................................89

23. Descriptive Statistics for the Preschool Outdoor Education and Attitude Survey (Scaled), for All Teachers and by Frequency of Playing Outside as a Child .................................................92

24. Descriptive Statistics for How Many Types of Childhood Experiences a Teacher Selected .94

25. Distribution of Teachers’ Use of an Outdoor Area vs the Name Teachers Use for the Outdoor Area ...........................................................................................................................96

26. Descriptive Statistics for the POEMS Assessment for All Teachers and Teacher’s Name for Play Area ........................................................................................................................97
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Outdoor area as referred to by teachers</td>
<td>68</td>
</tr>
<tr>
<td>2.</td>
<td>How outdoor area was used</td>
<td>69</td>
</tr>
<tr>
<td>3.</td>
<td>Outdoor activities for learning</td>
<td>71</td>
</tr>
<tr>
<td>4.</td>
<td>Types of outdoor explorations</td>
<td>72</td>
</tr>
<tr>
<td>5.</td>
<td>How often children go outside for learning</td>
<td>73</td>
</tr>
<tr>
<td>6.</td>
<td>Who accompanies children outdoors?</td>
<td>75</td>
</tr>
<tr>
<td>7.</td>
<td>Prepare lesson plans for outdoor learning</td>
<td>75</td>
</tr>
<tr>
<td>8.</td>
<td>Benefits of outdoor education</td>
<td>76</td>
</tr>
<tr>
<td>9.</td>
<td>Challenges to teaching outdoors</td>
<td>78</td>
</tr>
<tr>
<td>10.</td>
<td>Who provides encouragement or support for teaching outdoors?</td>
<td>79</td>
</tr>
<tr>
<td>11.</td>
<td>What is needed to teach outdoors?</td>
<td>80</td>
</tr>
<tr>
<td>12.</td>
<td>Early outdoor experiences</td>
<td>82</td>
</tr>
<tr>
<td>13.</td>
<td>Supervision outdoors as a child</td>
<td>83</td>
</tr>
<tr>
<td>14.</td>
<td>Teachers who would like training on outdoor education</td>
<td>84</td>
</tr>
<tr>
<td>15.</td>
<td>Types of preschools</td>
<td>85</td>
</tr>
<tr>
<td>16.</td>
<td>Distribution of POEMS scores among preschools</td>
<td>86</td>
</tr>
<tr>
<td>17.</td>
<td>Attitude toward outdoor education (scaled)</td>
<td>88</td>
</tr>
<tr>
<td>18.</td>
<td>Attitude toward outdoor education (scaled) sorted by lesson planning</td>
<td>90</td>
</tr>
<tr>
<td>19.</td>
<td>Frequency of outdoor play as a child</td>
<td>92</td>
</tr>
<tr>
<td>20.</td>
<td>How many types of childhood outdoor experiences a teacher selected</td>
<td>94</td>
</tr>
<tr>
<td>21.</td>
<td>Distribution of POEMS scores among teachers by teacher’s name for outdoor play area</td>
<td>98</td>
</tr>
<tr>
<td>Figure</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>22. High quality outdoor environments</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>23. Low quality outdoor environments</td>
<td>104</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

Statement of the Problem

In a world of high-stakes academic testing and technological advances, there is a rapid decrease in opportunities for children to connect with the natural world. When children enter school, many have little direct contact with natural environments. Research suggests that it is important for children to have the opportunity to interact with nature and learn in an outdoor environment (Dowdell, Gray, & Malone, 2011; Louv, 2008; Rice & Torquati, 2013). Exposing children to nature enhances their growth and development. Furthermore, educators need to recognize that students, just being outdoors, feeling the dirt in their hands, grasping and examining trees and other plants, impacts a child's cognitive development in a positive way. Children must be allowed time to ponder their world while investigating their surroundings. Although teachers may feel awkward teaching in an outdoor environment at first, a concerted effort to gain a bit of training and experience will increase their confidence and provide both teacher and student with an enjoyable learning experience.

The outdoor environment offers an authentic context for learning and provides opportunities for students to develop a wide range of important skills. Researchers have found that unstructured outdoor play in an outdoor environment, in addition to providing an opportunity for children to develop physical, social, cognitive, and emotional skills, positively affects many aspects of a child’s health and well-being (Chawla, 2014; Jacobi-Vessels, 2013; Louv, 2008; Moffett, 2012)
Introduction to Outdoor Education

In Louv's (2008) book, *Last Child in the Woods*, he stated that contemporary children, who spend all their classroom and home hours indoors suffer from what he labeled "Nature Deficit Disorder." He reported that newer studies clearly indicate that a daily dose of the outdoors is crucial to a student's development, including behavior, attitude, and even class attendance. Outdoor classrooms prevent the fatigue of sitting in a traditional classroom and allow an authentic way for students to learn. As early as the 1930’s, L. B. Sharp said

Outdoor education is a common sense method of learning. It is natural; it is plain, direct, and simple. The principle thesis which underlies the implications of outdoor education for all subject matter…is: That which can be learned in the out of doors through direct experiences, dealing with native materials and life situations, should be learned there (Donaldson & Goering, 1970, p. 2).

Adkins and Simmons (2002) discussed many of the definitions of outdoor and environmental education and the perception that they are interchangeable. The purpose of their study was to clarify the boundaries: outdoor education deals primarily with educational experiences taking place in the outdoors, whereas environmental education has the goal of developing a mindset of concern and awareness for the environment and its issues. Outdoor education has arisen as a context for learning and can be viewed as a process where the learner constructs knowledge about the outside world, as well as skill and value from direct experiences.

The history of outdoor education in the early part of the 20th century was based on a philosophy of “roughing it” in the outdoors. As educators began to realize the potential of outdoor classrooms and also with the environmental education movement in the 1970s, more emphasis was placed on tying outdoor learning experiences with the curriculum. Today,
however, there is a push for testing based on “book learning”, and with the advancement of technology there has been a reduced connection between children and nature in educational programs. A growing number of individuals have been working in the last decade to call attention to the importance of a child’s access to nature (Keeler, 2008; Louv, 2008). They tout the benefits of special outdoor places that enhance a child’s connection with the natural environment.

**Outdoor Education in Preschool**

There are many different types of preschools including for-profit, not-for profit, public schools, and private child care facilities. The issue of quality in child care centers, especially planning outdoor spaces for young children, has been examined in work by DeBord, Moore, Hestenes, Cosco and McGinnis (2010). Preschool and child care programs can contribute to children’s learning and development by maximizing opportunities outdoors that promote investigation, exploration and movement, and enrich both teacher-child and peer interactions. Natural outdoor play spaces engage children’s curiosity and stimulate their imaginations as they explore their surroundings, learning in ways that go beyond their indoor experiences. Working with different advocates of outdoor education, the *Nature Explore* program (www.natureexplore.org) provides research-based outdoor classroom designs, workshops for educators, and natural products that transform children’s lives. In a research study with a Nature Explore Classroom, it was reported that preschool children developed a variety of skills simultaneously, including language, manipulation of objects, and cooperation (Wirth & Rosenow, 2012).
Environment as Third Teacher

Outdoor education that is well planned and taught effectively offers students opportunities to develop their knowledge and skills in ways that add value to their everyday experiences in the classroom (Dillon et al., 2006). Beyond the four walls of the school, the outdoor classroom offers possibilities through which children can be stimulated in various curriculum areas. Many teachers fail to recognize these opportunities, and some schools use only their indoor classrooms for teaching. However, schools that initiate an outdoor education program as part of their curriculum assume that outdoor education aids in student learning (Chase, 1969). An article by Luckner and Humphries (1992) provides a rationale for using the outdoors as a way to enrich learning that takes place in the classrooms. Using the outdoors can be applied to all curriculum areas. Lessons that take place in the outdoors help to enhance the skills, appreciation, and attitudes of the students relating to nature and the environment. Using the outdoors as a learning laboratory is an exciting way to provide concrete, direct experiences that are easy to generalize to the real world because that is where the real learning is taking place.

Teaching Outdoors

Early childhood educators with limited opportunities to explore natural outdoor environments as children may not understand the benefits in natural outdoor settings due to their own lack of experiences (Crim, Desjean-Perrotta, & Moseley 2008). Additionally, there are many perceived barriers that may also limit the practice of those early childhood educators who recognize the fundamental importance of nature experiences in childhood. Many educators are unable to think of the outdoor environment as an extension of the indoor classroom. Chakravarthi (2009) suggested that astute teachers believe that the perfect outdoor learning
environment facilitates growth in a child's burgeoning skill set and physical development. Additionally, it was determined that outdoor settings contributed greatly to their emotional and social development. Naturally, the outdoor setting is the ideal place to teach and learn man's relationship with the planet and its natural resources. Children learn, and grow, with the addition of a dynamic outdoor classroom in their daily regimen.

Outdoor learning environments can enhance the development of children across all domains. However, studies conducted by Chakravarthi (2009) and Davies (1997) found that teachers mainly reported their role in the outdoor environment as supervising and maintaining safety, thus limiting opportunities that teachers can provide for children outdoors. Teachers can miss the opportunity to scaffold children’s learning in outdoor settings due to their limited perceptions of their role as supervisor and lack of meaningful involvement in children’s outdoor play.

**Benefits of Outdoor Play**

Kuo (2010) and Chawla (2012) are at the forefront of spreading awareness about outdoor benefits. In a report for the National Recreation and Park Association, Kuo (2010) makes the case for nature in the lives of everyone, especially children. Many of the benefits she discusses about spending more time in nature include: better cognitive functioning, more self-discipline and impulse control, and greater resilience in response to stressful life events. She also reveals that less nature results in: exacerbated ADHD symptoms, more sadness and depression, and greater rates of childhood obesity (Kuo, 2010). Chawla (2012) says that natural environments produce better concentration, better motor coordination and agility, and more cooperative, creative social play and scientific inquiry.
Barriers to Outdoor Play

Half a century ago, it was taken for granted that children spent time outdoors (Clements, 2004). Our society's evolutionary process has brought us to the point where our children's natural inclinations to explore outdoors and nature at home are frequently hampered. Concerns such as safety; pollution; busier family schedules; availability of space; and too much TV, video games, and cell phones have eroded the former joy of outdoor activities for our children. One child was quoted as saying he wanted to play indoors because “that’s where the electrical outlets are” (Louv, 2008, p. 10). Technology is not the enemy—adults must provide a balance of indoor and outdoor activities if they are to help a child develop in all areas.

Many families are also concerned when their children play outside alone, therefore parents place them in more organized activities. “ Stranger danger” and the possibility of their child being abducted leads parents to be cautious. The Center for Missing and Exploited Children, founded in the 1980s, has increased awareness of these dangers, however, only a small percentage of abductions are conducted by unknown individuals (Rivkin, 2014).

Significance of the Study

Research in regards to educators’ attitudes toward outdoor classrooms are seldom found (Moffett, 2012). The goal of this study was to investigate preschool teacher attitudes about outdoor education and to illustrate the need for further education of our teachers on the importance of using outdoor classrooms in instruction. The results showed that an outdoor classroom program should be implemented into the structured education curricula, especially for young children. Behaviors of individuals are influenced in a large part by their attitudes—and knowledge of teacher attitudes towards outdoor education makes it possible to design a program to gain their support (Hammerman, Hammerman & Hammerman, 1994).
The significance of the problem leading to this study is that most teachers concentrate on children’s construction of knowledge in the indoor classroom environment; there is very little research on preschool teachers’ attitudes in relation to outdoor education. Therefore, the focus of this study was to determine preschool teacher attitudes on outdoor education and whether or not this affected their use of outdoor play spaces for learning. The purpose of this mixed-methods study was to explore, and to the extent possible, identify patterns in teacher attitudes toward outdoor education, their early childhood outdoor experiences, and how teachers use the outdoors for learning. Additionally, the overall quality of preschool outdoor classrooms was evaluated using the POEMS (DeBord et al., 2005).

**Definition of Terms**

- Primarily, *outdoor education* simply means education, or outdoor experiential (hands-on) learning that takes place in the outdoor environment (Hammerman et al., 1994). It is based on the premise that learning experiences outdoors in nature can heighten an individual’s appreciation of the natural world, which may result in pro-environmental awareness and action (Clarke & Mcphie, 2014). The term outdoor education is sometimes referred to synonymously with adventure education and environmental education (Gillenwater, 2009). Although it does draw upon activities related to these areas, adventure education focuses on the recreation side, while environmental education concentrates on environmental issues. Outdoor education, by contrast, focuses on place-based learning in the outdoors with a variety of subjects (e.g., science, math, art, etc.)

- An *outdoor classroom*, as defined by Kimbro (2006) “is an outdoor educational facility that can be developed into a natural study ground for educators (and) students. …All subjects or curriculum can be presented in an outdoor classroom” (p. 1).
CHAPTER 2
REVIEW OF LITERATURE

Introduction

This chapter focuses on the literature that supports the purpose of the study discussed in Chapter 1. Education is seen as a means for transmitting and acquiring cultural knowledge and values as well as skills (Pai & Adler, 2001; Spindler & Spindler, 1997) with “the express purpose of inducting the young into the culture of the society into which they were born and in which they must learn to live as responsible and useful members of the community” (Pulliam 2003, p. 4).

Outdoor education (OE) can be interpreted in many different ways, depending on time period and culture, therefore it is difficult to define. Conservationists relate it to the use of natural resources, recreationalists see it as a means for pursuing joyful experiences, and environmentalists view it as helping others to develop an attitude of responsibility and care for our environment (Hammerman et al., 1994). The views of classroom teachers may be for the purpose of imparting knowledge about the environment. Information about outdoor education, theories, nature play, outdoor classrooms, and teacher attitudes will be presented.

Brief History of Outdoor Education

Philosophers Comenius, Rousseau, Pestalozzi, and Dewey indoctrinated the basic elements for outdoor education (Hammerman et al., 1994). John Amos Comenius (1592-1670) advocated for sensory learning because he believed that children should first experience the natural world through the five senses before academic learning. These early observations helped to prepare for future studies in earth sciences. Jean Jacques Rousseau (1712-1778) continued Comenius’s nature principles through the education of Emile. Rousseau sought to encourage the
child’s curiosity and physical activity so that learning evolved through direct, sensory, and rational experiences, rather than literary, linguistic, indirect experiences through books. Rousseau claimed, “Our first teachers are our feet, our hands, and our eyes. To substitute books for all these…. is to teach us the reason of others” (Hammerman et al., 1994, p. 2).

John Heinrich Pestalozzi (1746-1827), in his Switzerland farm home, also stressed firsthand experiences through teaching practical skills as well as academic ones. He believed through farming, housekeeping, spinning, weaving, nature study, and geography the learner would develop independent principles and generalizations in later studies (Neill, 2007). Like Rousseau, Pestalozzi encouraged outdoor educational experiences. He agreed with Rousseau; children need nature (Neill, 2007). Nature, the true teacher, inspires them to listen, and to learn from the natural world around them. The effective teacher simply walks alongside student, quietly observing, but engaging with them as they ask questions (Neill, 2007).

Taking the ideas of the earlier philosophers another step forward, John Dewey (1859-1952) proposed that educators change the traditional methods of learning to something that more closely resembles the child’s life in the physical, natural, and social world which would result in more significant learning (Mooney, 2002). Dewey posited that if the learner and teacher were freed from traditional educational norms, then there would be a natural correlation between different subjects (Mooney, 2002).

The nature study movement grew out of a response to industrialized America in the late 1800s. Nature study advocates believed that children growing up in society would be happier studying and discovering nature, thus giving rise to science teaching in schools. According to Liberty Hyde Bailey (1858-1954) in The Nature Study Idea, this movement began developing between 1884 and 1890 (Neill, 2007). Bailey recognized Louis Agassiz (1807-1873) as the first
scientist to take his students into the field, supporting his motto: *study nature, not books* (Neill, 2007). His summer school for teachers made a significant impact to the American nature study movement (Neill, 2007). From Dewey’s early 20th century work and the previous philosophies above, the nature study movement evolved, leading to the methodologies now used in today’s outdoor education programs.

These early contributions led to a major breakthrough in outdoor education during the 1930s when many educators began recognizing the inherent educational values in summer camp. Contributing an early study, L.B. Sharp’s (1930) dissertation delineated a relationship between Dewey’s goals and the camp environment, encouraging camping to be a part of the regular school program, arguing that it is an educational process because of the similarities between real-life and camping. Sharp’s (1930) significant ideas led to a rapid nationwide expansion of school camping.

As these ideas grew, the terminology changed starting in the 1950s. “Camping” was replaced with “outdoor school” and “outdoor laboratories,” and the curriculum for these educational experiences began to focus on the needs and interests of the students themselves. Sharp then founded the Outdoor Education Association. In May 1958, sponsored by the American Association for Health, Physical Education and Recreation, the First National Conference on Outdoor Education was held in Washington, DC, attracting many representatives of professional organizations and governmental agencies, as well as school and college administrators and teachers, conservationists and recreationists (Hammerman et al., 1994).

The literature of the 1960s extended the growing influence of outdoor education in the school sector. *The Role of Outdoor Education* (1965); *Curriculum Enrichment Outdoors* (1965); *Outdoor Education* (1967) and Hammerman and Hammerman’s *Outdoor Education* (1968)
reflected this growth. Those seeking to experience self-discovery in the wild in order to transfer lessons of self-awareness, respect for others, and environmental concerns to regular life at school, home, and community popularized the idea of adventure education. Mankind’s connection to nature, an original hallmark of outdoor education, experienced exponential growth during the later 1960s, furthering the influence of outdoor education and environmental education, and in some cases combining the two, centering on the idea: education in the environment, for the environment, and about the environment (Donaldson & Donaldson, 1958).

In the 1970’s it became clear that some environmental problems were created by humanity. As people began to realize the depth of the environmental crisis, environmental education evolved as a combination of nature study, conservation education, and outdoor education. Some believe the synthesis of nature studies and learning in or from the environment, and most recently, education focused on environmental protection, has evolved to what we currently consider environmental education (EE).

Many outdoor education programs in the 1970s focused on environmental education, leading to the enactment of the National Environmental Education Act (October, 1970) and the establishment of Earth Day (April 22, 1979). Simon Chavez was adamant that people understand the correlations between man and the environment in order to effectively face the environmental crises of the time (Hammerman, Hammerman, & Hammerman, 2001). He felt that children should, and do, learn better from reality, as opposed to a traditional classroom structure. Their subsequent education is based on their actual experiences and questions; discovery and final analysis make the lessons learned more vivid. It is a very effective way for children to develop and exercise their natural physical, aesthetic, and cognitive abilities, which can be achieved with outdoor education (Hammerman et al., 2001). As a result of the many dedicated educators and
others in the fields of recreation, conservation, social welfare, camping, and even natural science, a new vision, referred to as the outdoor education movement, has taken hold.

This movement has arrived, becoming an essential component of school curricula, continuing the age-old idea of learning from reality. From its back-to-basics roots, this innovative learning force has grown to include advancements in the categories of urban ecology, field studies, and adventure education, to name a few. No longer in the experimental phase, these curricular trends are enduring. Learning from experience with nature will always be a key component of education, regardless of how complicated our technology or how modernized our society becomes. The natural impulses to connect with our environment that began what we call outdoor education is now a globalized force, insuring that it is long-lasting.

**Current Trends**

Early 20th century nature study and outdoor educators offered many reasons for studying nature that sound surprisingly similar to contemporary views. Fueled by the publication of his book, *Last Child in the Woods* (Louv, 2008), the Children & Nature Network (C&NN) was co-founded by Louv and others in 2006 to provide resources and success stories about children learning from nature and includes links to the latest research that is dedicated to the many benefits the outdoors provides. It is a network that encourages people worldwide to reconnect children to nature. With C&NN’s support, in 2014, 396 grassroots campaigns connected more than 3.5 million children to nature encounters in 48 states and 12 nations (www.childrenandnature.org).

The *new nature movement* (NNM) is described in Louv’s book *The Nature Principle* (2011) as an effort to expand on the initiatives of the worldwide children and nature movement. Louv (2011) and other guest writers offer commentaries with a goal of creating
a nature-rich society. Chawla (2013) states that the foundation of this movement is based on “the idea that as humans we cannot only make our ecological footprints as light as possible, but we can actually leave places better than when we came to them, making them places of delight” (para. 4).

As students continue to turn on computers, play video games and watch countless hours of TV, the world faces environmental crises such as the greenhouse effect, water pollution, etc. Lieberstein (1991) touts that if poor environmental ethics are to be changed, outdoor education must come to the forefront. It is often noted that EE should be taught in the lower grades with the study of the natural world (Adkins & Simmons, 2002; Basile, 2000; Leemimg, Dwyer, Porter, & Cobern, 1993; Wilson, 1996). However, teaching environmental education and sustainability in preschools becomes problematic if teachers mainly convey knowledge and responsibility for saving the earth (Sobel, 1996).

Advocates for OE believe it should be taught in preschool and say that EE should be kept for the later grades. Sobel (1996), in line with Piaget (1952), believes empathy should be stressed in early childhood, and elementary school is when environmental education should be introduced. Early childhood activities should be more connected to the natural world. Middle childhood should focus on exploration, and early adolescence should inspire social action to help change their world for the better, which can truly be enhanced by early, frequent exposure to the natural world (Sobel, 1996).

Children must develop a loving relationship with the natural world first. Outdoor education in the early years provides opportunities to connect children to nature. Children will be more likely to help heal and improve their natural world after having had firsthand experiences with the natural environment, learning to love and respect it, and to feel comfortable
in its surroundings. Simply put, children must learn to love the world before they can protect it. John Burroughs, American naturalist (1837 – 1921), stated “Knowledge without love will not stick. But if love comes first, knowledge is sure to follow” (White & Stoeklin, 2008, para. 6). For this reason, it is vital for preschools in the U.S. to promote outdoor education. Teachers must use engaging activities in their local outdoor environment to motivate their students to, hopefully, make the kinds of choices and behave in a way that will sustain our planet.

**Theoretical Framework**

Childhood growth and development depend in a large part on being connected to the natural world. Time outdoors allows children the freedom to explore, create their own activities and use their imagination. However, today’s children are spending more time indoors and less time in nature (Rosenow, 2008). White (2008) aptly recognized that an exhilarating outdoor environment will certainly provide a more all-encompassing growth for a child's body and mind than a limiting indoor classroom.

The guiding theories that provide the basis for this study include those of the constructivist philosophers Piaget (1952) and Vygotsky (1962); child development expert, John Dewey (Mooney, 2000); and multiple intelligence theorist, Howard Gardner (1983).

**Jean Piaget**

Children between birth and 6 years old learn best through their senses; therefore they benefit from direct contact with nature (Humphreys, 2000). Piaget (1952) declares that lack of differentiation between the self and other is characteristic of the early childhood years. Empathy, especially for creatures living in their world, should be encouraged for children in preschool. Promoting relationships with real or imagined animals can foster empathy during these years. Sobel (1996) expounded upon early childhood development by explaining that a young child's
activities should include outdoor natural play and learning, thus developing a feeling of empathy with nature.

Improving the sensory awareness of a child suggests improving the ability to use all senses and being able to better observe and distinguish details and concepts, as well as promoting the ability to appreciate beauty, express creativity, and perceive patterns (Torquati & Barber, 2005). Understanding nature can be enhanced through exploring, making observations, and discovering details as experienced through the senses. Nature can improve sensory awareness and can extend into learning areas such as literacy, problem-solving, and observation. Nature offers limitless opportunities to expand a child’s play (Torquati & Barber, 2005). In addition to play development, it can also cultivate social, literacy and language skills. Fostering a child’s connection to the natural world is somewhat easily done as almost everything a child engages in is connected to nature. For instance, children may become closer to nature through interactions with their peers outdoors. As children develop a sense of closeness with nature, their respect of the environment grows. When children feel a connection to nature, they not only recognize its beauty, but also their role as stewards (Boeve-de Pauw, 2012; Davis, 1998; Hayes, 2009).

**Lev Vygotsky**

Play is not only the work of children, but it is what they need to do to learn. The process for the healthy development of children requires play. Lev Vygotsky, a forerunner in early education, believed that play is the highest level of development for young children and that play helps to develop areas of creativity, problem-solving, logic, social skills, and language acquisition (Vygotsky, 1962). Like Piaget, Vygotsky (1962) believed that when children play, much learning takes place. Vygotsky (1962) believed that children’s development and learning language build on each other. Children constantly use language as they play. One of Vygotsky’s
primary contributions to our understanding of a child’s development is realizing the importance of interacting with teachers as well as peers in children’s construction of knowledge. Vygotsky (1962) referred to a teacher or peer in offering a child assistance as *scaffolding*. He understood that teachers need to be acute observers of children in order to scaffold well. Vygotsky (1962) also believed that to help build a child’s cognitive development, teachers and peers present the language necessary through shared experiences—interactions are important to learning. Teachers can encourage conversations, interactions, and experimentation so that the children can increase their skills.

Nature activities that provide quality experiences and allow exploration foster children to examine materials in many ways, including through actions and questions (Henderson & Atencio, 2007). Henderson and Atencio (2007) recognized that play gives children the opportunity for exploration and discovery in their experiences, behaviors, roles, thoughts, and skills at a degree substantially higher than their normal degree of cognition. Isaacs in *Social Development in Children* (1946) extolled the virtues of childhood playing. She said it is not simply a means of discovery; it is also crucial for achieving psychic equilibrium in a child's early developmental stages.

**John Dewey**

John Dewey’s works have contributed much to the progressive education movement in American education (Mooney, 2000). In the early 20th century, Dewey published his book *Experience and Education* (1938), which promoted experiential learning. At the time, teachers shifted their teaching from formal, abstract education to more experienced-based approaches. This type of meaning-making was essential to a child’s learning. The issues Dewey (1938) wrote about are still relevant to educators today. As educators speak of purposeful curricula,
dispositions for learning, and well-planned environments, they are talking about the same
struggles present in Dewey’s time. Dewey (1938) shared with Vygotsky and Piaget the ideas of
the progressive education movement that education should be active and interactive, involve the
child and the community, and most of all be child-centered. Dewey (1938) agreed with
Vygotsky and Piaget that education should involve material and experiences common in real life
because children learn from doing. Independent thinking and experimentation should be
encouraged. Curricular planning should be formed from children’s interests, with teachers
observing children to determine what kind of experiences would be beneficial to a child’s
learning (Dewey, 1938). Dewey (1938) also believed that to provide appropriate activities for
nurturing inquiry, a teacher needed to trust her own skills and knowledge of the world, thereby
being better able to assist children in making sense of their world.

**Howard Gardner**

Connections with the natural environment are supported by Howard Gardner (1983)’s
theory of multiple intelligences. His theory indicates that children have seven intelligences:
linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, and intra-
personal. In 1996, he added “naturalistic intelligence” to the list (Gardner, 1999), and recently
added another, spiritual or “existential intelligence”.

According to Gardner (1999) naturalist intelligence deals with connecting patterns in
nature and making sense of them. Children who are “nature smart” are interested in behaviors
and habitats of other species. Their interest in the outside world and with different animals
begins early in life. They are sensitive to their surroundings and show a preference to learning
about animals, the weather, rocks, and the sky. They are aware of shifts in the environment due
to heightened sensory perception, which enables them to notice subtle changes. They enjoy
reading about nature and often are the ones who categorize things easily through collecting and classifying objects. If teachers spend most of the time indoors with the children, this naturalistic intelligence is being thwarted. If this intelligence is to be nurtured, teachers must let children play outside to explore, get their hands dirty, looking at or under rocks, and finding new creatures (Gardner, 1999).

The traditional indoor classroom focuses on verbal/linguistic and logical/mathematical intelligence (Gardner, 1999), whereas, nature can provide connections for every child’s intelligence. Nature allows for deeper understanding and insight and can easily connect to all academic areas. The traditional classroom cannot replicate hands-on, personal experiences and the endless learning possibilities in nature. Providing experiences in nature and supporting a child’s interest can provide lifelong benefits. Maller (2009) pointed out that engaging outdoor activities promote a more intensive and effective connection to the social and biophysical aspects of life. In addition, children use more of their natural senses outdoors. One result is that children develop a more distinctive understanding of their relationship with their natural world.

The natural world enhances a child’s learning process and welfare. Healthy development for a child includes discovery, exploration, hands-on experiences, observation, appreciation, and play. Nature must be reconnected to today’s children, not only as a means to enhance academic experiences but also their well-being. Even if a child is not innately connected to nature, through providing connections to nature, his/her overall development and growth will benefit. Likewise, even if the educator does not feel completely confident about teaching in the outdoors, the teacher’s passion for nature can also affect the students for a lifetime (Maller, 2009). The desired outcome is for children to be prepared to connect, observe, and understand the power and aesthetics nature offers.
Developmentally Appropriate Practices

Copple and Bredekamp (2009) define developmentally appropriate practices (DAP) for helping children learn: treating children as individuals and showing them respect, recognizing their stage of development, and being patient as they develop and learn. Curriculum that is DAP should have hands-on experiences and multimodal sensory learning opportunities (Torquati & Barber, 2005). Outdoor natural learning environments can provide limitless opportunities when embedded into the preschool curriculum, such as new experiences, physical activity, and feelings of being connected to nature. This may also foster environmental stewardship later in life.

Samuelsson and Kaga, (2010) claim that children who participate in outdoor play regularly and who enjoy sustained, positive experiences, are much richer for those occurrences. They are more likely to attain sustainable lifestyles and behaviors in general. Chawla and Hart (1995) agree that frequent exposure to positive experiences in nature early in life is an effective way to foster environmental stewardship in later years.

The National Association for the Education of Young Children (NAEYC) has an accredited program with standards outlining the basic fundamentals to improve quality programs in early childhood education. The tenets include a variety of factors essential to a positive relationship between children and adults including: a comprehensive structured curriculum that includes both emotional and social as well as physical domains; well-maintained, safe learning environments, indoor and outdoor, with routine, systematic assessments of both developmental and learning achievements; teaching practices that focus on student development, ensuring accommodation for cultural as well as linguistic considerations; safety and health in general; efficient management and leadership; and an active partnership with families and their community (NAEYC, www.naeyc.org). However, despite the concerted efforts being applied,
Parents and administrators tend to be more focused on school readiness and academic preparation. Furthermore, a myriad of state policies impedes advancements in the more realistic, practical approach that recognizes the benefits of incorporating outdoor learning experiences and environments into standard curricula (Louv, 2008).

**Play and Nature Play**

Children’s play today has transformed from mainly being outdoors to indoor activities related to media such as computer games and the like. The National Wildlife Federation’s document on *Creating High Performance Learners* reports that children who spend more time outdoors develop a strengthened immune system and gain better skills at balancing, agility, dexterity, and depth perception (Coyle, 2010). They also attained higher levels of concentration and better behavior in the classroom, which stimulates their learning (Coyle, 2010).

According to the Center for Disease Control (CDC, 2012), the incidence of obesity in children 6-11 has more than doubled over the past 20 years. The CDC recommends that children spend an hour each day in physical activity with games such as running, jumping, and climbing (Kohatsu et al., 2010). Obese children have a 70% chance of becoming obese as adults (Kohatsu et al., 2010). Research suggests that children need a connection to their natural world. The omission, or *nature-deficit disorder*, so prevalent today, may even be associated with the current epidemic of childhood diabetes, depression, obesity, behavioral disorders, and more (Charles, Louv, Bodner, Bill, & Stahl, 2009). Furthermore, it could also lead to a decline in a child's sense of community and disorientation about his place in the world (Charles et al., 2009).

When children are burning off excess energy in the outdoors, they are better able to concentrate on academic materials inside the classroom. Burdette and Whitaker (2005) suggest that experiences in the outdoors also gives children the opportunity to enhance decision-making
skills, problem-solving and creative thinking. Children learn through trial and error about how to solve issues; an adult just telling them how to solve problems is less effective. They must experience a situation before the knowledge sticks (Piaget, 1952).

Outdoor play is important to a child’s social and emotional development as it almost always involves interacting with others. Role play such as being the leader or follower requires cooperation. Creative interactions during free play (rule-making, turn-taking, etc.) cultivate a child’s emotional abilities such as self-regulation and sharing (Burdette & Whitaker, 2005). Lightfoot, Cole, and Cole (2005) maintain that play helps children to learn how to control their feelings, thoughts and actions. Burdette and Whitaker (2005) affirm this by declaring that interactions and activity in outdoor play decrease anxiety, depression and aggression, as well as increase the benefits of exposure to sunlight. Negative results for a child's inactivity with the natural world may include: stress, poor academic achievement, health problems, reduced creative and cognitive abilities, aggression, and a subsequent diminishing of productivity in school and work later on in life (Burdette & Whitaker, 2005).

Historically, researchers of playground safety and design, such as Joe Frost in the 1980s, have not included research about the benefits of outdoor nature play. Today, the research is flourishing thanks to Taylor and Kuo (2009), Chawla (2006), and Louv (2005). Rivkin (2014) agreed with Louv’s (2014) conclusion that every child has the inherent right to benefit from the gifts and joys of play and nature, even those whose lives are not blessed with parents who appreciate nature, in an elevated social status or culture, or are gifted with a set of abilities. In 2005, Louv further pointed out that, by nature, green play spaces provide a feeling of social inclusion and sense of belonging for children, regardless of intellectual abilities, race, sex, or social class.
In 2015, Louv noted that current studies affirmed the lack of outdoor learning environments for students and, consequently, the lack of positive outcomes that the outdoor learning environment can provide. One such study discovered that at-risk students, having spent only one week in an outdoor camp setting, showed significantly higher scores on science tests than similar students in an indoor classroom setting. The University of Illinois’ Human-Environment Research Laboratory research studies disclosed that children as young as five years old displayed significant reductions in their typical symptomatic ADHD behavior when playing and learning outdoors and engaging with nature (Louv, 2015).

**Environment as Third Teacher**

Children appreciate the beauty around them, inside and outside of the classroom (Isbell & Evanshen, 2012). Environments where children play should be aesthetically pleasing and balance nature play, experience, and the learning process. Nature play should promote child inquiry. When children can use all of their senses in an activity, learning becomes easier and retention is improved (Kaplan, 1995; Martensson et al., 2009). The natural environment is also a place where children can develop problem-solving and social skills. As children interact with each other in the natural environment, they share and discuss curiosities more, as well as negotiation skills. This type of engagement allows complex learning to take place. Children may develop emotionally through focused physical activities that use their problem-solving, social and physical skills (Jones, 2005). Learning experiences in the natural environment are richer than indoor desk-based learning experiences (Louv, 2008).

Rosenow and Bailie (2014) explored a collection of papers (seven research articles, three field reports, and one personal voice essay) to investigate settings that provided nature experiences for young children, with attention to the effect of what these initiatives had on the
holistic development and environmental awareness of the children involved, their teacher and the staff. Multiple and diverse ways are emerging to connect children with nature. The benefits are just starting to be realized. The motivation for this special issue was that children's access to nature has changed due to many factors: increasing use of technology by children, diminishing space for children to roam, helicopter parenting, and an unintended consequence of human process. The results showed that there is no "one size fits all" way to bring more nature to early childhood programs; context is key (Rosenow & Bailie, 2014).

Play areas that are special and intimate provide children with enjoyable experiences where they can feel comfortable engaging in pretend play. No matter the season, outdoor environments can create natural play spaces for children. Often educators assume that they need to instruct children how to play or use materials; however, children have a more meaningful experience when they can have uninterrupted time to interact and play freely in a space that is special to them (Miles, 2009). Simply present the play space, then let the children explore and interact with the materials and each other as they choose (Miles, 2009). Outdoor settings, specifically designated spaces for creative play, can offer a new perspective in play, and special play spaces foster exploration and inspire curiosity (Miles, 2009).

**Outdoor Classrooms and Natural Playspaces**

Today’s society has become more dependent on technology and further separated from nature. Nelson (2012) calls the changes in childhood today a “silent emergency” because adults are overly protective of allowing children to spend time outdoors. This is detrimental due to the negative consequences brought on by lack of exercise, preoccupation with electronic media, fearing nature and the outdoors as unsafe, and lack of connection to the natural world.
In the past few decades, many schools have converted green spaces into playgrounds with concrete and turf areas and manufactured equipment—with limited or no use of natural materials (White, 2004). Early childhood education is sorely lacking in the utilization of natural outdoor environmental spaces for children. The exclusive choice of relegating only indoor classrooms and traditional man-made outdoor playgrounds leaves an empty space in a child's development. Rice and Torquati (2013) studied children from 10 early childhood programs in Nebraska and California. Six had outdoor classrooms, and 4 had more traditional play areas. The purpose of this research was to: develop a reliable measure of children's attraction for nature or "biophilia", determine whether the attraction is related to the "greenness" of the outdoor play area, and then determine if demographic variables are associated with biophilia and whether demographics predict children's enrollment in nature-oriented programs. Findings indicated that children’s biophilia scores were not correlated with maternal education and family income, but both maternal education and family income were associated with selection of programs with natural outdoor spaces (Rice & Torquati, 2013).

Unfortunately, although appealing to safety conscious adults, traditional playgrounds have a tendency to reduce the beneficial aspects of a more natural setting and even inhibit a child’s developmental process. Research on the advantages of natural settings is now providing new evidence for schools to landscape their outdoor environments to improve a child’s learning, health and social relationships (Chawla, 2015; Fjortoft, 2001; Keeler, 2008). In one study at the University of Colorado Boulder, headed by Louise Chawla, it was found that green schoolyards, not just asphalt and play equipment, reduces stress and inattention in children (Chawla, Keena, Pevec, & Stanley, 2014). Chawla et al.’s (2014) feeling was that in contemporary stress management programs, as provided by many schools, too much emphasis is placed on dealing
with stress instead of creating or capitalizing on environments that reduce stress. Chawla et al. (2014) recognized that children have an opportunity for analyzing, interpreting, and making conclusions about meaningful information in a reliable, reality-based context. Outdoors is the ideal environment. Chawla et al. (2014) also found that natural-terrain schoolyards cultivate caring relationships with nature and others while instilling feelings of competence. Combination schoolyards also have positive impacts on children; therefore Chawla et al. (2014) suggest schools with only built outdoor environments tear out some of the asphalt and incorporate natural-habitat landscaping.

Coe (2012) reported that natural playgrounds inspire different types of play that is more beneficial for children than a traditional playground with metal equipment and plastic parts. The study is one of the first to observe changes in the physical activity of children who played on a traditional playground versus a natural playground. Coe (2012) concluded that children in a natural playground engaged in more muscle- and bone-strengthening activities and spent more than double the time playing.

Dyment (2005) conducted a study in Toronto on different school environments and how they affect children and teachers. The schools changed their asphalt areas into green settings. Results from 400 questionnaires sent to principals, teachers and parents showed that the majority of participants agreed the greener school grounds had a positive effect on how the curriculum was being taught and received. Teachers were motivated to use innovative strategies for all learning styles, and students’ engagement for learning increased with hands-on, outdoor activities. There was not only an improvement in science, but also in the areas of art, literacy and math (Dyment, 2005).
Sali, Akyol and Baran (2014), examined the similarities and differences between actual schoolyards and what children dream of their schoolyards being like by making use of their drawings. Environmental opportunities are very important to early childhood development and positive attitudes about the environment affect their overall attitude. Children's drawings are a way for them to reflect their observations, experiences, problems and ideas; a means of expressing themselves. Statistical data showed that there was a significant relationship between drawing fixed play equipment and the type of school children attend in favor of independent kindergartens (Sali et al., 2014). Children drew seesaws, swings, whirls, slides and fixed equipment while children from preschool classes in public elementary schools drew basketballs, volleyballs, football fields, basketball hoops, nets, and goals (Sali et al., 2014). A significant element that affects the quality of the education in preschool settings is the organization of environmental conditions. It is necessary to provide easy use and secure equipment in playgrounds; with various types of equipment, different playing grounds such as asphalt, grass, sand, soil, and sunny and shady spaces. There should also be space for running, walking and quiet play (Sali et al., 2014).

For many people, an outdoor classroom is still considered a place where children have always played. But it is much more than that—it is a return to child-centered learning. It shifts early childhood education from primarily an indoor, teacher-led endeavor to child-initiated play, which is crucial for a child’s development. By moving them outdoors, children become more responsible for their own learning while teachers are there to ensure safety and stimulation (Maynard & Walters, 2007). Outdoor classrooms enable students to connect with their environment in ways that are beyond learning in a traditional indoor classroom. However,
outdoor learning is not entirely separated from indoor learning—outdoor learning enhances lessons taught indoors by providing hands-on experiences in natural settings.

Winters, Ring, and Burris (2010) describe the outdoor area as not only a project-based learning center, it also represents the ideal environment for observation and reflection. They depict nature as a tool for growth and development, and maintain that an outdoor classroom is a resource that should be supported. It is the environment outdoors on school grounds where teachers and students gather to experience learning in nature. The outdoor classroom is based on the idea that children are constantly learning. They need a variety of learning experiences and opportunities to grow and develop properly in such areas as gross- and fine-motor skills, social-emotional development, language and creativity. Mastering such skills is crucial to a child’s academic success as well (Bratman, Daily, Levy, & Gross, 2015).

As they explore their world and generate new ideas, children move from awareness to knowledge to understanding, and information and knowledge are transformed into experiences and skills. Maynard and Walters (2007) convey that if children are allowed to move freely in an open outdoor classroom, this movement creates a more natural and powerful form of learning. Reports from both teachers and students show an increase of knowledge and understanding of lessons taught outdoors (Dillon et al., 2006). Along with increase in achievement, students were more motivated when they studied in an outdoor environment. Louv (2015) reports that educators benefit as well when teaching in natural outdoor settings—Canadian researchers found that there was a renewed enthusiasm for teaching while engaging students in outdoor classrooms. In another survey of grade-school teachers, it was reported that those who used the garden area as a unique, dynamic teaching environment were elated over it. The children were still given
standardized tests there, and each child received the attention and instructions necessary to accommodate their individual abilities and interests (Winters et al., 2010).

In the outdoors, children gain knowledge of the interconnectedness of humans and natural resources and better learn how to care for their environment (Kimbro, 2006). But an outdoor classroom doesn’t have to focus only on environmental topics. Classes that can be taught outside include language arts, social studies, reading, writing, art, music, local geography and history. The outdoor classroom is also conducive to studying science, technology, engineering and math (STEM). Sites can be used for observation and inquiry-based science, while technology can expose them to the wonders of their world. According to Sobel (1996), children are born researchers and scientists; they are naturally inquisitive and desire hands-on activities and experimental learning opportunities in and out of the classroom.

Children between 4–7 years old usually play near home or school. They crave immersion, solitude and interaction in a close and knowable world (Sobel, 1996). Young children need gradual exposure to nature so they may become familiar with flora and fauna in the schoolyard before walking in the woods. Environmental awareness emerges out of firsthand experiences in a child’s natural world in small, manageable spaces (Sobel, 1996). The preschool outdoor classroom should be designed for the child’s whole being. Developmental domains such as adaptive, aesthetic, cognitive, emotional, social and physical should be addressed, along with curiosity, imagination, and sense of wonder. They need to have positive experiences to show them the world is a safe place to play and be. Experiences that are memorable and pleasant produce a lifelong learning interest for children. They learn more effectively when they are actively engaged, including interacting with adults and peers and manipulating materials (Harlan, 1992). Harlan (1992) believes that teachers should act as facilitators who create an inviting and
stimulating learning environment. This allows the children to feel competent while inviting exploration and experimentation.

Nature engages children through sensory awareness, observation and attention to details. This in turn broadens a child’s problem-solving and literacy skills, as well as play development (Torquati & Barber, 2005). Complex learning and cooperative play are extended as children explore and play in nature (Jones, 2005). Isaacs (1929) noted that children learn through play, enhancing their knowledge of their natural world. Isaacs (1929) also acknowledged that the average, healthy, eagerly active child certainly matches the energy, drive, and thirst for knowledge of even the most devoted experimental scientist. Nature as a living laboratory sparks a child’s interest when connecting with the natural world. It allows abstract concepts to become more relevant to the classroom curriculum. Children need sensory stimulation and manipulation of materials to learn and grow – they learn through experience, not by what they’re told. What is missing in many children’s lives today are natural environments rich with opportunities for creative play, thoughtful inquiry and reflection. Teachers should give children more time to benefit from these experiences rather than hurrying them from one program to another (Louv, 2008).

Outdoor learning environments provide a setting that allows teachers to observe students in ways that they would not normally see, creating a different kind of child-teacher relationship (Hammerman et al., 1994). In a study by Foran (2005), it was discovered that astute teachers recognized that an outdoor classroom is much more than mere space. The environment gave teachers an experience that included an enhanced awareness of their endowed value, fond memories, and a feeling of identity and connection with the natural world. The teachers found that in the outdoors they were learning, along with the children, in that environment. Common to
the teachers in this study were degrees of intense feelings of connection that arose from moments spent with the children in the outdoors (Foran, 2005).

According to Wilson (1996) young children learn best through tactile interaction. Using natural items found in the outdoors, they can produce art and building projects, learn addition and subtraction, create music based on nature sounds, and initiate dramatic play. For most children, inquisitiveness is awakened through contact with the natural environment. The love of nature can be brought out through integration of nature in the everyday curriculum which can provide opportunities to make abstract concepts more relevant and meaningful. By teaching nature-driven lessons, teachers can teach less and guide children by using open-ended questions to spur their interest and investigation. One aspect of the natural outdoor classroom is the opportunity for inquiry and problem-solving. This leads to data collection, discovery and knowledge of something previously unknown. The students and teachers are co-learners in the investigative process. Since children are naturally curious, the teachers must formulate questions in ways that they may not necessarily have answers to (Wilson, 1996).

The outdoor classroom in early childhood should encompass developmentally appropriate practices stemming from children’s interests and provide activities that are personally meaningful to them. Developmentally appropriate activities lie within a child’s ability to deal with them personally and are fundamental to effective learning (Copple & Bredekamp, 2009). In Nelson’s (2012) book, Cultivating Outdoor Classrooms: Designing and Implementing Child-Centered Learning Environments, he describes key elements of richly equipped outdoor classrooms such as having the time and freedom to explore, either alone or with friends; big movement and social play; comprehensive and emergent curriculum where teachers engage, support, observe and respond to children’s interests. According to Nelson
(2012), some of the characteristics of an outdoor classroom that promote learning throughout all areas of development include:

- *Gathering spaces* to engage in social interactions;
- *Individual spaces* dedicated to quiet activities;
- *Experimental spaces* where children can use open-ended materials, both natural and man-made, to build and create;
- *Natural spaces* to discover and explore; and
- *Active spaces* to enhance gross-motor skills.

Outdoor classrooms provide opportunities for children to learn the cause and effect of outdoor activities while affording them a wide range of activities for a more holistic development. It also addresses the trials children face in learning how to safely handle outdoor risks; playing on uneven surfaces helps improve balance and coordination (Nelson, 2012). Other challenges that are resolved by having an outdoor classroom are: 1) getting children outside, 2) involving them in hands-on activities and loose parts play, and 3) connecting them more deeply to nature (Nelson, 2012).

Young children should not be limited to the classroom for their learning experiences. Children that have opportunities to learn outdoors are believed to learn quicker; knowledge gained through the use of nature-oriented activities is retained far longer than if simply read to (Hamerman et al., 2001). It is estimated that 95% of all learning takes place outside school walls (Odoy & Foster, 1997). The outdoors should be considered as an extension of the classroom, where children can develop cognitive, social, emotional and physical skills. Educators who incorporate nature-based education must prepare and plan developmentally appropriate practices (Copple & Bredekamp, 2009). Teaching young children within their
natural environment is challenging but provides a sense of wonderment, which is vital for
effective learning. “It is not half so important to know as to feel…the years of early childhood
are the time to prepare the soil” (Carson, 1956, p. 56).

Curriculum with a nature focus promotes the development of a child by encouraging
curiosity and exploration. By effectively integrating nature into learning experiences, students
may improve in creativity, self-confidence, self-discipline, social skills, literacy and language,
and problem-solving (Woyke, 2004). Children who have ample opportunities for direct sensory
experiences and positive peer interaction with the natural world learn and develop better than
those that are not allowed such conditions (Woyke, 2004). A study by Jorgensen (2016)
contributed to an understanding of outdoor education in the early years. The driving force for
children’s curiosity about their world is creating a sense of wonder in a natural landscape. To be
emotionally involved and having an appreciation of their environment, teachers need to supply
children with time and space to allow such moments to occur (Jorgensen, 2016).

Schools can make a difference by providing green spaces with trees and gardens.
Teachers can take students and the curriculum outside to provide hands-on learning experiences.
Since children spend much of their time in a school setting, the school becomes one of the
biggest influences in a child’s development. By giving them multiple contexts in which to learn
and interact in the environment, children will have the opportunity to connect knowledge with
real-life situations (White, 2004). The benefits of integrating the outdoors, daily, into a child's
life cannot be understated. Children spend a large portion of their life hours in school, so
providing some invigorating outdoor activity is an integral part of their development and
burgeoning ability to adapt to their natural environment (Chawla et al., 2014).
 According to Keeler (2008) schools that have outdoor classrooms come in different sizes and shapes, have a variety of resources, and are used by students and teachers for a variety of purposes. With the physical changes in an outdoor environment, such as the addition of natural materials, there are presumably changes in how teachers and children use the school yard. The teachers, in turn, learn from the children. This continuing cycle of change and development keeps the learning and teaching fresh and interesting to children and teachers alike; the outdoor classroom becomes a never-ending experiment in discovery and learning (Keeler, 2008).

Benefits of Outdoor Learning

Children today spend less time outdoors and spend an average of 7 hours and 38 minutes per day indoors (Coyle, 2010). By viewing nature as something that can be looked at and not touched, they are losing the benefits that the outdoors can provide. Outdoor play is an important component in a child’s life, and outdoor play spaces that are special to a child can provide many learning opportunities. When children can use natural elements to play, it helps them develop important skills for learning and academic success later in life (Benson & Miller, 2008). It is often the small, simple things that can trigger the biggest interest. Through unstructured use and access to a variety of materials, children will demonstrate imaginative play and respond to their desire to rearrange and combine materials for investigative and inventive play (Curtis & Carter, 2005).

Although this infant body of research is relatively new, evidence of psychological and physical benefits is emerging from studies of outdoor play (Fjortoft, 2001; Handler & Epstein, 2010; White, 2004). Experiences with nature help children to learn, improving academic performance and increasing creativity. Outdoor play has also been shown to lower the chances of childhood obesity and to reduce the symptoms of ADD/ADHD (Ansari, Pettit, & Gershoff, 2015; Taylor & Kuo, 2001). Louv (2008) discusses the growing evidence about the positive impacts of
nature play on children’s well-being in his book *Last Child in the Woods: Saving Our Children from Nature Deficit Disorder*. Some of the benefits include cognitive, creative, physical, social and emotional, and spiritual development of children (Louv, 2008).

According to Louv (2008) when outdoors, children have many opportunities to investigate, test, and manipulate objects. Compared to the standard indoor classroom, the outdoors is a more vigorous and effective setting. Research suggests that the more exposure to the natural world, the better (Louv, 2008). Furthermore, the greener that those surroundings are, more is the feeling of relief (Bratman et al., 2015; Keeler, 2008). The problem is that educators may or may not understand the benefits of nature to children’s development. The natural environment has many positive benefits for children including lessening the burdens of emotional distress, anxiety, and depression (Frumpkin et al., 2017; Keeler, 2008). Regular outdoor activity in nature heightens creativity and imagination, encourages play and cooperative interactions, and develops strong gross-motor skills (Keeler, 2008).

Recently, researchers have been studying the negatives effects produced by an indoor lifestyle and determining if children’s interactions with a natural environment counteracts this (Rideout, Foehr, Roberts, & Kaiser, 2010). The National Wildlife Federation conducted a survey in 2010 where 1,900 educators believed that classroom attentiveness and performance were demonstrably advanced in 78% of the children who had an unstructured outdoor play area. A full 75% of those surveyed felt that regular outdoor activities inspire students to heightened creativity and more effective problem-solving, subsequently, in the indoor learning environment (Coyle, 2010). Maller’s (2009) study involved interviews with community participants, and 12 principals and their lead teachers about the advantages of children conducting nature activities in the school’s outdoor settings. Results showed that the benefits of hands-on, outdoor contact in
an outdoor environment improved children’s ability to focus; improved their self-esteem; reduced stress; help to alleviate depression; and generally improved their mental health and overall well-being (Maller, 2009). This study supports that connections in nature increase imagination, creativity, and cognitive and social development (Maller, 2009).

Nelson (2012) discussed the many reasons that outdoor play is beneficial to children today. There are physical, cognitive, and psychological outcomes that are influenced from outdoor play both in the home environment and in the school environment. The physical benefits that are derived from outdoor play are developmentally appropriate physical development, creating a baseline for a healthy long-term activity level, and a decrease in childhood obesity as well as a decrease in symptoms from ADD/ADHD (Gallahue, 1993; Johnson, Christie & Wardle, 2005; Nelson, 2012; Rosenow, 2008). A few of the cognitive benefits that children receive from outdoor classrooms are multi-sensory approaches to problem-solving, access to materials that provide outside of the schoolroom thinking, and developing social norms in a setting that allows the child to connect to the world around them (Dhanapal & Lim, 2013). The psychological benefits noted in the literature are an increase in overall self-esteem, social and emotional self-regulation, and effective relationship building with both other children and the natural environment that surrounds them (Gallahue, 1993; Johnson et al., 2005; Nelson, 2012).

Learning through the natural environment helps students be able to cement their learning in both meaningful and individual experiences in order to maintain the information over time (Dale, Corbin, & Dale, 2000). The learning that they create at a school environment or outdoor classroom can also be carried over into other realms of their lives such as outdoor play at the home instead of behaviors that involve only seated activities (Dale et al., 2000). There are many developmental needs that are currently going unmet due to the increase in seated behaviors, such
as gross-motor development and creative play within a natural environment (Greenman, 1993). The literature suggests that through increasing the use of outdoor play and outdoor classrooms, this will decrease the deficits that children are beginning to show in these areas (Nelson, 2012). Because nature is vital to the healthy development of children, educators need to focus on improving children’s ability to access the natural environment.

**Barriers to Using the Outdoor Classroom**

Considering that more people now live in cities than in rural areas, the barrier to providing natural, outdoor play environments is no longer about the nature of cities; it's about the lack of nature in cities (Louv, 2014). Past generations had access to nature, unlike the current generation, producing what Louv (2008) calls *nature-deficit disorder*. The term was coined in his book *Last Child in the Woods* and refers to children being disconnected from nature. Although not a true disorder, this term brings to mind the severity of the problem. Some of the causes of nature-deficit disorder as claimed by Louv (2014) include:

- Urbanization and the loss of parks; poor design of cities and poor transportation are contributing to the nearby loss of nature and biodiversity.
- A culture of fear, real and imagined, of traffic, toxins, and “stranger-danger” have caused parents to avoid letting their children play outdoors. Although the natural world does pose some risks, the benefits far outweigh them. The more experiences we have in the natural world, the less we fear it.
- Children are immersed in technology, which in itself is not harmful; however the balance between inactivity and playing outdoors has shifted to playing in a virtual world.
- Time spent in nature is no longer seen as necessary for children’s growth and development, despite research to the contrary. Many parents and educators, as well as policy makers, are unaware of the results of the health benefits that nature provides.
Although the research on outdoor classrooms shows the importance of getting children outside in a learning environment that is developmentally appropriate, there are various reasons why some succeed and some fail. An effective outdoor classroom is one that has community support, student involvement, funding, teacher-training, and administrative support (Georgia Wildlife Federation (GWF), 2004). According to the GWF (2004), the top 5 reasons that outdoor classrooms fail is: 1) lack of maintenance, 2) teachers unsure how to incorporate the use of the outdoor classroom into their lesson plans, 3) no funding, 4) vandalism, and 5) school expansion.

Teachers need more support and better professional training opportunities. Teachers have indicated that the main barriers for utilizing outdoor classrooms and creating outdoor opportunities are: lack of funds, transportation challenges, and complicated schedules (Ernst, 2014). In order for nature to foster environmental stewardship, it must be modeled before children in addition to teaching about nature through the curriculum and hands-on experiences (Zeece, 1999).

**Teacher Attitudes and Influences**

An educator should model enthusiasm within play, sharing wonder, nurturing curiosity, and observe and listen as children interact with nature. According to Miles (2009), children gain more as they are allowed to interact freely with one another in nature, especially in a space created for imaginative play. Open-ended materials also stimulate a child’s desire to continually combine materials and rearrange them for invention and exploration (Curtis & Carter, 2005). In a study by Hammerman, et al. (2001), children learned more quickly when connected to nature; thus young children retain knowledge through hands-on experiences. Louv (2008) provides extensive resources describing the importance of access to nature for young children, including the Dimensions Foundation (https://dimensionsfoundation.org) and the Children & Nature
Network website (https://www.childrenandnature.org), which provide links to research on over 300 studies on benefits of connecting children and nature.

DAP guidelines from the NAEYC identify best practices in early childhood programs (Copple & Bredekamp, 2009). “Preschool children learn best when they have positive and caring relationships with adults and other children; when they receive carefully planned, intentional guidance and assistance; and when they can safely encounter and explore many interesting things in their environment.” (https://www.naeyc.org/resources/topics/dap/preschoolers). Providing an environment for children to flourish is one part of the outdoor experience; effective teachers who provide open-ended materials and questions are the other part (Kostelnik, 1993). According to Kostelnik (1993), there are three principles teachers can use that define DAP for helping children learn:

- Apply what you know about learning and children’s development to your curriculum and teaching strategies.
- Treat children as individuals, not as a whole group.
- Show children respect - recognize their growth, and be patient as they develop and learn.

According to Cornell (1998) as children become more disconnected to the natural world, their physical, emotional, and psychological health suffers. This disconnection also adversely affects their learning and creates challenges for educators. Teachers play a critical role in helping children become more aware of the world around them. Cornell (1998) considers 5 tenets of outdoor teaching:

- Teach less and share more – inspire children to love and respect the earth;
- Be receptive – communicate with the child; form a natural trust and friendship;
- Focus on the child’s attention – let children feel that their findings are interesting;
• **Observe first; talk later** – let children experience the wonders for themselves; and

• **Be joyous** – draw children to learning about new things by being enthusiastic.

According to a study by Mosley, Reinke, and Bookout (2002) teachers' attitudes and knowledge of outdoor education are crucial to the overall effectiveness of outdoor learning. Their attitudes may be measured by their expectations and the actual results. Mosley et al. (2002) found that low self-efficacy contributed to teachers' low expectations, and that proper training increases teachers' expectations and subsequent results. Mosley et al. (2002) went on to describe a unique approach of learning outdoor education techniques in primary mathematics. The premise was to provide pre-service teachers with a practical application of outdoor education for themselves. As a result, it was found that their own students exhibited a broader appreciation and understanding of mathematics as it was taught in an outdoor learning environment. They discovered the solid connection between mathematics and nature, and its relevance to everyday life (Mosley et al., 2002).

In a study by Sandseter, Little, and Wyver (2012), different pedagogical approaches were explored to determine if they led to different teaching practices. According to Sandseter et al. (2012) Australian and Norwegian teachers have similar levels of training and exposure to theory. Norwegian teachers prioritize play and risk taking in outdoor environments. The two curriculums in Norway and Australia were used to partially explain the different approaches to risky outdoor play in these two countries. Interviews were used to access the data from teachers which showed that both groups of teachers from both countries have similar understandings of the importance of risk taking in play, but more consistency was demonstrated between belief and practice in the Norwegian teachers (Sandseter et al., 2012).
Another study by MacQuarrie, Nugent, and Warden (2015) focused on nature-based learning in different countries. MacQuarrie et al. (2015) found that children are more likely to engage in activities, risky or otherwise, when they are endorsed by adults of the same culture. According to MacQuarrie et al. (2015) a group discussion and 3 case studies explored practices that occurred in nature-based programs. The emphasis was on the relationship between the adult and child, where teacher-child learning is a shared approach. Nature is viewed as a setting in terms of its role and also as a pedagogical environment. One of the most important ways an educator can foster environmental stewardship is to expose children, as early as possible, to the natural environment (MacQuarrie et al., 2015). Chawla (2006) says that the development of environmental values in most people who consider themselves environmentalists acknowledge that their commitment to environmental issues is attributed to 2 things: 1) many hours spent outdoors in childhood, and 2) an adult who taught them respect for nature.

Many teachers believe that it is difficult to consciously develop an appreciation for the environment and create a sense of environmental stewardship in their students. They believe that these things are primarily influenced through life experiences, which can occur both inside and outside of the classroom. Life experiences provided by nature are a key component to acquiring environmental awareness (Ewert, Place, & Sibthorp, 2005). It has been shown that to appreciate the natural world as adults, children need to develop a sense of respect for nature in their early childhood years (Ewert et al., 2005). According to Woyke (2004) teachers can foster an atmosphere where students not only thrive in a variety of developmental areas, but also reinforce care for the environment. Even if all students are not interested in studying the natural environment, it is still possible to bring them closer to nature. As educators and child care professionals, the challenge is to recognize and take advantage of nature’s teachable moments.
When children create a connection to nature early in childhood, they are more inclined to be adults who appreciate the natural world. This connection can be achieved by a child’s experience of instruction and activities in nature and by educators modeling passion for the environment. Passion for the outdoors can be the greatest influencer, as enthusiasm and wonderment are contagious! (Woyke, 2004).

**Research Questions**

The purpose of this study is to answer the following questions:

Central Research Question: What is the overall state of outdoor education in preschools in Northeast Tennessee?

RQ 1. Is there a significant difference in preschool teacher attitudes toward outdoor education between teachers who plan lessons for outdoor learning and those who do not?

RQ 2. Is there a significant difference in preschool teacher attitudes toward outdoor education as compared by the frequency of playing outside as a child?

RQ 3. Is there a significant difference in preschool teacher attitudes toward outdoor education as compared by the types of early childhood outdoor experiences as a child?

RQ 4. Is there a significant relationship between preschool teachers who plan lessons for outdoor learning and the frequency of playing outside as a child?

RQ 5. Is there a significant relationship between teachers’ name for outdoor spaces and how preschool teachers use them?

RQ 6. Do the names teachers use to refer to their outdoor education areas relate to the type of outdoor education area as assessed by the POEMS assessment?
CHAPTER 3

METHODOLOGY

Research Design

This study used a mixed-methods approach to examine the overall state of outdoor education in Northeast Tennessee. A mixed-methods study combines or associates both quantitative and qualitative forms of research (Creswell, 2009) and mixes both approaches. The design of the study made use of a survey, an interview, and an observational playground/outdoor environment assessment. The data were analyzed from a number of sources including: 1) the Preschool Teacher Outdoor Education and Attitude Survey (PTOEAS) (Appendix A), providing teacher demographics and practices, and teacher attitudes on outdoor education, 2) the Preschool Outdoor Environment Measurement Scale (POEMS—Domain 3) (Appendix B), an outdoor environment assessment, and 3) the Outdoor Education Interview (OEI) (Appendix C), a series of questions related to teachers’ early childhood experiences.

In Phase I, quantitative data was collected, using survey methods, on teachers’ attitudes toward outdoor education, as well as their beliefs about, and actual use of, the outdoor classroom. Additionally, survey data was collected on participant’s early childhood experiences with nature and the outdoors. In Phase II of the study, preschool outdoor play areas were assessed through observations using POEMS (DeBord et al., 2005). The POEMS was used to classify outdoor play areas according to quality of the natural playspace (high or low). In Phase III of the study, qualitative data was collected through interviews with a select number of preschool teachers exhibiting high or low attitudes toward outdoor education (as measured by the survey) and who were in high or low quality outdoor classrooms (as measured by the POEMS, Domain 3). Creswell (2009) explains that qualitative research has as its focus the meaning of
human lives and experiences. Qualitative data provides a depth of understanding of concepts regarding the human condition. The interviews were used to get more in-depth information on the attitudes and experiences of preschool teachers.

Confidentiality of the participants was ensured by assigning a case number to each teacher. Only the researcher had access to the list of names and case numbers. No identifying information was given in the study. All scoring was completed by the researcher. The answers to the survey questions were uploaded into an SPSS program for ease of scoring and analysis.

**Population**

The potential population of this study included all preschool teachers in three counties in Northeast Tennessee: Washington, Sullivan, and Greene, along with the cities of Johnson City, Bristol, Kingsport, and Greeneville. From a list of all the preschools in this region, the researcher selected 34 preschools which were chosen for ease of location (driving distance) and variation of affiliation. Preschools contacted were in public schools (n = 13), private (n = 5), church-affiliated (n = 9) and Head Start programs (n = 7). The 7 Head Start programs were both public school-based (n = 3) and private (n = 4). Principals and administrators for all 34 selected preschools agreed to allow the study to be conducted (100% participation), and all preschool teachers in the 34 preschools were invited to participate in the survey. Further descriptions of the actual participants can be found in the sample section of each phase of data collection.

**Phase I—Survey**

**Sample**

The sample for Phase I of this study was obtained from the population above. The survey was sent out to all 100 teachers (male = 1, female = 99) at the 34 preschools, with a return rate of 88%. Of the 88 teachers who agreed to participate, seven teachers (all female) did not fully
complete the forms and were removed from the study. The total sample therefore consisted of 81 preschool teachers (male = 1, female = 80), from 34 preschools, who voluntarily completed the survey.

**Measures**

*Preschool Teacher Outdoor Education and Attitude Survey (PTOEAS).* The researcher-developed survey questions on teacher demographics (age, level of education) and practices is based on studies related to factors influencing teacher attitudes on outdoor education (Chawla, 2006). The first part of the survey consists of 16 questions, some open-ended. Questions include early experiences in the outdoors, how often teachers use the outdoor area for learning, and their definition of outdoor education. The purpose of the demographic information is to allow the researcher an understanding of the background of teachers and whether or not this affects their attitudes on outdoor education.

The second part of the survey contained questions on teacher attitudes about outdoor education. The original Outdoor Education Inventory Survey (OEIS) on teacher attitudes developed by Chase (1969) was given to elementary teachers; it was modified for this study to ask questions appropriate for preschool teachers. This modified survey consisted of 27 questions, including questions on teachers’ opinions of outdoor education and their beliefs on how to teach it. It used a Likert-type scale which consists of “strongly disagree”, “disagree”, “neutral”, “agree”, and “strongly agree” answers to questions, and an overall average score was calculated to determine the teachers’ attitudes on outdoor education. Some of the survey questions were reverse-coded, meaning that if a person answered “5” (strongly disagree) on the Likert scale, this was computed as “1”; 4 = 2, 3 = 3, 2 = 4, and 5 = 1. Questions that were reverse-scored include numbers 2, 3, 5, 6, 7, 10, 12, 13, 15, 16, 23, 24, 25, and 27. Scores were achieved by adding up
the total number. Possible raw scores ranged from 27 (low attitude) to 135 (high attitude), but these raw scores were scaled to range from 0 (lowest score possible, negative attitude) to 100 (highest score possible, positive attitude), for easier interpretation. Higher scores were considered to indicate a more positive attitude toward, and an increased awareness of, outdoor education. Data collected from the survey provided information on whether correlations can be found between demographics, practices and attitudes.

Validity and reliability of test instrument. Validity in quantitative research refers to “whether one can draw meaningful and useful references from scores on particular instruments” (Creswell, 2009, p. 235). The PTOEAS instrument was developed by the researcher to gather descriptive measures of the teachers and also teacher practices in their outdoor classrooms. Content validity for this instrument was sought by recruiting 3 colleagues to examine the questions and check for accuracy.

Reliability, according to Creswell (2015), “means that scores from an instrument are stable and consistent” (p. 158). To establish reliability of the instrument, the researcher used the alternate forms reliability approach (Creswell, 2015). This approach uses 2 instruments which measure the same variables, for instance, the PTOEAS and the Outdoor Education Interview (OEI, explained below) have similar questions about teacher practices on using the outdoor classroom. The advantage of this method is that it would allow the researcher to determine if the answers from one instrument are similar to the other instrument intended to measure the same variables.

Procedures

Superintendents of public preschools in counties in Northeast Tennessee were contacted in order to identify preschools that would possibly participate. The purpose of the research was
explained, and superintendents decided whether to allow this research to be presented to the principals. Principals were then contacted to discuss the specifics of the research project in order for them to determine whether schools would agree to participate. Of the 34 preschools that were approached, all (100%) agreed to participate, and a letter of introduction, a survey, and the consent form were put in all teachers’ boxes at the 34 preschools.

One hundred preschool teachers were approached by letter in accordance with the Institutional Review Board (IRB) at East Tennessee State University in Johnson City, Tennessee. All 81 participants in the study signed consent forms in accordance with IRB protocol (Appendix D). This is a convenience sample, and preschools/teachers were not randomly chosen. Those teachers in the schools who responded and completed the survey were included in the study. A manila envelope with the surveys was hand-delivered to each participating school. Envelopes were provided, and teachers were instructed to put the survey inside, seal and initial it. The survey was delivered to the schools in April 2017, with a return date of 2 weeks, at which time the researcher picked up the surveys. The estimated time for completion of the survey instrument was 15-30 minutes.

**Phase II—Playground Assessment**

**Sample**

The sample originally consisted of 34 preschools in the broader Tri-Cities area. Preschools were selected by the researcher based in part on driving distance and variety of settings (e.g., public, Head Start, private, church-affiliated). Teachers from all 34 preschools (N = 81) returned surveys, however by the time outdoor environment observations occurred, one of the 34 preschools (a private Head Start) had closed. Therefore only 33 preschools were
represented in the assessment of the outdoor environment. The outdoor environment where the preschoolers spent most of their outdoor time was assessed using the POEMS: Domain 3 Measures

**Preschool Outdoor Measurement Scale: Domain 3.** The instrument that was used to assess the outdoor area is the POEMS (DeBord et al., 2005). POEMS, a checklist of 56 items that address 5 domains in the quality of outdoor environments, is an assessment tool used for evaluating childcare centers for children 3-5 years old. The 5 domains include physical environment, interactions, play and learning settings, program, and teacher/caregiver role. The outdoor classroom features used in this study and measured by this instrument are found in *Domain 3: Play and Learning Settings* (see Appendix B). Some of the 13 items in Domain 3 include anchored play equipment, arts/crafts area, small stage, balance beam, water play, garden, animal habitat, trees, open area, natural and manufactured play materials and loose parts, and storage. Each of the 13 questions had a possible “yes” or “no” answer depending on whether or not certain items were present. The “yes” column was added up, then the total number was divided by 13 and multiplied by 100 to give a percent score for the outdoor environment. Scores ranges from 38-92 with a mean of 70.

**Procedures**

The researcher directly observed the outdoor environment at each participating school. At times, teachers accompanied the researcher and at other times the observation was done alone. In order to obtain detailed information regarding the outdoor play areas at participating schools, the researcher conducted independent observations and documentation of each outdoor space according to the POEMS guidelines. The observation and filling out the POEMS Domain 3 lasted approximately 15-30 minutes. Inter-rater reliability was performed on this instrument by
comparison observations (9 out of 33 playgrounds) with an early childhood education master’s student who was trained by the researcher in the use of the POEMS Domain 3. For 27% of the observations, both the researcher and the assistant independently assessed the outdoor environment using the POEMS Domain 3. Inter-rater reliability was found to be 89% agreement. Scores were calculated and assigned to each outdoor environment and ranged from 38-92 out of a possible score of 100.

**Phase III—Teacher Interviews**

**Sample**

Ten percent of the teachers (8 out of 81) from the survey sample who filled out the survey were interviewed and chosen at random depending on their attitude scores and the assessment of their playgrounds. Thus, 2 teachers from each category were randomly selected according to attitude (low and high) and playground assessment (low quality and high quality) for a total of 8 teachers.

Random selection was achieved in the following manner: a list was created of preschool playgrounds sorted into two groups (high quality = scores > 70; low quality = scores < 70) based on scores on the POEMS Domain 3 and teacher attitudes on outdoor education sorted into two groups (high attitudes = unscaled scores > 100; low attitudes = unscaled scores < 100). Scores of 70 and 100 were chosen based on their indicating a clear halfway break in each score range, and a clear distinction between what were considered high and low scores. Each teacher was placed in one of four groups: high attitude/high quality playground; high attitude/low quality playground; low attitude/high quality playground; and low attitude/low quality playground. Then playing cards were used in the following manner to randomly order the group lists: for each name on the list, a playing card was drawn at random. The point value of the card determined the
teacher’s placement on the list. For example, if a 9 was drawn, then that teacher became #9 on that list. Aces were = 1, Jacks = 11, Queens = 12, and Kings = 13. If the list had more than 13 teachers, than two suits of cards were used, for example Ace through King of Hearts = 1 to 13, and Ace through King of Spades = 14 to 26. Once each of the four lists of teachers were randomly ordered in this manner, the researcher contacted the first person on each list and asked that teacher to participate. The research went down the list until two teachers from each group (high/high, high/low, low/high, low/low) agreed to participate, for a total of 8 interview subjects.

Measures

Outdoor Education Interview (OEI). The researcher-modified Outdoor Education Interview (OEI) questions are based on the POEMS scale. The open-ended interview consisted of 6 questions. Interview questions included discussing teachers’ experiences in the outdoors as a child and when they teach the children outdoors. This was used to add to the richness of the study (Creswell, 2009) and to determine the depth of information collected from the teacher attitude part of the PTOEAS. Interviews were audio-recorded and transcribed. A copy of the transcript was provided to each participant and member checked for accuracy.

Validity and reliability of test instrument. The OEI questions were modified from the POEMS instrument with permission of the authors. Validity was obtained by having 3 experts in the field review the questions and provide a critique on whether the instrument contained information pertinent to the data that was to be collected.

In this study, the researcher did line-by-line coding of the interview questions. Line-by-line coding, as described by Charmaz (2006) is coding each line to generate a range of information to net major categories. The objective of the coding process used in qualitative
research is to make sense of the data set by collapsing it into broad themes. This provided the researcher with information about teachers’ early childhood experiences in nature.

**Procedures**

Interviews were conducted during the first week in May 2017. The interview was given at the completion of the school day. In all cases, teachers were allowed as much time as needed to complete the interview which took approximately 20 minutes. Interviews were conducted by the researcher and responses to questions were audio-recorded and transcribed.

One aspect of this study was to identify possible differences in the attitudes of teachers towards outdoor education and potential correlation with their early childhood experiences outdoors. Qualitative data from the OEI was coded using line-by-line coding (Creswell, 2015). This approach incorporates theme-building in order to capture meaning-making of teachers’ early childhood experiences in the outdoors and was used to enrich the study.
CHAPTER 4

RESULTS

As stated previously, the purpose of this study was to examine the state of outdoor education in Northeast Tennessee. Specifically, preschool teachers were surveyed about their attitudes toward outdoor education, their early childhood outdoor experiences, and whether there was a relationship between the two variables. Interviews were conducted in order to give a better understanding of experiences. This chapter reports the results; it is organized by survey information and research questions, and the analyses for each.

Demographic Information about Participants

The study sample consisted of 81 participants who were preschool teachers in the Tri-Cities area of Northeast Tennessee. Of those who took the survey, 99% were female. Ages ranged from 20-65 years with a mean age of 40.76 (SD = 13.56). Education levels included: 40.7% with a bachelor’s degree, 19.8% with a master’s degree, 7.4% with a master’s plus 30 hours of additional coursework. Those who reported “other” were 27.2% (see Table 1 for detailed data). Prior outdoor education training was important to the researcher to add to the education levels. The number of outdoor education trainings reported were 33.3% (n = 27) with no prior training, 30.9% (n = 25) with 1 training, 6.2% (n = 5) with 2 trainings, and 8.6% (n = 7) having 3 or more prior outdoor education training sessions (n = 64; 17 gave no response). Teaching experience ranged from 0.5 years to 34 years, with a mean of 12.2 years (SD = 13.6) (see Table 2). Finally, the total number of preschool children being served in this sample area as reported by participants was 1,165 children (ages 3-5 years).
Table 1

*Highest Level of Education*

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>22</td>
<td>27.2</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>33</td>
<td>40.7</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>16</td>
<td>19.8</td>
</tr>
<tr>
<td>Master's+30</td>
<td>6</td>
<td>7.4</td>
</tr>
</tbody>
</table>

*Note. n = 77, missing 4.*

Table 2

*Years of Teaching*

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>12.199</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>9.1826</td>
</tr>
<tr>
<td>Minimum</td>
<td>.5</td>
</tr>
<tr>
<td>Maximum</td>
<td>34.0</td>
</tr>
</tbody>
</table>

*Note. n = 78, missing 3.*

Phase I--Survey Questions

**Q1: How Do You Refer to Your School’s Outdoor Area?**

In relating to their preschool’s outdoor area, the majority of teachers reported that they referred to it as a *playground*, 83.8%, while 15% called it an *outdoor classroom* and only 1.3% said it was a *natural playspace* (see Table 3 and Figure 1).
Table 3

*How Do You Refer to Your School’s Outdoor Area?*

<table>
<thead>
<tr>
<th>Name</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground</td>
<td>67</td>
<td>83.75</td>
</tr>
<tr>
<td>Outdoor Classroom</td>
<td>12</td>
<td>15.0</td>
</tr>
<tr>
<td>Natural Playspace</td>
<td>1</td>
<td>1.25</td>
</tr>
</tbody>
</table>

*Note. n = 80, missing 1*

*Figure 1. Outdoor area as referred to by teachers*

**Q2: How Did You Use the Outdoor Area in the Past Year?**

Most of the teachers used the outdoor areas in the previous year for supervised play (98.8%). Other activities teachers reported using the outdoor area for were to walk outdoors (82.7%), to observe nature (79%), to read/write (54.3%), planting a garden (35.8%), and measuring outdoors (27.2%).

In the table below, the percent of teachers shows what percentage of the teachers selected each activity. Since teachers were able to choose multiple answers, each teacher is represented multiple times, and the total of the percent of teachers choosing activities will be greater than
100%. The percent of responses gives what part of all the responses from the teachers were for each activity. The total percent of responses adds to 100% (see Table 4 and Figure 2).

Table 4

Uses of Outdoor Area

<table>
<thead>
<tr>
<th>Use of Area</th>
<th>N</th>
<th>Percent of Responses</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervised play</td>
<td>80</td>
<td>24.6</td>
<td>98.8</td>
</tr>
<tr>
<td>Walk</td>
<td>67</td>
<td>20.6</td>
<td>82.7</td>
</tr>
<tr>
<td>Observe nature</td>
<td>64</td>
<td>19.7</td>
<td>79.0</td>
</tr>
<tr>
<td>Read or write</td>
<td>44</td>
<td>13.5</td>
<td>54.3</td>
</tr>
<tr>
<td>Plant a garden</td>
<td>29</td>
<td>8.9</td>
<td>35.8</td>
</tr>
<tr>
<td>Measure</td>
<td>22</td>
<td>6.8</td>
<td>27.2</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>5.8</td>
<td>23.5</td>
</tr>
</tbody>
</table>

Figure 2. How outdoor area was used
Q3: Top 3 Outdoor Activities for Outdoor Learning

When this sample of teachers think about outdoor learning, 84% of teachers said science activities were among the top three, followed by gardening (63%) and dramatic play (54%). Math activities were chosen by 27% of teachers in the survey. Arts activities (21%), music activities (18%), and literacy activities (17%) were each chosen by about 20% of the teachers in the survey. Less than 10% of teachers chose block play as one of their top three outdoor activities for learning.

In the table and figure below, the percent of teachers gives what part of the teachers selected each activity as one of their top three. Since teachers were able to choose multiple answers, each teacher is represented multiple times and the total of the percent of teachers choosing activities will be greater than 100%. The percent of responses gives what part of all the responses from the teachers were for each activity. Since each teacher could pick three activities, the total responses should be about three times the number of teachers, cutting an activities percent of responses to about 1/3 of its representation among teachers. The total percent of responses adds to 100% (see Table 5 and Figure 3).

Table 5
Top 3 Outdoor Activities for Learning

<table>
<thead>
<tr>
<th>Activity</th>
<th>N</th>
<th>Percent of Responses</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>68</td>
<td>27.0</td>
<td>84.0</td>
</tr>
<tr>
<td>Gardening</td>
<td>51</td>
<td>20.2</td>
<td>63.0</td>
</tr>
<tr>
<td>Dramatic play</td>
<td>44</td>
<td>17.5</td>
<td>54.3</td>
</tr>
<tr>
<td>Math</td>
<td>22</td>
<td>8.7</td>
<td>27.2</td>
</tr>
<tr>
<td>Arts</td>
<td>17</td>
<td>6.7</td>
<td>21.0</td>
</tr>
</tbody>
</table>
This question investigates what teachers believe are different types of explorations in outdoor learning. Teachers chose fauna (98.8%), weather (97.5%), flora (90%), soil (88.8%) and rocks (85%) as activities they were most likely to explore in the outdoors, followed by water (72.5%).

In the table and figure below, the percent of teachers gives what percentage of the teachers selected each activity as one they would explore in outdoor education. Since teachers were able to choose multiple answers, each teacher is represented multiple times and the total of
the percent of teachers choosing activities will be greater than 100%. The percent of responses gives what part of all the responses from the teachers were for each exploration.

Table 6

*Types of Outdoor Explorations*

<table>
<thead>
<tr>
<th>Exploration Type</th>
<th>N</th>
<th>Percent of Responses</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fauna</td>
<td>79</td>
<td>18.3</td>
<td>98.8</td>
</tr>
<tr>
<td>Weather</td>
<td>78</td>
<td>18.1</td>
<td>97.5</td>
</tr>
<tr>
<td>Flora</td>
<td>72</td>
<td>16.7</td>
<td>90.0</td>
</tr>
<tr>
<td>Soil</td>
<td>71</td>
<td>16.4</td>
<td>88.8</td>
</tr>
<tr>
<td>Rocks</td>
<td>68</td>
<td>15.7</td>
<td>85.0</td>
</tr>
<tr>
<td>Water</td>
<td>58</td>
<td>13.4</td>
<td>72.5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>1.4</td>
<td>7.5</td>
</tr>
</tbody>
</table>

*Figure 4. Types of outdoor explorations*
Q5: How Often Do Your Children Use the Outdoors for Learning?

Most teachers (56.8%) take the children outdoors daily for learning. About ¼ of teachers take children out weekly (11.1%) or once/month (13.6%). Table 7 and Figure 5 give the distribution of teachers who reported taking their preschoolers outdoors for learning.

Table 7

<table>
<thead>
<tr>
<th>How Often Do Your Children Use the Outdoors for Learning</th>
<th>Frequency</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once/Day</td>
<td></td>
<td>46</td>
<td>56.8</td>
</tr>
<tr>
<td>Once/Week</td>
<td></td>
<td>9</td>
<td>11.1</td>
</tr>
<tr>
<td>Once/Month</td>
<td></td>
<td>11</td>
<td>13.6</td>
</tr>
<tr>
<td>Once/Semester</td>
<td></td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>14</td>
<td>17.3</td>
</tr>
</tbody>
</table>

Note. n = 81

Figure 5. How often children go outside for learning
Q6: How Much Time Do the Children Spend Outdoors Per Lesson?

Children spend an average of 41 minutes outdoors per lesson, with a range of 15-180 minutes.

Table 8
Time Spent Outdoors Per Lesson

<table>
<thead>
<tr>
<th>Minutes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>41.01</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>28.46</td>
</tr>
<tr>
<td>Minimum</td>
<td>15.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>180.00</td>
</tr>
</tbody>
</table>

Note. n = 79, missing 2

Q7: Who Accompanies the Children Outdoors?

Preschool children in the schools that were evaluated were accompanied by only their teachers 13.6% of the time, while there was a combination of teacher and assistants 86.4% of the time. Table 9 and Figure 6 below show the distribution.

Table 9
Who Accompanies Children Outdoors

<table>
<thead>
<tr>
<th>Person</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination (Teacher/Aide)</td>
<td>70</td>
<td>86.4</td>
</tr>
<tr>
<td>Teacher</td>
<td>11</td>
<td>13.6</td>
</tr>
</tbody>
</table>

Note. n = 81
Figure 6. Who accompanies children outdoors?

Q8: Do You Prepare Lesson Plans For Outdoor Learning?

Over ½ of the teachers (67.9%) prepare lessons for outdoor learning. The remaining 24.8% reported that they do not prepare lesson plans for the outdoors (Table 10 and Figure 7).

Table 10

<table>
<thead>
<tr>
<th>Prepare Lesson Plans</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Planning</td>
<td>23</td>
<td>28.4</td>
</tr>
<tr>
<td>Planning</td>
<td>55</td>
<td>67.9</td>
</tr>
</tbody>
</table>

Note. n = 78, missing 3

Figure 7. Prepare lesson plans for outdoor learning
Q9: What Are the Most Important Benefits to Outdoor Education?

The highest ranked benefits to outdoor education as reported by teachers in this sample include physical (43%) and psychological (38%). Awareness of the outdoor environment was ranked first by 20% of teachers. Cognitive benefits, however, were not seen as highly beneficial, as only 3 teachers said it was most important (see Table 11 and Figure 8). Since there were 20 teachers who incorrectly filled out this survey question, the non-response rate was 25% (20/81). The percentages of the responding teachers were calculated using \( n = 61 \).

Table 11

<table>
<thead>
<tr>
<th>Ranking of Benefits to Outdoor Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
</tr>
<tr>
<td>Mean (SD)</td>
</tr>
<tr>
<td>( N )</td>
</tr>
<tr>
<td>% of responding teachers</td>
</tr>
</tbody>
</table>

*Note.* Ranking of 1 is most important; ranking of 5 is least important.

*Note.* \( n = 61 \), missing 20.

![Teachers Ranking Category as Most Important to Outdoor Education](image_url)

*Figure 8.* Benefits of outdoor education
Q10: What Are Your Biggest Challenges to Teaching Children Outdoors?

The highest ranked challenges to teaching outdoors were reported to be time (19%), classroom management (17%), limited background or training (17%), and safety concerns (15%). Furniture/supplies (12%), support (10%), other (6%) were ranked number 1 for some of the teachers. In the “other” category, teachers mentioned fencing children in on the play area, and safety on the jungle gym. One said all the challenges were equally important. Two categories, extra-curricular activity and disrepair of the outdoor environment were not related as challenges (see Table 12 and Figure 9).

Table 12

<table>
<thead>
<tr>
<th>Challenges</th>
<th>N</th>
<th>Mean (SD)</th>
<th>Percent of Teachers Ranking as Number 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>10</td>
<td>4.0 (2.43)</td>
<td>19%</td>
</tr>
<tr>
<td>Class management</td>
<td>9</td>
<td>4.9 (2.76)</td>
<td>17%</td>
</tr>
<tr>
<td>Training</td>
<td>9</td>
<td>5.5 (3.17)</td>
<td>17%</td>
</tr>
<tr>
<td>Safety</td>
<td>8</td>
<td>4.8 (2.81)</td>
<td>15%</td>
</tr>
<tr>
<td>Furniture/Supplies</td>
<td>6</td>
<td>4.8 (2.47)</td>
<td>12%</td>
</tr>
<tr>
<td>Support</td>
<td>5</td>
<td>4.6 (2.20)</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>8.8 (2.86)</td>
<td>6%</td>
</tr>
<tr>
<td>Lesson Plans</td>
<td>2</td>
<td>4.9 (2.27)</td>
<td>4%</td>
</tr>
<tr>
<td>Extra-curricular</td>
<td>0</td>
<td>6.4 (2.50)</td>
<td>0%</td>
</tr>
<tr>
<td>Disrepair</td>
<td>0</td>
<td>6.8 (2.40)</td>
<td>0%</td>
</tr>
</tbody>
</table>

Note. Ranking of 1 is most challenging; ranking of 10 is least challenging.

Note. n = 52, missing 29.
Figure 9. Challenges to teaching outdoors

Q11: Who Do You Have Encouragement/Support From for Outdoor Education?

Teachers reported that they find encouragement/support for outdoor education from their administrators (75%), with faculty being second (67.1%), then students (61.8%), and last parents/families (55.3%) and other (6.6%). (See Table 13 and Figure 10.)

Table 13

<table>
<thead>
<tr>
<th>Encouragement or Support</th>
<th>N</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>57</td>
<td>75.0</td>
</tr>
<tr>
<td>Faculty</td>
<td>51</td>
<td>67.1</td>
</tr>
<tr>
<td>Students</td>
<td>47</td>
<td>61.8</td>
</tr>
<tr>
<td>Parents/Families</td>
<td>42</td>
<td>55.3</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>6.6</td>
</tr>
</tbody>
</table>
Q12: What Things Would Enable You to Teach More in the Outdoors?

The most important thing that teachers in this sample need to teach outdoor education is supplies (33%), followed by space (21.6%) and time (17%). Training on outdoor education was important for 9 teachers (10.2%). The rest of the options were ranked minimally by teachers (see Table 14 and Figure 11).

Table 14

<table>
<thead>
<tr>
<th>Theme</th>
<th>Frequency</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplies</td>
<td>29</td>
<td>33.0</td>
</tr>
<tr>
<td>Space</td>
<td>19</td>
<td>21.6</td>
</tr>
<tr>
<td>Time</td>
<td>15</td>
<td>17.0</td>
</tr>
<tr>
<td>Training</td>
<td>9</td>
<td>10.2</td>
</tr>
<tr>
<td>Shade</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>What is Needed to Teach Outdoors?</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>FUNDING</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>NOTHING</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>SHADE</td>
<td>19</td>
<td>29.1</td>
</tr>
<tr>
<td>SPACE</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>STAFF</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>SUPPLIES</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>SUPPORT</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>TIME</td>
<td>15</td>
<td>17.5</td>
</tr>
<tr>
<td>TRAINING</td>
<td>9</td>
<td>10.2</td>
</tr>
<tr>
<td>WEATHER</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Note. $n = 88$; some teachers gave more than one response

Figure 11. What is needed to teach outdoors?

Q13: Early Outdoor Experiences of Teachers

In the table below, the percent of teachers shows what percentage of teachers selected each activity as their early childhood outdoor experience. Since teachers were able to choose multiple answers, each teacher is represented multiple times, and the total of the percent of teachers choosing experiences will be greater than 100%. The percent of responses gives what part of all the responses from the teachers were for each experience. Since each teacher could pick as many responses as they wished, the total responses is greater than the number of teachers, reducing the percent of responses. However, the total percent of responses adds to 100%
For this sample of teachers, unstructured play was the most often early outdoor experience (97.5%). Pretend play was 90.1%, park visits (88.9%), and use of public playgrounds (87.7%) were next. Organized sports, hiking, and summer camp were also mentioned by a majority of teachers, while Boy/Girl Scouts and other had less representation among teachers (see Table 15 and Figure 12). For the “other” category, responses were: camping, backpacking, horseback riding, playing in dirt, gardening, farming, and playing in the woods and creeks. One wrote “I lived outside— from am. to pm. Happy times!” Another said “You name it, we did it!”

Table 15

Early Outdoor Experiences

<table>
<thead>
<tr>
<th>Outdoor Experience</th>
<th>N</th>
<th>Percent of Responses</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstructured Play</td>
<td>79</td>
<td>16.1%</td>
<td>97.5%</td>
</tr>
<tr>
<td>Pretend Play</td>
<td>73</td>
<td>14.9%</td>
<td>90.1%</td>
</tr>
<tr>
<td>Park Visits</td>
<td>72</td>
<td>14.7%</td>
<td>88.9%</td>
</tr>
<tr>
<td>Public Playground</td>
<td>71</td>
<td>14.5%</td>
<td>87.7%</td>
</tr>
<tr>
<td>Organized Sports</td>
<td>52</td>
<td>10.6%</td>
<td>64.2%</td>
</tr>
<tr>
<td>Hiking</td>
<td>50</td>
<td>10.2%</td>
<td>61.7%</td>
</tr>
<tr>
<td>Summer Camp</td>
<td>49</td>
<td>10.0%</td>
<td>60.5%</td>
</tr>
<tr>
<td>Boy Or Girl Scouts</td>
<td>36</td>
<td>7.3%</td>
<td>44.4%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>1.6%</td>
<td>9.9%</td>
</tr>
</tbody>
</table>

Note. N = 88. Teachers could choose more than one so percentages total more than 100
**Q14: How Frequently Did You Go Outside as a Child?**

Nearly all of the teachers in this sample (99%) reported that they played outdoors as a child on a daily basis (see Table 16).

Table 16

*Playing Outdoors as a Child*

<table>
<thead>
<tr>
<th>Frequency</th>
<th>N</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>74</td>
<td>99</td>
</tr>
<tr>
<td>Weekly</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note. n = 75, missing 6*

**Q15: When Outside Playing, How Frequently Were You Supervised?**

A majority of teachers replied that, as children, they were *almost always unsupervised* (63%). About ¼ (26%) were *almost always supervised*. A small percentage (3%) were always unsupervised, and 8% were always supervised (see Table 17 and Figure 13).
Table 17

Supervision During Outdoor Play as a Child

<table>
<thead>
<tr>
<th>Supervision</th>
<th>N</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always unsupervised</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Almost always unsupervised</td>
<td>46</td>
<td>63</td>
</tr>
<tr>
<td>Almost always supervised</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>Always supervised</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

Note. $n = 73$, missing 8

Figure 13. Supervision outdoors as a child

Q16: Would You Be Interested in Attending an Outdoor Training Workshop?

More than $\frac{3}{4}$ (78%) of teachers in this sample said they would like to have training on outdoor education, while less than $\frac{1}{4}$ (22%) declined (see Table 18 and Figure 14).

Table 18

Interest in Training

<table>
<thead>
<tr>
<th>Interest</th>
<th>N</th>
<th>Percent of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>57</td>
<td>78</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>22</td>
</tr>
</tbody>
</table>

Note. $n = 73$, missing 8
Phase II—Playground Assessment

Preschools were chosen primarily for proximity and included a variety of public schools (40%), private centers (15%), church-affiliated (27%) and Head Start preschools (18%). (See Table 20 and Figure 15.) The largest number of preschools in this study came from the public schools. Originally, 34 schools and centers were contacted about participation; all agreed, however one preschool was dropped from Phase II because it closed shortly after Phase I.

Table 19

<table>
<thead>
<tr>
<th>Types of Preschools</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>Private</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Church-affiliated</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>Head Start</td>
<td>6</td>
<td>18</td>
</tr>
</tbody>
</table>

*Note.* *n* = 33 schools in Phase II; one preschool was dropped because it closed between Phase I and Phase II.
Figure 15. Types of preschools

**Distribution of POEMS Scores**

Descriptive statistics for the POEMS assessment of teachers’ outdoor environments are listed in Table 20. The distributions of POEMS scores is shown in Figure 16. Originally, there were 34 play areas to be evaluated, however one was not assessed because the school had closed before the POEMS assessment could be made.

The 33 playgrounds ranged in scores from 38 to 92 out of 100. The closer the score is to 100, the more natural is the outdoor environment. The scores of each outdoor environment were divided into arbitrary categories of high or low quality as measured by the POEMS, Domain 3. Since the POEMS includes other domains for reporting on the true quality of the outdoor environment, which were not used in this study, the assessment of quality is subjective at best. The division between high and low quality environments is also a random number coinciding with the mean of 70 (see Table 19). Those scores below 70 were considered low in quality according to more naturalistic areas, which would be above 70.
Table 20

*Playground Scores—POEMS Assessment*

<table>
<thead>
<tr>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Median</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>70.25</td>
<td>92</td>
<td>38</td>
<td>69</td>
<td>85</td>
<td>15.80743</td>
</tr>
</tbody>
</table>

*Note.* All data are calculated in percentages.

*Figure 16.* Distribution of POEMS scores among preschools

**Phase III—Interview Questions**

**Interview Themes**

All 8 teachers who were interviewed took the children outside every day, but with different motivations. Teachers with high attitude scores and high playground scores (HA/HP) and high attitude scores with low playground scores (HA/LP) reported that they took the children out and had lesson plans, even going out multiple times a day. One talked about going on nature walks on the playground to look for *critters*, and she would ask the children questions, prompting their curiosity. The teachers followed the children’s interests and took cues from
them, depending on what they were working on. As children, these teachers were raised in rural areas, and their early childhood experiences were fairly unstructured: playing in the creek, gathering sticks, playing in the mud, running around with friends and going out every day.

The teachers with low attitude scores and low playground scores (LA/LP) and those with low attitude and high playground scores (LA/HP) also had a childhood similar to those above. However, they mentioned that they preferred not going out as much as an adult as they did as children. They talked about letting the children run and play with balls and on the playground equipment. One said she was terrified of crickets! Therefore, she would call another teacher over if the children presented her with any kind of bugs. These teachers mentioned that they take the children on the playground for gross-motor skills and, occasionally, during the seasons for lessons. Most of these teachers talked about using technology outdoors as well as indoors. Only one of these teachers grew up in an urban area, and although outside daily, the games she played were more structured.

**Research Questions**

**Central Research Question: What Is the Overall State of Outdoor Education in Preschools in Northeast Tennessee?**

**Descriptive Statistics for Teacher’s Attitude Toward Outdoor Education.** The 27 questions on the attitude part of the survey were calculated for each of the 81 participants. Possible scores ranged from 27 to 135 (raw data) with a mean of 81. Scores for this sample of teachers ranged from 81 to 124 (raw data), with a mean of 103 and $SD = 10.66$ (see Table 21 and Figure 17). The “raw data” was on a scale of 27 to 135 (if a person scored 5 on each, they would get a score of 135). Everyone’s score was statistically “scaled” to a maximum of 100 ($M = 75.86$, $SD = 7.99$).
Table 21

*Descriptive Statistics – Preschool Teacher Outdoor Education and Attitude Survey*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Median</th>
<th>Mode</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>102.4815</td>
<td>124</td>
<td>81</td>
<td>103</td>
<td>103</td>
<td>10.66216</td>
</tr>
</tbody>
</table>

*Note. n = 81; raw scores*

**Teacher Attitude Toward Outdoor Education.**

![Chart](chart.png)

*Figure 17. Attitude toward outdoor education (scaled)*

**Research Question 1**

*RQ 1. Is there a significant difference in preschool teacher attitudes toward outdoor education between teachers who plan lessons for outdoor learning (Survey Question 8) and those who do not?*
To answer this question, the means of the scaled Preschool Teacher Outdoor Education and Attitude Survey (PTOEAS) scores were compared between teachers who reported planning for their outdoor activities \((N = 55)\) and those who reported not planning \((N = 23)\). Three teachers did not indicate whether they planned. Descriptive statistics for the two groups are listed in Table 22. The distributions of the scaled PTOEAS scores for the two groups in this sample are shown in Figure 18 along with normal curves fitting group means and standard deviations.

Both groups have fairly symmetric distributions in this sample, though the distribution of scores for those who plan show a strong central peak while the distribution for those who do not plan is more uniform. The distribution of PTOEAS scores for those who plan is located slightly higher \((M = 77)\) than those who do not \((M = 74)\) and is slightly more compact \((SD = 7.6\) for planners vs. 9.0 for non-planners). The difference in mean scores (3 pts out of 100) is between 0.3 and 0.4 standard deviations.

Table 22

*Descriptive Statistics for the Preschool Teacher Outdoor Education and Attitude Survey (PTOEAS), for All Teachers and by Planning Status*

<table>
<thead>
<tr>
<th>Sample</th>
<th>(N)</th>
<th>(M) (SD)</th>
<th>Median (IQR)</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All teachers</td>
<td>81</td>
<td>75.9 (8.0)</td>
<td>76.0 (11)</td>
<td>60</td>
<td>92</td>
</tr>
<tr>
<td>Plan</td>
<td>55</td>
<td>76.9 (7.6)</td>
<td>77.0 (11)</td>
<td>61</td>
<td>92</td>
</tr>
<tr>
<td>Don’t Plan</td>
<td>23</td>
<td>74.1 (9.0)</td>
<td>74.0 (15)</td>
<td>60</td>
<td>92</td>
</tr>
<tr>
<td>Data Missing</td>
<td>3</td>
<td>71.7 (5.1)</td>
<td>73.0 (NA)</td>
<td>66</td>
<td>76</td>
</tr>
</tbody>
</table>

_Note._ Interquartile range (IQR) is undefined for 3 individuals
Formal Test for Population Differences. To establish evidence from this sample for whether the larger population of teachers in this area differ in their attitudes depending on their planning behavior, an independent-samples $t$-test was performed. This test requires (a) that the two samples represent normal population distributions and (b) that the population distributions have equal variances (Green & Salkind, 2011). Shapiro-Wilkes tests for normal population distributions were not significant at the 5% significance level for planners ($W(55) = 0.98, p = 0.29$) and for non-planners ($W(23) = 0.969, p = .67$), so there is no evidence that the samples are from a non-normal distributions. Levene’s test for unequal population variances was not
significant at the 5% significance level ($F(1, 76) = 1.134, p = 0.29$), so there is no evidence that the samples are from populations that have differing variances. These results mean that a $t$-test is an appropriate way to evaluate group differences based on this sample.

The $t$-test evaluated the research hypothesis (some effect of planning) against a null hypothesis (no effect) at the 5% significance level. The results showed no statistically significant effect of planning on PTOEAS scores ($t (76) = 1.383, p = .171$). The difference between group sample means of 3 points gave a small effect size (Cohen’s $d = 0.343$). Therefore, this study shows a small effect size for the association between planning and mean teacher attitudes toward outdoor education in this sample, but no evidence for a difference in a population of teachers in this area.

Research Question 2

**RQ2. Is there a significant difference in preschool teacher attitudes toward outdoor education as compared by frequency of playing outside as a child (SQ14)?**

This question cannot be answered using this sample because there was not enough variability in the independent variable, *frequency of playing outside as a child*. Descriptive statistics for the different levels frequency of use is given in Table 23. Of those teachers who answered this question, 99% ($N = 74$) reported they had played outdoors daily as a child, while 1% ($N = 1$) reported they had played outdoors weekly as a child. No teachers reported playing either monthly, once per semester, or once per year.
Table 23

*Descriptive Statistics for the Preschool Outdoor Education and Attitude Survey (Scaled), for All Teachers and by Frequency of Playing Outside as a Child*

<table>
<thead>
<tr>
<th>Sample</th>
<th>N</th>
<th>M (SD)</th>
<th>Median (IQR)</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All teachers</td>
<td>81</td>
<td>75.9 (8.0)</td>
<td>76.0 (11)</td>
<td>60</td>
<td>92</td>
</tr>
<tr>
<td>Daily</td>
<td>74</td>
<td>75.6 (8.0)</td>
<td>76.0 (11)</td>
<td>60</td>
<td>92</td>
</tr>
<tr>
<td>Weekly</td>
<td>1</td>
<td>82.0 (NA)</td>
<td>NA (NA)</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>Monthly</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Once/semester</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Once/year</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Data Missing</td>
<td>6</td>
<td>77.9 (8.1)</td>
<td>76.0 (11)</td>
<td>68</td>
<td>92</td>
</tr>
</tbody>
</table>

*Note.* Standard deviation, median, and interquartile range are undefined for 1 individual

*Figure 19.* Frequency of outdoor play as a child
Research Question 3

RQ3. Is there a significant difference in preschool teacher attitudes toward outdoor education as compared by the types of early childhood outdoor experiences as a child (SQ13)?

To answer this question I performed a multivariate linear regression of teachers’ PTOEAS scores against their responses to survey question 13, types of childhood outdoor experiences. This gives eight binary (no/yes) predictors ("park visits", “hiking”, “public playground”, “unstructured play”, “pretend play”, organized sports”, “boy or girl scouts”, or “summer camp”) of teachers’ PTOEAS scores. The linear fit of reported childhood experiences was not significantly related to adult attitudes toward outdoor education ($F(8, 72) = 0.776, p = 0.625$). $R^2$ adjusted for the number of predictors was about zero (adj-$R^2 = -0.02$), which indicates that the model accounted for a negligible percentage of the variance in the dependent variable. There is no evidence in this sample that teachers attitude toward outdoor education differs with their early outdoor experiences. As stated earlier, Table 15 shows the types of early outdoor experiences that teachers reported, sorted by percent of responses and percent of teachers selecting that choice (teachers could select more than one experience). Figure 12 also illustrates this data.

This lack of prediction showed that the survey question did not separate the teachers into groups by their early outdoor experiences, especially since most teachers picked many of the choices. Table 24 shows the descriptive statistics for the distribution of the number of possible responses that were chosen by the teachers in this sample to question SQ13, types of early childhood experiences, and Figure 20 shows the distribution. Fewer than 25% of teachers chose only a few (2 or 3) of the 8 possible experiences, while 25% chose all except one, and 75% chose more than half of them (5 or more). This means that many teachers chose the same fairly large
group of responses to the question. This survey question (SQ13) did not distinguish the teachers’ early experiences with the outdoors and cannot be used to understand teachers’ attitudes toward outdoor education.

Table 24

Descriptive Statistics for How Many Types of Childhood Experiences a Teacher Selected

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M (SD)</td>
<td>Median (IQR)</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>All teachers</td>
<td>81</td>
<td>5.8 (1.6)</td>
<td>6.0 (2.0)</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

Figure 20. How many types of early childhood outdoor experiences a teacher selected
Research Question 4

RQ4. Is there a significant relationship between preschool teachers who plan lessons for outdoor learning and the frequency of playing outside as a child?

This question cannot be answered using this sample because there was not enough variability in the independent variable, frequency of playing outside as a child. Descriptive statistics for the different levels’ frequency of use was given previously in Table 16 and Figure 19. Of those teachers who answered this question, 99% (N = 74) reported they had played outdoors daily as a child, while 1% (N = 1) reported they had played outdoors weekly as a child. No teachers reported playing either monthly, once per semester, or once per year.

Research Question 5

RQ5. Is there a significant relationship between teachers’ name for outdoor spaces (Q1) and how preschool teachers use them (Q2)?

To answer this question, the uses teachers reported making of their outdoor play area were cross-tabulated against the names they selected as most appropriate for the area they use. Table 25 shows the result. Notice that since teachers could choose more than one response for the uses, the totals for each column add up to more than the 81 teachers in the sample. Only one teacher chose “Natural playspace”, and that teacher indicated he/she used the area for all the offered activities. A few (n = 12) chose to call the area the “outdoor classroom” while the majority (n = 67) chose the term “playground.” One teacher did not indicate a choice.

The distribution of uses between those who chose “outdoor classroom” and those who chose “playground” differ in this sample. Nearly all of both groups of teachers indicated they used the area for supervised play (100% vs. 98%) and about half of each group indicated they used the area for reading or writing activities (58% vs. 54%). However, the teachers who chose
“outdoor classroom” indicated they used the areas for other purposes more often. More than
twice as many used the area for a mathematics activity, measuring (58% vs. 21%), and a little
less than twice as many used the area for a science-related activity, planting a garden (50% vs.
33%). Most teachers in both groups indicated they used the area for another science activity,
observing nature, but those naming it an “outdoor classroom” did so more often (100% vs 75%).
Most teachers in both groups indicated they used the outdoor area for taking children for walks
(100% vs. 82%).

Table 25

*Distribution of Teachers’ Use of an Outdoor Area vs the Name Teachers Use for the Outdoor Area*

<table>
<thead>
<tr>
<th>Name for Area</th>
<th>Teacher’s Use of Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Read or write</td>
</tr>
<tr>
<td>Outdoor Classroom</td>
<td>7 (58%)</td>
</tr>
<tr>
<td>Playground</td>
<td>36 (54%)</td>
</tr>
<tr>
<td>Natural Playspace</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
</tr>
</tbody>
</table>

*Note.* Percentages are row-percents. They show what percentage of teachers using a name
marked the different responses. Row totals are more than 100% because teachers could mark
more than one response
Research Question around POEMS Assessment

RQ 6. Do the names teachers use to refer to their outdoor education areas relate to the type of outdoor education area as assessed by the POEMS assessment?

The range of scores is about the same for teachers who classify their outdoor area as an outdoor classroom or as a playground. Some outdoor areas that were classified as playgrounds were actually closer to a natural area—scores ranged from 38 (low) to 92 (high). The same situation occurred among the teachers who reported that they had an outdoor classroom—scores also ranged from low (38) to high (92). Table 26 and Figure 20 show that some who categorized their area as a playground actually had areas that were more suitable as an outdoor classroom according to the POEMS scale.

Table 26

*Descriptive Statistics for the POEMS Assessment for All Teachers and Teacher’s Name for Play Area*

<table>
<thead>
<tr>
<th>Sample</th>
<th>N</th>
<th>M (SD)</th>
<th>Median (IQR)</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Teachers Assessed</td>
<td>79</td>
<td>71.3 (16.9)</td>
<td>69.0 (23)</td>
<td>38</td>
<td>92</td>
</tr>
<tr>
<td>Outdoor Classroom</td>
<td>12</td>
<td>80.1 (18.3)</td>
<td>88.5 (24)</td>
<td>38</td>
<td>92</td>
</tr>
<tr>
<td>Playground</td>
<td>65</td>
<td>69.4 (16.3)</td>
<td>69.0 (31)</td>
<td>38</td>
<td>92</td>
</tr>
<tr>
<td>Natural Playspace</td>
<td>1</td>
<td>92 (NA)</td>
<td>NA (NA)</td>
<td>92</td>
<td>92</td>
</tr>
</tbody>
</table>

*Note.* Standard deviation, median, and interquartile range is undefined for 1 individual.
Figure 21. Distribution of POEMS scores among teachers by teacher’s name for outdoor play area
CHAPTER 5
DISCUSSION

Outdoor play in nature is essential for young children in early childhood programs and
preschools for two fundamental reasons. First, many developmental tasks can be most effectively
learned through outdoor play. Second, outdoor play is limited due to excessive technology use,
unsafe neighborhoods, busy and tired parents, no school recess, and increasingly demanding
academic standards.

As stated at the beginning of this study, there is not much empirical research in the field
of outdoor education; however, more studies are being conducted (www.dimensionsfoundation.org). Outdoor education has many definitions, and more data is
needed in the areas of child development as it relates to present outdoor experiences, as well as
teacher attitudes and practices toward outdoor education (Gillenwater, 2009). The theories of
Piaget, Vygotsky, Dewey and Gardner suggest the need to connect abstract learning with
concrete experience. Outdoor education in the modern era is doing just that for our children.

For the purposes of this dissertation, outdoor education is defined as using the outdoors
for learning. To that end, the recommended curriculum includes encouraging teachers to utilize
all available resources to help create and develop a dynamic, engaging outdoor-learning
experience; expanding the everyday learning environment to incorporate outdoor settings; and
helping children to become familiar, comfortable and acclimated with natural outdoor materials.

Phase I—Survey Questions

Outdoor education as a part of the preschool curriculum is still evolving. Many educators
face problems in obtaining support from policy makers and administrators. In this sample of
teachers, however, 75% said they had support from their administrators. Some of the things that
they suggested would enable them to teach in the outdoors were more supplies (33%), space for
an outdoor classroom (21.6%), time (17%), and training (10.2%). It is important to note that
supplies, a well-designed space, and training are more readily available than time, although using
the time available when going outdoors to engage with students, allowing them to discover and
manipulate loose natural materials, can add value to opportunities experienced in nature.

Benefits

Teachers in this study ranked the benefits of outdoor education with physical (43%) as
most important, followed by psychological (28%) and awareness of the environment (26%). This
clearly shows that in relation to using the outdoors as a learning environment, teachers did not
consider cognitive benefits (3%) as important as physical benefits.

Many research findings show a positive association between nature and one’s health.
Frumpkin et al. (2017) concluded that nature contact offers a range of health benefits such as
enhanced immune function, increased physical activity, and social connectedness. Nature contact
also has promise in addressing health challenges such as depression, anxiety, obesity, and
cardiocascular disease. Some of the promise is in preventive measures as well as treatment
options. Although much has been learned about the associations between nature and health
connections, as well as the cognitive benefits, much is still out there to learn. It was proposed
that true experiments, natural experiments and observational studies need to be performed
(Frumpkin et al., 2017).

Barriers

Some of the challenges faced by teachers in this sample include time (19%), classroom
management (17%), limited background or training (17%), and safety concerns (15%). As
mentioned previously, time is a difficult factor to overcome unless a teacher uses the space
wisely. Research has shown that classroom management is less in an outdoor classroom (Louv,
Training is available through many avenues, including preservice and in-service programs and outdoor education workshops.

In a study by Ernst (2014), a survey was conducted with 46 early childhood programs. The survey explored educators’ beliefs and practices about outdoor education in natural settings, and investigated the barriers to teaching in the outdoors. Findings showed that an educator’s belief in regards to the difficulty of using the outdoor settings and their own belief about their relationship to nature were related to their use of the outdoors for learning. Although these early childhood educators recognized the value of outdoor experiences for children, their beliefs were not enough to translate into practice. In this case, it was shown that professional development on the benefits of outdoor education would not have helped to get the educators outdoors more frequently. The study suggested that barriers to outdoor education need to be dealt with. Participants included the lack of walking access to a natural outdoor setting and the need for transportation to a natural setting, along with other barriers such as lack of time, weather, safety concerns and lack of extra supervision.

Attitudes

As evidenced in this study, teachers in various preschools in Northeast Tennessee had fairly positive attitudes on outdoor education. The range of possible scaled scores from the PTOEAS was 0-100, with teachers in this sample having a mean attitude score of 75.86. For the purpose of this research, the mean of the total scores was used as an arbitrary number to categorize teachers as high or low on the attitude scale. Therefore, any score 75 and below was considered a low attitude on the PTOEAS and above 76 was treated as having a higher attitude in regards to outdoor education. Results showed that preschool teachers had relatively high attitudes on outdoor education on a scaled score where 100 was the highest possible.
The Chase (1969) attitude test, *The Outdoor Education Inventory (OEI)*, grew out of the philosophy on outdoor education presented in Hammerman and Hammerman’s (1964) book *Teaching in the Outdoors*, which describes outdoor education as learning in the outdoors. In Chases’s (1969) study, classroom teachers K-6 were surveyed on their attitudes toward outdoor education using the OEI. They were pretested before attending an outdoor education program, then post-tested after. Findings showed that the educators had positive changes in their attitudes toward outdoor education. Since attitudes reflect behaviors, a teacher’s attitude on outdoor education may be significant in terms of student learning.

**Phase II—POEMS**

The Preschool Outdoor Environment Measurement Scale (POEMS) was developed in response to providing a way of assessing the preschool outdoor area. The comprehensive assessment, which covers 5 domains, includes teacher’s role, materials, programming, interactions and physical environment. The checklist in each domain is used to help childcare centers work toward creating a higher quality outdoor environment, with activities that stimulate not only physical activity, but play and learning. It was beyond the scope of this study to administer all domains, therefore, Domain 3—Play and Learning Settings, was used to assess the 33 outdoor areas. This domain has a checklist with diverse play and learning features, along with different types of developmentally appropriate materials and loose parts that children may use. Final scores were calculated for this domain only.

Most teachers (84%) in this study referred to their outdoor environment as a *playground*, and 99% used it for supervised play. Of the 84%, some of the teachers had high attitudes on the PTOEAS; showing possibly that they are not using it as a learning tool for academics except in
the realm of science. Most teachers (84%) said science was the top activity for outdoor learning. Thus, it seems that preschools in this area underutilize their natural outdoor areas.

Teachers (56.8%) also said they take the children outside each day for an average of 40 minutes. According to the policy in Tennessee (tn.gov), preschoolers must have 130 minutes of unstructured outdoor play per week as long as the temperature is above 32 degrees F and below 95 degrees F. Teachers who see the benefits of outdoor education need help with overcoming the barriers of time, supplies, and accessing the outdoors as a learning environment. In this case, professional development workshops could provide information on how to teach in the outdoors. Help in designing a natural playspace with more natural materials would also be valuable. Each outdoor environment should be unique to the local area. There are many resources that describe how to build a natural playscape with very little cost (Keeler, 2008; Nature Explore; Nelson, 2012).

The following are examples of high and low quality outdoor environments in preschools that participated in the study. Figure 22 represents high quality outdoor environments showing a variety of natural materials and spaces.

*Figure 22. High quality outdoor environments*
Figure 23 contains examples of low quality outdoor environments with man-made play equipment and lack of natural loose parts.

![Figure 23. Low quality outdoor environments](image)

**Phase III—Interviews**

The interviews were conducted to examine teachers’ early childhood experiences in the outdoors and examine if there was any relationship to their attitudes and use of the outdoor play area. All 8 teachers interviewed shared memories of playing outside when they were young; some in the dirt making mud pies, climbing trees, playing kickball and tag with neighbor children. In spite of these fond recollections, some teachers were hesitant about taking the children outside for learning. It is supposed that if teachers didn’t spend time themselves outdoors as a child, this may be a factor, but the results in this study showed that 99% had played outside daily and most (97%) in unstructured play. Attitudes of the 8 teachers ranged from 68 to 88 with a mean score of 75.

Teacher A (age 40) with a high attitude (80) and high outdoor environment score (77) took the children out even in the cold weather, if only for 10 minutes. She believed they needed more movement in the fresh air, which helped their behavior indoors. As a child, she played more outdoors than inside and now limits her daughter’s structured activities to provide more
time for informal, unstructured play. “Oh, daily we were outside more than we were inside. It was us and the neighborhood kids. Like, literally you would hear the momma ringing the bell. Somebody would shout for all of us to come in and eat and then it was nice and summer time we would want to go right back out until bedtime.” [laughter]

Teacher B (age 26) with a low attitude score (70) and high outdoor environment score (92) said her main lesson with the children was to raise butterflies and release them yearly. As a child, she recalled digging for worms in the dirt. She also liked sitting in a special place with friends outside. Then the introduction of video games took her away from playing outside. As she grew older, the appeal of digging for worms waned, and she forgot how wonderful it would be to have her student experience the same thing.

Teacher C (age 25) with a low attitude score (68) and low outdoor environment score (46) talked about how she lets the students play with 2 balls, trucks, and jump ropes outside, however she only uses the outdoor area for seasonal lesson plans in spring and fall. She said she played outside as a child with her mother—but now she lets her daughter go outside with grandma while she stays inside in the air conditioning! “I remember we had a metal slide and swings. That is about all I can remember. We did four wheelers and stuff, play jump rope.”

Teacher D (age 58) with a high attitude (84) and low outdoor environment score (54) follows her students’ interests. She brings a variety of subjects to the outdoor area, including art, dramatic play, and math. As a child, she played outdoors from sunup to sundown and safely walked to different places.
Research Questions

Research Question 1

Teachers who plan lessons for outdoor learning have a slightly higher attitude score as measured on the PTOEAS ($M = 77$) than those who do not ($M = 74$). There was no significant difference in the statistics, although it seems accurate that those who are more aware of the importance of outdoor education would plan to use the outdoor environment for learning.

Research Question 2

This question was not effective for comparing teacher attitudes and frequency of playing outdoors as a child. Although research shows that frequent, positive experiences in the outdoors produces environmentally aware citizens (Chawla, 2006), the sample in this study showed no variation since 99% of teachers reported playing outdoors daily.

Research Question 3

The survey question on early outdoor experiences did not distinguish how much of the teachers’ playtime was divided between structured and unstructured play, therefore it could not be used to compare between the high and low attitudes of teachers.

Research suggests that people’s attitudes are influenced by what they did in their early years. Ewert et al. (2005) studied an individual’s environmental beliefs and attitudes and analyzed how these are affected by early childhood experiences. Although outdoor education can be effective in influencing one’s environmental beliefs, pre-existing attitudes and perceptions are formed early in life by a number of variables. It was found that the most important factor affecting a person’s environmental views was frequent participation in outdoor experiences during the younger years.
Research Question 4

As with question 2, there was no variability in outdoor play as a child, therefore no comparison was made between groups who plan lessons for the outdoors and those who do not.

Research Question 5

Teachers who referred to their outdoor environment as an outdoor classroom used the area for more purposes than those who saw it as a playground. Although both groups used the area for supervised play and reading and writing activities, those who chose outdoor classroom used the area for math, science, measuring activities, planting a garden, and observing nature. How teachers view and name their outdoor environment may contribute to how they use it.

Research Question 6

The names teachers chose to refer to their outdoor environment did not always coincide with the POEMS assessment. Some teachers who classified the area as a playground were closer to a natural playspace; for others, the outdoor classroom did not score high on the assessment. More education is needed for teachers to realize the potential of their play areas.

Conclusions

Limitations

- The study took place in 3 counties in Northeast Tennessee.
- The small sample of teachers (81) was not enough to generalize the results to a larger population of teachers
- The mean age of teachers (41) indicates that many were raised in the “baby boomer” or “Generation X” eras where most spent the time outdoors in unstructured play (98%), and 63% said they were almost always unsupervised as children, therefore, no valid comparison could be made about early childhood experiences and attitudes. It would be
interesting to see if a sample of predominantly millennial teachers would have different outdoor experiences.

- There was no diversity in the sample; 99% were female.
- Follow-up interviews consisted of only 8 teachers, not enough to generalize with the total sample.
- The survey was long and not pilot-tested, therefore some of the questions may not have been clear to the teachers. In fact 20 out of 81 teachers were unable to correctly answer Question 9 which involved them having to rank order items from 1 to 10. For this question, ¼ of the data had to be discarded due to lack of understanding of the question.

**Recommendations for Future Research and Practice**

- Professional development was reported as important for teachers. Training was requested by 78% of teachers in this area; however since they scored relatively high on attitudes and beliefs about the benefits of outdoor education, the focus should not be on changing their beliefs but on education on how to incorporate outdoor education in the curriculum. This would provide more support for planning lessons for the outdoors. Additionally, it would be beneficial to work with teachers to change how they view their outdoor area, getting them to see it more as a natural playspace or outdoor classroom rather than as a playground.
- Replicate with bigger sample and shorter, more concise survey.
- Interview children to gain insight into their perceptions of the outdoor classroom and how they view it. Compare with teachers’ views and see if their perceptions are different.
- Observe children outside with teachers before and after a natural playground is constructed.
Summary

Children of this generation have limited access to the outdoor environment because many adults do not make it a priority. Due to a culture of fear, there are concerns about health and safety risks when outdoors. Advocating for nature experiences in early childhood outdoor classrooms is imperative. When adults can view the outdoor environment as an area that permits children to recognize potential dangers, they can assist children in learning how to deal with it (White, 2004). Life today, for many children, is structured, supervised, hectic, and affords few opportunities for free play. As reported in this study and generations ago, children roamed their neighborhoods and played in their yards and parks almost always unsupervised. Now children have become limited in what they can do. The outdoor environment at school may be one of the only safe places.

Outdoor education is a powerful resource. Early childhood teachers are important guides that have a direct impact on a child’s development and learning. The best designed outdoor classrooms are only effective if adults explore nature with the children. As both observe and appreciate their outdoor space, children develop holistic skills as teachers encourage discovery and inquiry. As children get more involved in nature, in a rich environment, teachers are better able to observe, while scaffolding and documenting their learning. As teachers provide outdoor learning experiences daily, without teaching to the test, children will master skills that translate into academic success (Wirth & Rosenow, 2012).

Natural playgrounds with natural materials and loose parts encourage more types of play than traditional playgrounds with metal equipment and plastic structures. Having a supportive teacher and access to a natural playground or outdoor classroom would encourage a child’s opportunity for holistic learning. Teachers’ mindsets need to change from viewing the outdoors
in just a supervisory role. The potential benefits of outdoor learning, such as reducing obesity and improving concentration, as supported by research, has to be emphasized in preservice settings. Teaching strategies in regards to outdoor learning would provide the techniques necessary for engaging a child’s interest, excitement, and love of nature. Louv (2008) relates that hands-on learning builds a relationship with nature which may lead to future caring for the environment. In this way, teachers could foster a new generation of environmental stewards.

“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” (Carson, 1956, p.55).
REFERENCES


112


Coe, D. (2012). *Natural playgrounds more beneficial to children, inspire more play*. University of Tennessee, Knoxville, TN.


Federation. Retrieved January 18, 2018 from https://www.nwf.org/Get-
Outside/-/media/PDFs/Be%20Out%20There/BeOutThere_WholeChild_V2.ashx
Exchange (March/April), 73-77.
Kuo, F. E. (2010). Parks and other green environments: Essential components of a healthy
human habitat. Executive summary. Ashburn, VA: National Recreation and Park
nrpa.org/Publications_and_Research/Research/Papers/MingKuo-Summary.PDF
65(1), 30-33.
Worth.
Chapel Hill, NC: Algonquin Books.
Chapel Hill, NC: Algonquin Books.
CAEDHH Journal=Larevue ACESM (January), 30-34.
others: Nature as setting and resource for early childhood education. Journal of


APPENDICES

Appendix A

Preschool Teacher Outdoor Education and Attitude Survey

Name: _______________________________________________________________________________

Age: _______________  □ Male  □ Female

Level of Education: □ Bachelor’s Degree □ Master’s Degree □ Master’s +30 □ EdS □ EdD/PhD □
Other: ________________

Do you have a Teaching License?  □ yes  □ no    If “yes”, please specify □ PreK-3 □ K-6 □
Other: ____________________

Years Teaching: _______________

School where you teach: ________________________________________________________________

Number of children in your class: ________________  Do you have an assistant?  □ yes  □ no

Prior Outdoor Education Training/Workshops: _____________________________________________
_________________________________________________________________________________

1. How do you refer to your school’s outdoor area that is used by teachers and students?
   □ Outdoor Classroom  □ Natural Playspace  □ Playground  □
   Other: _________________________________

Please answer the following questions, in relation to your outdoor area:

2. In the past year, did your class ever use an outdoor area to (please check all that apply):
   □ Read or write outdoors?
   □ Measure outdoors?
   □ Plant a garden?
   □ Observe wildlife, soils, habitats, plants, rocks, etc.?
   □ Walk outdoors?
   □ Engage in Supervised Play/Recess?
   □ Other (Please list):
   ________________________________________________________________________________

3. When you think of learning outdoors, please check your TOP 3 activities:
   □ block play  □ arts  □ dramatic play  □ music  □ science  □
   □ math  □ gardening  □ literacy  □ other
   (specify)________________________________________________________________________
4. For you, Outdoor Education includes exploring (please check all that apply):
   - [ ] soil
   - [ ] rocks
   - [ ] vegetation (plants, trees, etc.)
   - [ ] local living things (animals, bugs, birds)
   - [ ] water in nature
   - [ ] weather
   - [ ] other (specify) __________

5. How often do your children use the outdoors for learning?
   - [ ] once/day
   - [ ] once/week
   - [ ] once/month
   - [ ] once/semester
   - [ ] once/year
   - [ ] other (specify) __________________________________________

6. During a typical outdoor lesson, how long do children spend time outdoors? ________ minutes

7. Who accompanies the children outdoors?
   - [ ] teacher
   - [ ] assistant
   - [ ] other __________________________
   - [ ] combination (explain) __________________________

8. Do you prepare lesson plans for outdoor learning?
   - [ ] yes
   - [ ] no

9. Rank the following from “most important” (1) to “least important” (6):
   What are the most important benefits of Outdoor Education?
   - [ ] Physical: Increase in physical development; active healthy lifestyle
   - [ ] Cognitive: Stronger problem-solving, language and communication skills
   - [ ] Psychological/Socio-emotional: Happier; positive self-esteem; self-regulation; building relationships
   - [ ] Understanding: Appreciation of nature; building stewardship for the environment
   - [ ] Other (specify):

10. Rank the following from “most challenging” (1), to “least challenging” (10):
    What are your biggest challenges to teaching children outdoors?
    - [ ] Safety concerns (fire ants, snakes, poison ivy, ticks, etc.)
    - [ ] Classroom management concerns
    - [ ] Outdoors is extra-curricular/not relevant/not as important as other subjects
    - [ ] Not enough time
    - [ ] Lack lesson plans, supplies for relevant activities
    - [ ] No support with set-up, clean-up
    - [ ] No tables, seating or other needed facility
    - [ ] Overgrown area, weeds, disrepair
    - [ ] Unfamiliar/limited background or training in Outdoor Education
    - [ ] Other (specify): __________________________
11. Do you have encouragement/support for Outdoor Education from (please check all that apply):
   □ Administration  □ Faculty  □ Parents/Families  □ Students  □ Other
   (specify)_____________________

12. What is the one thing that would enable you to teach more in the Outdoor Classroom?
   _______________________________________________________________________
   _______________________________________________________________________

13. Early Outdoor Experiences: Which of the following activities did you do outside as a child? (please check all that apply):
   □ Organized sports
   □ Boy or Girl Scouts (Cub Scouts, Brownies, etc.)
   □ Summer camp
   □ Park visits
   □ Hiking
   □ Public playgrounds
   □ Unstructured play (biking, swimming, yard games)
   □ Pretend play with natural materials
   □ Other
   (specify)_____________________________________________________________________

14. How frequently did you go outside to play as a child (weather permitting)? □ daily  □ weekly  □ monthly  □ other
   (specify)___________________________________________________________________________

15. When outside playing, were you:
   □ always unsupervised  □ almost always unsupervised  □ almost always supervised  □ always supervised

16. Would you be interested in attending an Outdoor Education training workshop? □ Yes  □ No
The following items ask you to indicate your opinions, impressions, and attitudes toward Outdoor Education.

For each item circle:
“1” if you **Strongly Agree (SA)** with the statement
“2” if you **Agree with the statement**
“3” if you are **Neutral** with respect to the statement
“4” if you **Disagree** with the statement
“5” if you **Strongly Disagree (SD)** with the statement

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>SA</th>
<th>AGREE</th>
<th>NEUTRAL</th>
<th>DISAGREE</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The major purpose of outdoor education is to have fun.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Outdoor education enhances teacher-pupil relations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Outdoor education is applicable to all subject matter areas at all grade levels.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Outdoor education is largely a frivolous activity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Outdoor education is more concerned with learning in depth rather than completing a text or covering a lot of material.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Outdoor education enriches, vitalizes, and complements content areas of the school curriculum.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Outdoor education is essential to the physical health of a child.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Outdoor education and outdoor recreation are two terms meaning the same thing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Outdoor education diminishes the importance of the “joy of discovery.”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Outdoor education activities often promote cohesiveness and unity of spirit among students when pursuing a common goal.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Outdoor education activities reduce opportunities children have to assume real responsibilities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Outdoor education stresses the involvement of the learner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Outdoor education emphasizes that telling, in itself, is teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Outdoor education activities are employed as part of teaching activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Outdoor education activities complement and enhance understanding of the subject matter I teach (or plan to teach).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>17.</td>
<td>There is some subject matter that I teach (or plan to teach) which I see little use for outdoor education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18.</td>
<td>On the job, or in-service training, in outdoor education is of little use.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19.</td>
<td>Special knowledge is necessary to effectively teach students in the outdoors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20.</td>
<td>Special skills are necessary to effectively teach students in the outdoors.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21.</td>
<td>The ultimate educational experience in the outdoors is the resident outdoor school in which a teacher and his/her pupils live, work, and study for several days in an outdoor setting.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22.</td>
<td>Outdoor education does little to enhance classrooms objectives.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23.</td>
<td>Every professional teacher education program ought to include a practicum in outdoor education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24.</td>
<td>Professional preparation of teacher in outdoor education should take place both during teacher training and on the job.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25.</td>
<td>Training in outdoor education broadens a teacher’s scope of education methods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26.</td>
<td>Outdoor education is usually more destructive than instructive.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27.</td>
<td>There should be an outdoor education specialist in each school system.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix B

POEMS Domain Three

3.1. The outdoor area contains an adequate variety of play and learning settings with constructed or manufactured elements. At least four (4) of the following should be available for the children to use:

- arts/crafts area
- acoustic play area
- sitting bench
- woodworking bench
- easily supervised, cozy nook
- anchored play equipment
- crawl-through place (tunnel)
- small stage (including puppet stage)
- raised deck
- playhouse
- balance beam or opportunities to balance
- other

3.2. The area contains an adequate variety of play and learning settings with natural elements. At least four (4) of the following should be available:

- sand play area
- grass maze
- safe stepping stones
- rolling/shaking mound
- water play area
- flower or vegetable garden
- easily supervised, cozy natural nook
- animal habitat (e.g., bird house, rain garden, butterfly garden, logs, carpet tip-ups, bird feeder, ant farm)
- trees
- other

3.3. A multipurpose, open, grassy area is available for large group games, running, dramatic play, music and movement, parachute play, social gatherings, etc. (Note: Measure this by imagining 15 preschool children holding hands in a circle.)

3.4. A variety of horizontal, elevated work surfaces are available (e.g., picnic table, stump, counter, raised deck) for art, dramatic play, etc. There should be at least two surfaces present.

3.5. Circulation areas are ample and pathways can be used by wheeled toys (sufficient space available to accommodate wheeled toys for the children in the group).

3.6. Play materials and equipment are developmentally appropriate.

3.7. Enough outdoor toys are available for all children to use without undue competition.

3.8. Play materials and toys can be reached and played with by children.

3.9. Wheeled toys such as tricycles, wagons, and wheelbarrows are available.

3.10. Storage is adequate for outdoor toys, loose parts, and supplies.

3.11. At least four (4) manufactured loose parts are available:

- blocks
- manipulatives
- pieces of cloth
- skipping rope
- hoses
- sand toys
- chalk
- other

3.12. At least four (4) of these natural loose parts are available:

- smoothed sticks
- river stones
- dirt
- mulch
- pine cones
- leaves
- shells
- driftwood
- acorns
- other

3.13. A variety of decorative, colorful, and stimulating elements, at least three (3), are used to enliven the character of the area:

- banner
- wired sock
- gazing ball
- chimera
- decorative object (wreath, lantern, mosaic, topiary, fence weaving, weather vane, windmill, whirligig, whimsical sign, geoball)
- flag
- status
- cultural artifact
- other

Total the number of items checked as present. Divide by the maximum number of items in this domain and multiply by 100.

Total Items

Calculate % = \( \frac{\text{Total Items}}{33} \times 100 \)

Domain 3

130
Appendix C

Outdoor Education Interview (OEI)

1. When do you take the children outside?
2. How do you decide what to do outdoors with the children?
3. How do you build on children’s interests outdoors?
4. Within the last month, have you done any activities linked to seasonal changes?
5. If you encounter something outside that you are afraid of or don’t like, how do you handle that with the children?
6. Elaborate on your early childhood experiences outdoors:
   a. Preschool age (3-5 years)—rural, suburban, urban?
      i. Family
      ii. School/Child Care (if applicable)
      iii. Peers - including both informal and formal (e.g., sports, etc.)
      iv. Community – including church, etc.
   b. Elementary age (6-8 years, K-3rd grade) —rural, suburban, urban?
      i. Family
      ii. School/Child Care (if applicable)
      iii. Peers - including both informal and formal (e.g., Scouts, sports, etc.)
      iv. Community – including church, etc.
Appendix D

INFORMED CONSENT DOCUMENT FOR TEACHERS

11/23/2015

Dear Participant:

My name is Cathy Landy and I am a graduate student at East Tennessee State University. I am working on my doctorate degree in Early Childhood Education. In order to finish my studies, I need to complete a research project. The name of my research study is *The state of outdoor education in Northeast Tennessee: Preschool teacher attitudes toward outdoor education*.

The purpose of this study is to discover preschool teacher attitudes about outdoor education. I would like to give a brief survey questionnaire to preschool teachers in Northeast Tennessee. It should only take about 20 minutes to complete. You will be asked questions about what your opinions are on outdoor education, and also what you may teach in your outdoor school environment. Since this project deals with your personal attitudes about outdoor education, it might cause some minor stress. However, you may also feel better after you have had the opportunity to express yourselves about outdoor education. This study may provide benefit by providing more information about what your colleagues think about outdoor learning in this area of Northeast Tennessee.

This method is completely confidential. In other words, your information will be coded and there will be no way to connect your name with your responses. Although your rights and privacy will be maintained, the ETSU IRB and personnel particular to this research have access to the study records.

If you do not want to fill out the survey, it will not affect you in any way. There are no alternative procedures except to choose not to participate in the study.

Participation in this research study is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected. **However, all participants who choose to fill out and return the survey will be entered in a drawing for a $100 gift card!**

If you have any research-related questions or problems, you may contact me, Cathy Landy, at xxx-xxx-xxxx. I am working on this dissertation project under the supervision of Dr. Amy Malkus. You may reach her at xxx-xxx-xxxx. Also, the chairperson of the Institutional Review Board at East Tennessee State University is available at (423) 439-6054 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can’t reach the study staff, you may call an IRB Coordinator at 423/439-6055 or 423/439/6002.

Sincerely,

Cathy Landy
VITA

CATHY LYNNE CARON LANDY

Education: B.A. Biology, Assumption College, Worcester, Massachusetts 1978
M.S. Environmental Health, East Tennessee State University, Johnson City, Tennessee 1998
Ph.D. Early Childhood Education, East Tennessee State University, Johnson City, Tennessee 2018

Professional Experience: Research Assistant, East Tennessee State University, Johnson City, Tennessee 2000-2003
Contractor: Watershed Representative, Tennessee Valley Authority, Gray, Tennessee 2008-2011
Environmental Education Coordinator, Buffalo Mountain Camp, Jonesborough, Tennessee 1996-2012
Doctoral Fellowship/Graduate Assistant, East Tennessee State University, Johnson City, Tennessee, 2011-2016
Save Our Streams (SOS) Coordinator, UTRR, Abingdon, VA 2017-present


