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DEVELOPING AN EDUCATIONAL TOOLKIT FOR CAREGIVERS
OF SIX-TO-EIGHTEEN-MONTH-OLDS MIXING DEVELOPMENTAL
MILESTONES AND OUTDOOR EDUCATION

By

Jessica K. Hillstrom

A capstone submitted in partial fulfillment of the requirements for the degree of Master
of Arts in Education: Natural Science and Environmental Education.

Hamline University

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I dedicate this capstone project to my Father and Mother, who spent countless hours hunched over the computer reading, editing and correcting enormous amounts of papers in my school career. For everyday encouraging and showing me such unwavering love. For believing in me that I can accomplish anything that I wanted to do no matter having a learning disability.

To my Husband Tyler, whose love for the outdoors is infectious. For always taking moments to teach our children his love of nature. Whose undying encouragement, laughter, support, and love pushed me to fulfill my master's requirements.

To my three children Huck, Betsy and Mac, for allowing me to see your joyful spirits, the love you three foster for the outdoors and playing in nature reinforces how important fostering the relationship to nature truly is.

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Chapter One

Introduction

Introduction

This first chapter of the Capstone will introduce my topic, which is based on personal and professional experiences as a parent and an educator. The topic focuses on the development of an educational toolbox for caregivers of 6-18 month old children by mixing developmental milestones and outdoor education. This toolkit can be a crucial and intricate part of a successful first introduction into nature for the youngest children. Through my personal experiences, educational teaching experiences, and research, I feel this study will benefit young children and their families. It will also become apparent why I believe it has a need for further study. I will give a brief background on exposure to nature, outdoor education and environmental science educational that directly impacted my choice of topic. By explaining my educational work experience, which lead to an understanding of how to create a useful toolbox for caregivers and parents alike, the reader will come to understand why this topic is relevant, helpful and needs to be studied more in depth.

My capstone research topic will focus on the following question: would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals? The toolbox is a simple and effective way for any parent, regardless of their economic, academic or interest level to introduce outdoor educational games that are both developmentally appropriate and

beneficial for their child. Specifically, the goal of my research is to create this toolkit to introduce environmental education to children between the ages of six and eighteen months by mixing their developmental milestones with outdoor education. I am using the terms “environmental education” and “outdoor education” when referring to outdoor play and hands-on play in the outdoors. I will also be referring to typical childhood milestones from Center of Disease and Control Prevention guides, American Association of Pediatricians, and Children's Hospital of Wisconsin worksheets for 6-to-18-month-old children.

This chapter will explain how my early experiences with nature had long lasting positive effects to me as a very young child. Chapter one will speak about my post undergraduate experiences with outdoor education. It will elude how work related experiences lead me to my capstone topic. It will explain how my interest in this topic grew when, as a parent of three children, I discovered that there is a significant lack of research based information and tools for early 6-to-18-month-old children being exposed to outdoor education. In this chapter it will explain how professional knowledge can be gained based on this capstone project.

My Early Experiences and Exposure to Nature

When I was young, my parents did many outdoor activities with my siblings and me. My first exposure to the outdoors was taking long walks in the woods with my mother as she talked about the beauty that surrounded us. My family shared with me and my siblings a love of nature and continue to hunt, camp, hike, and explore outdoor nature based opportunities today. As a child, I traveled to my grandparent’s cabin in northern Wisconsin and vividly recall walks in the woods, playing in the grass, and enjoying the

magical the sounds of the loons at night. When I got older and my younger siblings were born we would spend long weekends up north playing, building forts, getting dirty, catching frogs, paddling rowboats around the lake, and countless other activities. When I was 11 years old my parents sent me to an overnight camp for the first time. I spent that first summer living in a very rustic cabin, showering in a lake, walking everywhere, breathing clean fresh air, and taking my first canoe trip. Camp became an integral part of making me the person I am today. It taught me critical life skills that would help build leadership skills, teach me to voice my own opinion, and that no task was impossible to accomplish.

Experiencing the outdoors helped me to become a well-rounded, stable, happy, healthy person who would go on to share that love with my own children. After several years as a camper, I decided I wanted to become a camp counselor. I took one year off between becoming a camp counselor and I was fortunate to have the opportunity to participate in an Outward Bound program in Asheville, NC. Before that trip, I was aware of the “Leave No Trace” principles, since we had practiced this on our hiking and canoe trips at Camp Mishawaka. But this trip was different because I began to understand that participating in the outdoors fostered in me a new sense of social responsibility that would positively impact my life. After returning from my Outward Bound course, I proceeded to work at Camp Mishawaka in Grand Rapids, MN. While many of my friends never understood why I loved working in the outdoor and at summer camp I continued to work there for eight summers.

Post Graduate Work

After graduating in 2003, I was given the opportunity to take part in a winter course as part of the National Outdoor Leadership School (NOLS) semester outdoor trip to Patagonia, Chile. During that semester, I spent almost one hundred days ice climbing, sea kayaking, and small group solo navigating the wild expanse of Patagonia, Chile.

Besides hiking, sea kayaking and ice climbing, the course consisted of outdoor, hands-on classes. Our group saw firsthand how Chilean children who lived in rural farming areas were exposed to nature became wonderful stewards of nature and strong members of the community. Children in this rural area of Chile, who did not have electricity access, were not attached to their electronics or televisions but interacted with nature on a very personal level. Since the outdoors was their playground, they were very conscientious of how much nature impacted them and helped them during their everyday life. Children were involved with everyday life of farming; work with the livestock and outdoor chores. This work gave them values and the understanding that nature and the outdoors was something to be valued.

One night while our group was cooking dinner we were sharing stories about our lives at home and the conversation shifted to how we became interested in doing a semester with NOLS. The common thread for each of us was our deep feeling that nature grounded us and gave us a sense of calmness and clarity to see the world through a new lens. For a majority of the participants, their families had been a driving force in early outdoor exposure that had made such a large and lasting impact on their lives. Thinking about the trip now remember thinking how grateful I was that my parents had given the opportunity of exposing me to nature and its wonders at such a young age. It was after returning from this NOLS trip that I vividly remember recounting the experiences I had

on the trip to family and friends. Upon my return home I made the choice to study Environmental Education and share the passion that I had discovered with others.

Drawing on the memories from seeing how children interacted with nature on my NOLS trip, I started to find a way of incorporating these ideas into to my studies and work. When I started at Hamline for my masters in Natural Sciences and Environmental Education these ideas untimely developed into the capstone idea of the development of the a toolkit.

Work Based Experiences in My Topic Discovery

My work experience within formal education has been limited to volunteering in a preschool setting of 2-½-5-year-old children. I worked as a special education aid for early education intervention of a public preschool and servicing 3rd and 4th graders with severe autism, which affected their ability to verbally communicate with the use of technology based help.

Within my volunteering opportunities with my children's preschool I discovered that there were few guided and structured outdoor educational activities for 6-18 month old children. Most of the activities I found in research were based on experiential learning such as simply playing outdoors can benefit children. This research is wonderful but ignored the mixing of age appropriate structured outdoor games.

In the study done by Ingunn Fjørtoft in 2001, it examines the effects of nature-based play for kindergarten children whose ages were 4-6 years old. This study is very useful and I use it in coming chapters to illustrate the importance of the health benefits of outdoor education. It also helped in solidifying the idea of needing research it is geared toward the younger group of pre- preschool aged children. The idea of exposing children

to experiential nature based outdoor activities has been well documented in research, however there is a need for more research geared to the positive effects of outdoor education in the lives of the youngest children, from birth to age three.

In Jim Greenman's (2005) writing, he refers to infants and toddlers as "sensory motor scientists who systematically investigate their world using their scientific tools: mouth, eyes, skin, ears, and whole body muscles" (Greenman, 2005, p. 6). His ideas are geared toward the need for outdoor education within a day care setting and examine the benefits to exposure within those settings. This research is very important since it is one of the few that speak towards the young group of pre-preschool aged children.

As an educator within a middle school special education setting, it was easy to find resources for outdoor activities that are geared toward the 11-14 age demographic. Many outdoor education lesson plans have now been written into the schools' curriculums incorporating field trips to outdoor learning centers, experiential learning and outdoor class learning.

Professional Knowledge that Can Be Gained

The research that exists currently is geared toward preschool age of 2-½–5 years old and primary, middle school, and high school aged children until 18 years old. There are many resources for older children like games and outdoor activities but none available for children ages 6-18 months. Further professional studies could seriously benefit children, caregivers, and educators alike.

Children could benefit from being given new and different activities to be involved in and in theory create a new love and interest in the outdoors and the environment. Caregivers and parents would like to have something quick, easy and cheap

to help expose their youngest children to the outdoors. As an educator, I asked myself, “How do I accomplish this with such a specific age group?” A timely phone call from our Pediatrician about my daughter's two-year-old checkup sparked an interest in this subject matter. At the appointment, our pediatrician gave us a sheet with milestones that the specific typical age child should be working on and mastering. Since we were already doing developmentally appropriate activities with our children, we saw that these helped them achieve their milestones. This realization lead me to begin creating a toolkit for my own children based on the principles of outdoor education, which I recognized could go hand-in-hand with the developmental milestones.

The purpose of this Capstone project: *Would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?*

Summary

This chapter briefly describes the research topic, the Center of Disease Control and Prevention developmental childhood milestones guidelines, age appropriate games, and how outdoor education can be implemented with children.

In the coming chapters I will create a toolkit guided by my research in outdoor education and incorporating the Developmental Milestones as a guide to introducing age appropriate nature based activities for children age 6-18 months. The toolkit I have developed in this capstone will allow any person, no matter their background, a simple and easy method to introduce and explore the outdoors with their young child. If we teach young children about nature and our environment, our hope is that they will learn to respect and value it, and we can create a population of individuals who will be the new

stewards of the earth. I would like to see if my research will corroborate my theories on the natural connections between environmental education and the childhood developmental milestones. I believe that if infants are introduced to nature as early in their lives as possible we can provide them opportunities that will benefit them physically, socially, and emotionally throughout their lives. My toolkit will be an easy and inexpensive way for families and children to explore the nature that surrounds us and that need to be taken care of for future generations.

Preview to Coming Chapters

Chapter Two will showcase the research about introducing children to the outdoors and environmental education. Examine educators and researchers have learned from early exposure to nature in children with regard; to their mental health, physical health, risk analysis, and academic growth. Interpret what has been written to support that early childhood exposure to the outdoors are positive and what drawbacks exist.

It will show the need for the topic of this capstone of a toolkit for the littlest of children the pre-pre school age of 6-month to 18 month-old children should exist and how many people including daycares, caregivers, doctors and children can benefit from it. The reader will see a clear easy to follow methodology that was used explained in Chapter Three answering the needs for the youngest educator and caregiver. Chapter Four will accurately depict the findings from the questionnaires, case studies and interviews conducted. Finally Chapter Five will give a reflection of my findings, explain what I learned what I could have done better or changed and how this new information could help in the education of our littlest children.

CHAPTER TWO

Literature Review

Introduction

Chapter Two will show how current research supports the idea that outdoor education plays a very important role of development for children. This chapter will support that there is a need for children at very young ages to be exposed to outdoor education. It will explain the need for an easy-to-use toolkit for caregivers for early expose for the children of 6-18 month of age. This chapter will demonstrate that caretakers and parents can teach their youngest children regardless of their economic, academic, or interest level about environmental and outdoor education. By understanding how the universally accepted childhood developmental milestones can be paired with outdoor play, the reader will see the potential of creating adults that are aware of the environment and care about it. By examining what research is available, this paper will demonstrate a clear benefit to teaching some of the youngest children about outdoor learning. Specifically, the foundations of this capstone research will help create a very simple, straightforward tool kit for adults to use when introducing environmental education to children between the ages of six and eighteen months. *Would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?* The will toolkit develop an understanding and appreciation for nature and the environment in young children, who will, with encouragement, grow into adults who are healthier, feel confident in the outdoors, are responsible outdoor citizens, and will teach future generations a healthy love and affection for the environment. The use of the toolkit could create adolescents

and adults who will grow to love nature is a hard thing to accomplish. Research indicates an important role of nature in life, that the toolkit development will help develop a love of nature. The toolkit portion of this capstone will aid in showcasing that there is a need for more research needed for the youngest children of 6-month olds to 18-month olds.

This chapter will review the research on the topics of these five major themes: society's disconnection with nature, a description of outdoor education, childhood milestones six month olds through eighteen months of age, the importance of teaching outdoor learning, and the benefits of outdoor learning. These themes will help to support the need for an early childhood toolkit on the environment.

Historical Context

Throughout history humans have interacted with nature in every aspect of their lives. Native peoples had a strong connection to the outdoor world. Taking into account how our ancestors interacted with nature as caretakers, in contrast with how our modern society has become disinterested with nature, one can draw some interesting conclusions. The important theme being that as a modern society, humans interact quite differently than our predecessors. Humans of previous eras valued their surroundings; they used the land sparingly; and they taught new generations about nature with a very different perspective than our current society (Kirwan, 1999).

Environmental interaction between humans and nature from the past. Our ancestors placed a very high value on nature, which these indigenous peoples then taught to their children (Kirwan, 1999). These native people not only taught future generations the skills of survival within their surroundings but also how to protect the world in which

they lived (Kirwan, 1999). Our ancestors used resources mindfully to create items for a purpose not for exploiting them or to waste unlike our current world.

Each native tribe has a very different set of beliefs, but there is a common thread that can be found in many different cultures; this is a deep-seated affection and care for their natural surroundings (Kirwan, 1999). The value placed on nature can be seen in many ways: how the native population hunted, how offerings in religious ceremonies were made to pay homage to nature, and mostly how this information was passed down to future generations (Kirwan, 1999). “Fundamentally, the earth is the creator, a spiritual being containing a multitude of natural deities. In this way the land is the source of all sustenance — a powerful source of stories and tribal history, and also a definer of identity, both tribal and individual, whilst also providing physical sustenance” (Kirwan, 1999, p. 85).

Native people’s hunting techniques are ones that value the whole animal, using every part of the animal to the fullest (Raley, 1998). This idea of “not to waste” was at the forefront of Native peoples’ strong connection to the earth. Their belief in not over-hunting or not to waste showcases how they valued their surroundings. “Like other native peoples, the Cherokees did not try to rule over nature but instead tried to keep their proper place within it” (Raley, 1998, p. 7).

The Cherokee tribe, for example, practiced an idea of giving back to the land by conducting ceremonies to honor the earth (Raley, 1988). The idea of offering items back to nature displayed a strong example of how nature was important to the Cherokee tribe. By giving items to honor nature, tribes believed this would secure harmony of the natural world (Raley, 1988). Tribes believed so strongly that their direct actions could affect the

world around them (Raley, 1988). “A hunter might pray to the spirits of animals for guidance and forgiveness. In order to respect and cooperate with all of nature, the natives found ways to conserve its parts. When Cherokees gathered medicinal plants in the forest, they harvested only every fourth one they found, leaving the other three to grow undisturbed for a future use” (Raley, 1998, p. 1).

Native tribes understood that there was a delicate balance between over farming an area and only using what is needed (Raley, 1998). “This deep seeded connection and intricate dependence meant that hunter-gatherers generally viewed themselves as intertwined from their natural ecosystems and shaped their spiritual beliefs about animals and their rituals around natural events” (Orland, 2004, p. 3). Orland’s writings draw on how our modern lives have moved from a direct connection with nature in a hunter gathering society to a society disconnected from nature (Orland, 2004). “First is the view that nature and wildlife are primarily a resource to be exploited under the market-based system, similar to the attitudes held in early-industrialized societies. Second, there are many for whom nature is simply irrelevant, and so they pay little attention to it,” (Orland, 2004, p. 1).

Many scholars, including E.O. Wilson, Eric Fromm, Richard Louv, David Sobel, and Abraham Masslow believe that we must reestablish this connection with the natural world to fully become a healthy human being and have a healthy environment (E.O. Wilson, 1984; Fromm, 1941; Louv, 2005; Sobel, 1996 ; Masslow, 1943). Native peoples placed a high value on teaching their future generations to protect their ways of life by educating them in all facets about their resources and their land.

Physical connection to one's surrounding is something that in modern times humans are having trouble associating to. Whether as humans we have a deep, genetic connection to our surroundings or if it is something that is taught has been debated and discussed for years. The idea that our connection to nature is inherited has been argued, and many believe the connection plays a crucial role in human's basic life and happiness (Fromm, 1941).

The term biophilia means a love of life and the living world; the affinity of human beings for other life forms (Oxford English Dictionary Online, 2016). Biophilia was first used by Erich Fromm, in *The Heart of Man* to describe a psychological orientation of being attracted to all that is alive and vital (Fromm, 1941). Native Peoples had a direct connection to the land in a way that E.O. Wilson (1984) believed to be an inherent love for the environment so much so it was imprinted in our DNA. E.O. Wilson (1984) used the term in the same sense when he suggested that biophilia describes "the connections that human beings subconsciously seek with the rest of life" (E.O. Wilson, 1984, p. 32). He suggested that the deep affiliations that humans have with other life forms and with nature itself are found in in our biology (E.O. Wilson, 1984).

Modern Society's Disconnection with Nature

Contemporary society, in contrast to our predecessors, has become far more resource-driven, insular, and indoor based. This naturally leads to a significant decrease in the time spent outside and therefor, connecting with nature. By not directly teaching our children the same values about the environment that our ancestors did it prevents generations the ability to teach their future offspring, then the connections to the wilderness that the ancient society build is lost.

Although named by Fromm, the concept of biophilia has been proposed and defined many times over and used by E.O. Wilson the definition has been transferred to the mean nature inherited to humans. E.O. Wilson puts the term in a different context by stating that "Children who learn about nature solely from television and computers are not developing fully, they need to experience wildlife first hand" (E.O. Wilson, 1984, p. 38).

Using Wilson's conception of biophilia as a model, one can examine the connection of Abraham Maslow idea of how primitive humans' needs intertwine in a new light. In Maslow's 1943 paper, "A Theory of Human Motivation," he creates his Pyramid Hierarchy of Needs. The pyramid of needs has become a staple for psychologists in the understanding as to what basic intrinsic needs are to humans. These needs are inherited from the belief that to feel "safe", "fulfilled" and "whole" these needs have to be met. This pyramid is derived based on primitive needs as a foundation; many of these needs have ties to nature.

Maslow's "Pyramid Hierarchy of Needs"

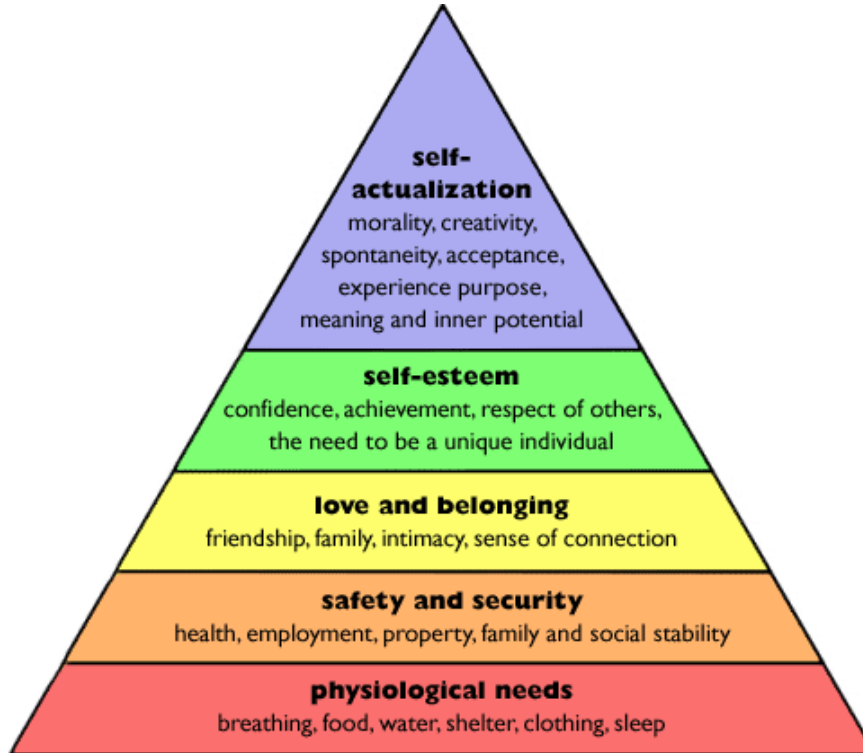


Figure A, Maslow Pyramid of needs (Donald Clark, 2012)

Maslow's Pyramid Hierarchy of Needs (Figure A) has an intrinsic role in how human beings have primitive needs to satisfy in order to become fulfilled. The lower level, or "basic needs," needs to be filled first. This base level needs have been compared to being dropped on a deserted island these are fundamental needs to achieve before progressing on to meet higher level growth needs (Maslow, 1943). The pyramid of needs has been examined on many levels and changed and reimagined, even by Maslow: "The more we learn about man's natural tendencies, the easier it will be to tell him how to be good, how to be happy, how to be fruitful, how to respect himself, how to love, how to fulfill his highest potentialities ... The thing to do seems to be to find out what one is really like inside; deep down, as a member of the human species and as a particular individual" (Maslow, 1987, p. 6).

This can be translated as human connection to our environment is that humans have a simple genetic tenacity to bond with nature, to find a healthy connection with it, to live and grow from his natural surroundings. As generations become less immersed in natural surroundings, society's base of needs, which should be the stronghold, becomes weak and can't balance the rest of our needs.

As a modern society there are more "phobias," which are the fears that people have of things. Society has fears that are based on naturally occurring phenomenon, organisms and other psychological ideas. In our past society they had more "philiias" which are positive feelings toward organisms, species, habitats, processes and objects in their natural surroundings, which is a contrast to our current beliefs (E.O. Wilson, 1984).

According to the American Academy of Pediatrics (AAP) online resource article entitled, "Media and Children", "Today's children are spending an average of seven hours a day on entertainment media, including televisions, computers, phones and other electronic devices" (AAP, 2016). This article's argument is that the influence of technology being readily available in households across the country, as well as early exposure to television with children, is to blame for the lack of outside play or experiencing nature in the same way (AAP, 2016). In addition, most households have two working caretakers/ parents, who work longer hours, which translates to spending less free time outdoors with their children (AAP, 2016). The effect has created generations that rely on television and technology to teach children about the outdoors instead of participating in activities outside with their children (AAP, 2016). The AAP also states that access exposure to screen time can lead to problems at school with concentrating, unhealthy dietary choices, and long-term health problems. Many doctors

and professionals encourage children reaching childhood milestones that television and other entertainment media should be strictly avoided for infants and children under age 2 (AAP, 2016). By exposing young children to nature through media, we are inadvertently hurting them.

The AAP (2016) states that “A child's brain develops rapidly during these first years, and young children learn best by interacting with people, not screens” (AAP, 2016, p. 2). Children interacting more with screens than the outdoors, is discouraged by health care professionals, children's doctors, researchers and teachers. As a society we simply ignore it. The thought of caregivers possibly being to allow our children the best possible everything, thus when a caretaker or parent can't physically take their child outdoor they believe by showing a video or program about the outdoors it is the second best thing. Rivkin (2000) states that "Parents are very busy, and outside play takes a lot of supervision." (Rivkin, 2000, Para 4)

Our society's stress to “be safe” or “be careful,” which is most likely translated by children as “don't take risks,” leads to children being unable to take appropriate risks in the outdoors. To younger generations, this is interpreted that inside is safer, controlled and comfortable, while the outdoors is dangerous, unpredictable, and uncomfortable (Charles and Louv, 2009). By not allowing children the chance to make mistakes outdoors, we are removing the ability to learn the concept of a “risk analysis.”

Children's play in nature. Charles and Louv (2009) describe the reasons why there is a disconnect for children in nature. Children are simply not living in areas that facilitate an ability to be in the outdoors (Charles & Louv, 2009). “Human beings are becoming an increasingly urban species: according to the United Nations Population

Division, almost 50% of all people in the world live in urban areas and this is projected to increase to 65% by 2030” (Charles & Louv, 2009 p. 1). What this means is that children are being given fewer opportunities to see wild places; instead their outdoor exposure is seeing manicured parks or playgrounds. If children are not exposed to wild nature, our society begins to create children who are unaware of the healthy benefits of nature.

In Richard Louv’s groundbreaking book, *Last Child in the Woods*, he wrote about humans suffering from a “nature deficit disorder,” which has created unhealthy children both physically and emotionally (Louv, 2005). This condition of “Nature deficit disorder” means that children are spending less and less time outdoors, which is resulting to many behavioral issues and loss of interested in what happens to the environment.

Louv also examines the idea that too much structured play can be harmful: “It takes time—loose, unstructured dreamtime—to experience nature in a meaningful way” (Louv, 2005, p. 117). This is very different from previous generations in which children had less structured activities and were allowed to free play more. Children are seldom allowed to experience nature in a free-flowing manner that allows them to make mistakes, get hurt, grow and learn from these experiences, which results in having healthy life experiences with nature. Due to our society structuring every minute for many children, it has emphasized how some children actually learn better from less structured activities "Some kids don't want to be organized all the time. They want to let their imaginations run; they want to see where a stream of water takes them," (Louv, 2005, p.). This idea can translate into not only behavioral issues but also physical.

Contemporary society has created people that suffer from *ecophobia*: a fear of one’s environment, natural surrounds or a feeling of powerlessness to prevent

cataclysmic environmental change (Sobel, 1996). The idea that humans fear the outdoors and are powerless to evoke change is a newer idea being examined in research, which was brought up by Sobel (1996). The idea that humans are powerless to change could prove to be why more and more generations of children are not even being exposed to the outdoors. If children are not exposed to nature as a child it leads to an adult that is unsure, unfamiliar, scared of nature. This has meant that these adults are unlikely to venture outdoor or teach the future generations about the environment (Sobel, 1996).

More than in previous generations, kids' play is more sheltered and structured. Many parents and caretakers are watching children's every movement and making sure they are protected. In fact the outdoors is viewed and believed to be uncontrolled and in fact dangerous which has lead to not taking risks outdoors. Many of these "fearful" or "scary" ideas about nature can be seen in popular media and novels. The outdoors is often painted as scary, uncomfortable, dirty, dangerous, and primitive. Many previous authors wrote about their natural surrounding as challenges needing to be met and conquered by the humans' spirit (Sobel, 1996). Current literature and film, such as Jon Krakauer's, *Into the Wild* (1996), write about the harsh conditions of nature, the scary, unforgivable and destructive our wilderness is to humans. This paints a depiction of nature as formidable, thus making it an easy to understand why more and more generations are opting to not expose themselves to the outdoors out of fear.

One common experience that children have is school recess. While at school recess, time is spent by adult supervisors telling children what they can and can't do and to be careful not to explore in a healthy learning manner (Chmelynski, 1998). School recess should help students deal with current societal issues. The lack of outdoor

exposure, recess can allow for creativity, freedom, and independence play in the outdoors (Chmelynski, 1998). During a normal school day children are very structured which is very beneficial to certain types of learning indoors. Research supports that if they are only allowed to learn one-way children will be at a disadvantage in having a well-rounded life experiences. “Unstructured recess and play differ from the structured learning activities taking place in the outdoor classroom with respect to motivation, choice, and vigorous activity. Both structured and unstructured outdoor activities are important for children’s development; appropriately designed, the outdoor arena accommodates multiple forms of play and physical activity” (Burriss, K. G., & Burriss, L., 2011, p. 3). The benefits of both structured and unstructured play is crucial in the development for children’ physical and emotional well-being.

As a modern society parents were exposed less and less as children to natural activities, this coupled with being afraid of the outside, and not knowing how to interact when outdoors with nature makes the inside seems much safer (Gardner, 2006). The biophilia hypothesis asserts the existence of a fundamental, genetically based, human need and propensity to affiliate with life and lifelike processes and can it literally lead to a fear of the outside. Consider, for example, that recent studies have shown that even minimal connection with nature—such as looking at it through a window—increases productivity and health in the workplace, promotes healing of patients in hospitals, and reduces the frequency of sickness in prisons (Gardner, 2006).

What Outdoor Education Is

To fully understand the benefits of teaching outdoor education, it is important to understand what outdoor and environmental education is. Outdoor education is defined as

“Organized learning that takes place in the outdoors” (Oxford English Dictionary online, 2016). Historically outdoor education can be traced to western expansionism and settling of the frontier (Watters, 1989). Outdoor education programs often involve residential or journey-based experiences in which students participate in a variety of adventurous challenges such as hiking, climbing, canoeing, rope courses, and group games (Somerset, 2000).

Brief history of outdoor education. In the book, *Wilderness and the American Mind*, Roderick Nash (2001) examined what Americans’ attitudes were toward the wilderness. Nash (2001) states that before the 1890's it was generally thought that the frontiersman was good, and the wilderness was his primary foe—something that needed to be tamed.

This was a change in national thought from one that nature was our adversary to something that could be beneficial to humans (Nash, 2001). Major individuals who played a role in this shift in attitudes were Henry David Thoreau, Ralph Waldo Emerson, John Muir, Aldo Leopold, and Robert Marshall. They were part of a larger movement known as Transcendentalism, which was “a literary and philosophical movement arising in 19th-century New England, associated with Emerson and Thoreau and asserting the existence of an ideal spiritual reality that transcends empirical and scientific reality and is knowable through intuition” (Oxford English Dictionary online, 2016). These men changed the climate of what the wilderness and the outdoors could mean (Nash, 2001). John Muir, the founder of the Sierra Club, is often credited with the start of what modern outdoor education shift toward hands-on education and experiential learning (Nash, 2001).

In Richard Watters' (1986) *Historical Perspectives of Outdoor and Wilderness Recreation in the United States*, he writes about historical what environmental education is. Watters (1986), examines the historical context of how environmental education grew in popularity the United States of America. Watters (1986) examines the importance of how these early outdoor educators established the foundation of what outdoor education is today. The book goes through the historical background of Kurt Hahn and his early philosophies in the 1950's that spending time in the outdoors made a well-rounded person (Watters, 1986). It goes on to examine Joshua Miner's "whole person" idea of outdoor education and the establishment of outward bound in the 1960's (Watters, 1986). Lastly, it discusses Paul Petzoldt, who created the National Outdoor Leadership School or NOLS, which has become a new standard in outdoor experiential learning (Watters, 1986).

In the 1950's, Kurt Hahn established his philosophy about the outdoors that he had developed in Germany (Watters, 1986). Hahn wanted to provide a well-rounded education to help youth both intellectually and worked in improving their overall quality of life (Watters, 1986). His revolutionary idea of education was the idea of learning by experiencing—by challenging both a person mentally and physically.

In the 1960's, Joshua Miner began working with Kurt Hahn in Britain, studying his ideas about how learning outdoors could be very beneficial to the whole person. Miner eventually returned to the United States and established Outward Bound (Watters, 1989). The first series of courses of Outward Bound took place in Colorado, opening on June 16, 1962 (Watters, 1989). Students learned many valuable skills in first aid, map and compass, rock and snow climbing techniques, survival tactics, and outdoor cooking and

shelter building (Watters, 1989). To many youths who signed up for courses, the Outward Bound experience offered a back-to-nature alternative to their image of a chaotic and mad world (Watters, 1989)

American outdoor educator and mountaineer, Paul Petzoldt, who was an Outward Bound graduate, started the National Outdoor Leadership School or NOLS, which mixed the “leave no trace” principles taught by the Outward Bound schools with outdoor education courses (Watters, 1989). These outdoor education schools allowed America’s youth something that was never offered to them before in a somewhat controlled environment to experience the outdoors in a safe educational way.

These predecessors paved the way for modern day, outdoor education for older children and adults. School age children are now being exposed to many different styles of learning some having been directly taken from outdoor education models of hands on education and free play learning. Sommerset (2000) defines outdoor schooling in the modern context as learning both about and in the community. The outdoors and nature becomes an extension of the indoor classroom. Children's outdoor experiences build on and serve to extend traditional indoor learning.

Outdoor educational organizations like the Audubon society have set up local locations offers enriching classes for this demographic. There are also many outdoor education online curriculums for school aged teachers to help expose their students. The one demographic that has been ignored is the pre preschool aged child of 6-18 month old.

Childhood Milestones Defined

After having a child in the United States of America, a new parent is given a wealth of advice on everything from which shampoos to use to the correct way to

breastfeed. To raise a healthy, well-developed child to adulthood takes countless hours. Among many other aspects of a parent's role, a crucial part of a caregiver's time is spent interacting with a new child, which helps to establish a strong bond between the parent and the child (AAP, 2012). To help parents recognize and understand if their child's development is moving ahead accordingly at a healthy pace, the milestones are broken down into worksheets and are divided by months of age. By understanding what the appropriate milestones are, parents are able to guide their child to succeed. The Centers for Disease Control and Prevention (CDC), who has researched with the help of The American Pediatric Association, defines two major ideas to raise a healthy child: "Healthy Development" and "Childhood Milestones."

The CDC discusses "healthy development" as the environment that allows children of all abilities, even those with special health care needs to grow up to reach their full social, emotional and educational needs (CDC, 2016). The CDC (2016) further explains "Developmental Milestones are things most children can do by a certain age. How your child plays, learns, speaks, and acts offers important clues about your child's development" (Para. 4). Childhood milestones are often commonly discussed in both hospitals and doctor's offices as children grow. There are sheets sent home with parents at every "well baby" checkup to help measure the growth within these guidelines. Doctors use these milestones to help in a child's developmental stages, the milestones are broken into four major categories: Social/Emotional, Language/Communication, Cognitive (learning, thinking, problem-solving), and Movement/Physical Development. These milestones are very important in order to help identify discrepancies to help doctors identify any problems a child may face.

The early years of children's life between 3 months old and 18 month olds are the most critical to a successful, healthy life and a strong development (AAP, 2016). Research has found that caregivers that interact in a positive healthy way with their children can dramatically increase the likelihood of these children reaching these age-defined milestones (AAP, 2016). Other important factors to successful growth and development are proper nutrition, exercise, and rest (CDC, 2016).

Six-Month Childhood Milestones

The 6-month-old age group is usually known as the "most lovable age" (AAP, 2016). During this stage, infants become very interested in their new world. A six-month old's cognitive skills, which are defined as their learning, thinking, problem solving, start to grow quickly. A child at this age will try to look around at things nearby, shows curiosity about things, and tries to get things that are out of reach.

The six-month-old also begins to explore their own body, and the idea of the role of "self" begins to emerge in a six-month-old. A baby will start to bring things to their mouth, begins to pass things from one hand to the other.

A six-month old will begin to display signs of emotion, such as joy, anger, interest, fear, disgust and surprise. These emotions can be seen with distinct facial expressions that are a new skill for an infant. A six-month-old knows familiar faces and begins to know if someone is a stranger; they also start to like to play with others, especially parents and often responds to other people's emotions and often seems happy.

A six-month old's movement and physical development is characterized by early movement, which will help develop crawling skills. A child of this age will roll over in both directions (front to back, back to front), and when standing, support their weight on

their legs and might bounce. They will begin to sit without support, rock back and forth, and may even sometimes crawl backward before moving forward.

An infant will start to socialize more with their emerging language and communication skills. They will do this with people through babbling using strings of vowels (“ah,” “eh,” “oh”) and likes taking turns with parents while making sounds. They will also begin to say consonant sounds (jabbering with easy bilabials like “m” or “b”). Some other aspects of social and emotional responses to sounds are done by children by making sounds, responding to own name, making sounds to show joy and displeasure

Nine-Month Childhood Milestones

A nine-month-old baby strives for a feeling of security. Having a strong connection between a baby and its family helps provide him or her with this feeling of safety and security (CDC, 2016). The social and emotional aspect of a nine-month-old children's development can be built on this solid foundation of safety, helping infants build social relationships with others and helping to develop their trust in others. Many 9-month-old children may be afraid of strangers, and then become clingy with familiar adults. Nine-month-olds often have a favorite toy, which can calm, and help in certain new situations.

Physical love defined as physical affections, hugging or holding and playing plays a large part in an infant's development too, and he or she enjoys copying gestures of familiar adults. Infants enjoy receiving cuddles from family and familiar people. By this age, language and communication has grown. A 9-month-old will generally understand “no”, will make many different sounds like “mamamama” and “bababababa,” or will use gestures or simply point at things.

The cognitive and learning, thinking, and problem-solving skills of a nine-month-old child makes strides toward cause and effect ideas. They will watch the path of something as it falls, look for things he sees you hide, and will enjoy playing peek-a-boo.

A nine-month-old also begins developing the skill of walking. Having mastered the crawl, many 9-month old's will start to stand holding on for support, sit without support, get into sitting position, and may be able to pull to stand (CDC, 2016).

Twelve month Childhood Milestones

At twelve months old, a baby has reached countless milestones, and their development enters a new phase as they begin to develop independence and their own identity (CDC, 2016). Even with a strong sense of independence, a one year old's can still shy away from or be nervous with strangers, cry when mom or dad leaves, and will show fear in some situations. A twelve-month old's language and communication is making strides to short sentences. They may be able to respond to simple spoken requests, use simple gestures, such as shaking head to meaning "no" or waving meaning "bye-bye," and will say "mama" and "dada" and exclamations like "uh-oh!"

The twelve-month-old's cognitive, learning, thinking, problem-solving skills can be a very frustrating time for caregivers. This is often a time when wanting to try things at their own pace can start to emerge. The 12-month-old explore things in different ways, like shaking, banging, or throwing, will find hidden things easily, will look at the right picture or thing when it's named, will put things in or take things out of a container, and may enjoy banging two things together. This awareness of critical thinking can be very frustrating for caretakers but a crucial part in a child's development.

Babies want to make choices, be independent by doing things themselves and at

times can be extremely assertive. Babies at this age will start to use things correctly; for example, they can drink from a cup, brush their hair, let things go without help and can follow simple directions like “pick up the toy.”

Movement and physical development of a 12-month-old is all about the end goal of walking. This age group will get to a sitting position without help, pulls up to stand, walks holding onto furniture (“cruising”), may take a few steps without holding on, and lastly may even stand alone (CDC, 2016).

18 Month Childhood Milestones

The 18-month-old typically can be described as selfish and assertive, but since this is not the intended behavior during this age period it really would not apply. This age literally cannot understand anyone else's point of view (CDC, 2016). Children of this age cannot understand how other people think and feel, therefore temper tantrums are common. Children at this age may continue to be afraid of strangers, will often show affection to familiar people and will start to pretend simple things, such as feeding a doll or driving a car with noises.

At 18 month old child's language and communication is growing, and they should be able to say several single words or a few longer sentences; the ability to say and shakes head “no” emerges and will points to show others something interesting. The cognitive learning, thinking, problem-solving phase of an 18-month-old child has vastly grown from knowing what ordinary things are for; for example, telephone, brush, spoon, and will points to one body part when asked. They will also show interest in a doll or stuffed animal by pretending to feed when giving an appropriate writing utensil will scribbles on his own. The last cognitive growth is being able to follow 1-step verbal

commands without any gestures; for example, sits when you say “sit down,” meaning the 18 -month-old can use two functions of their brain at once listening and doing.

The typical movement and physical development that a parent can expect for an 18 month old are in accordance with the idea of the child’s continuing want for independence. These traits include wanting to walks alone, may be able to walk up steps and run, can help undress herself, drinks from a cup, and will eat with a spoon.

The milestones above age breakdown ideas are taken from Milestone Moments: Learn the Signs. Act Early on the CDC website. The above information is referring to "typical" children hood milestones from Center of Disease Control and Prevention guide and The American Association of Pediatricians.

Importance of childhood milestones. The Children's Hospital of Wisconsin worksheets (2012) for 6 to 18 month old children give specific ideas on how to strengthen and reach these milestones through everyday activities, routines and easy to do games. These worksheets are giving to parents or caretakers during well-baby visits. The age appropriate activities are very simple easy to follow games, activities and benefits explained. These activities are also very short designed to take only a few minutes per day to gain the benefits of the children being successful adolescents.

Perry, Hogan and Marlin (2000) examine why play is important to children's brain development. “The experiences, environments and opportunities we provide our children help to determine their strengths and vulnerabilities” (Perry, Hogan & Marlin, 2000, p. 9). The idea of play is often downgraded in our society based on the fact that some schools limit and cut recess time due to it not being academic but this article states “Play takes many forms, but the heart of all play is pleasure” (Perry, Hogan, Marlin, 2000, p. 9)

and by disallowing our children the pleasure of playing we dramatically hinder their brain development. Playing helps develop very usefully skills, including creativity, cooperation, compromise, goal setting, following directions, empathy, problem solving, and self- expression (Perry, Hogan, Marlin, 2000).

In many ways, much like any other life skill, we need to help teach children how to play in a healthy way. Perry, Hogan and Marlin (2000) describe the best way to set up a healthy play situation as “A child needs to feel safe to play...a child's sense of safety stems from a calm predictable world... life is fairly consistent. She knows her caregiver is there for her to feed her, protect her and comfort her...keeping children on a daily schedule” (p. 12).

Connection between childhood milestones and educational learning. The concept of Developmental Childhood Milestones has become universally understood by parents/caretakers as skills their children are encouraged to meet at varying ages. Most of these guides come with very easy and familiar games that parents can use to encourage their child’s success (Children’s Hospital of Wisconsin, 2012). Outdoor education games and activities for children are tailored in a way that some of the games and activities simply incorporate outdoor education as being outside (Oltman, 2012).

The concept of the developmental milestone guides being readily available and understood by parents/caretakers creates an opportunity to use the milestones as a medium for outdoor exposure. This emphasized the need for an item like a toolkit that would combine outdoor educational exposure and developmental milestones for the 6 to 18 month old demographic.

Why Outdoor Learning Needs to Be Taught

Being connected to the outdoors and our environment has several health, social and emotional benefits. Children's current outdoor education and environment exposure is not connecting them to nature (Louv, 2005). The fact is that children are no longer playing outdoors with or without parents or caregivers like past generations (Louv, 2005). Louv (2005) argues a lack of outdoor unstructured play is simply that children have very busy schedules. By not teaching our children how to play outdoors at a young age, the outdoors has become foreign to many children (Louv, 2005). "Natural settings are essential for a healthy child development because they stimulate senses and integrate formal and informal play" (Louv, 2005, p. 15).

The Natural Learning Initiative of North Carolina State University (2012) examined how a child's social, psychological, academic and physical health is positively impacted when they have daily contact with nature. The article indicated four areas that are improved by outdoor play, all of which coincide with childhood milestones (NC State University, 2012). These areas are improved eyesight, increased creativity and problem solving, enhanced cognitive abilities, and "increased physical activity" (NC State University, 2012, p. 21).

Improved eyesight due to increased outdoor exposure. According to an article written by the American Academy of Ophthalmology in 2011, new analysis of eye health studies shows that there is a direct correlation between time spent outdoors and a reduced rates of nearsightedness in children and adolescents; this condition, which is also referred to as myopia, is much more common today in the United States and many other developing countries than it was in the past few decades (AAO, 2011). Dr. Khawaja who

conducted the analysis of the data stated "Increasing children's outdoor time could be a simple and cost-effective measure with important benefits for their vision and general health" (AAO, 2011, Para. 4).

Encouraging creativity and problem solving. Kellert (2005) combined his original research with other research and examined the importance of nature to children's healthy development. Kellert argued that "Play in nature, particularly during the critical period of middle childhood, appears to be an especially important time for developing the capacities for creativity, problem-solving, and emotional and intellectual development (Kellert, 2005, p. 83). Due to the brain's development during adolescence—another crucial time in brain development—outdoor play and educational experience have been proven healthy and successful for middle school age children (Kellert, 2005). The simple act of playing outdoors can enhance cognitive abilities, which are a crucial aspect of development that children are lacking.

Benefits of outdoor play on physical well-being. According to Louv (2005), children can gain many valuable skills in the outdoor that can benefit their physical health. "Kids who play on trees, rocks and uneven ground test better for motor fitness, balance and agility" (Louv, 2005, p. 43). Children who experience school areas, the green space around the school, and not only play grounds have been seen to be more physically active, more aware of nutrition, more civil to one another, and more creative (Bell & Dymont, 2006).

Fjortøft (2004) examined the impact of kindergarten children's play environment on their motor development in Telemark, Norway. She conducted the study by allowing the first group of kindergarteners to continue playing on their playground equipment, and

the other group could play on a nearly 19-acre forest (Fjortøft, 2004). Fjortøft (2004) conducted a pre-test of all the children's motor fitness. It was then followed by a 9-month observational period after which she conducted a post-test. Her findings were that the children's motor abilities in a natural environment improved all motor abilities except flexibility. The other group on standard playground equipment only improved their motor fitness in 3 of the 9 motor tests. She concluded that the natural play group was significantly better than the playground equipment group in terms of balance and coordination.

Overall benefits of outdoor play on children. A clinical report emphasizing the importance of play for children and the health benefits argued that outdoor play is a crucial part of development because it contributes to the cognitive, physical, social, and emotional well-being of children and youth (Ginsburg, 2007). Play also gives a wonderful opportunity for parents to interact and engage their children in a new and different way (Ginsburg, 2007). Though these are important and beneficial to both parents and children, children are offered less and less free time, which is hurting the family dynamic and developmental growth (Ginsburg, 2007). This report gives ideas on how pediatricians can advocate for children by helping families, school systems, and communities in a more balanced setting (Ginsburg, 2007).

This research is also supported by a study conducted by McCurdy, Winterbottom, Mehta, and Roberts (2010), in which they examined the current findings of the mental and physical health benefits associated with unstructured, outdoor activities and time spent in a natural environment (McCurdy, Winterbottom, Mehta, & Roberts, 2010). These activities were done in parks and other recreational area and playgrounds

(McCurdy, Winterbottom, Mehta, & Roberts, 2010). The researchers found a significant increase in a child's physical health and mental state and have suggested that pediatric health care providers start recommending outdoor activities for children. The study went as far as suggesting that pediatricians should help their patients by referring them to safe and easily accessible outdoor areas (McCurdy, Winterbottom, Mehta, & Roberts, 2010).

What Age Should Outdoor Education Be Taught

Many schools have started to integrate outdoor education into the science curriculum for late elementary school age, middle school age, and high school children. Most of the research suggests that this can create healthy, well-adjusted children (Wilson, R., 1996). New studies argue that outdoor education should be taught even earlier (Wilson, R., 1996). Research used to believe that only grade school age children were able to benefit from outdoor and environmental education but newer research like Wilson's finding support the earlier outdoor education and play can begin, the better (Wilson, R., 1996). "Even earlier environmental education based on life experiences should begin during the very earliest years of life" (Wilson, R., 1996, p.1).

This paper argues that consent exposures to the outdoors and not sporadic exposure can foster a lifelong love for the natural world. "Ongoing environmental education programs for preschoolers, however, are relatively scarce, and those that do exist tend to serve primarily middle- and upper middle-class white families" (Wilson, 1996, p. 4). With few available outdoor activities coupled with the lack of classes at 6 months to 24 month olds, it makes earlier outdoor exposure and experiences hard for parents and caretakers to find.

Kellert's (2005) research indicates when learning opportunities should be introduced at age-appropriate times and differentiates between indirect, vicarious, and direct experiences with nature, with the latter less and less available to children. He urges designers, developers, educators, political leaders and citizens throughout society to make changes in our modern built environments to provide children with positive contact with nature-where children live, play, and learn. "Outdoor education provides many different foundations of experiences and assists children in making sense of their world" (Kellert, 2005, p.3).

In order to develop an appreciation of nature, children need to engage in many repeated and varied opportunities all year long. They need time to experience, explore, and process information in order to get beyond surface-level understanding.

Goals for Nature Education

- To develop respect for and appreciation of all forms of nature
- To understand the relationships between habitats and humans
- To learn facts that can be used for thinking and reasoning skills
- To become observers of the environment
- To use the senses to learn about the environment
- To learn about new interests and areas in the child's immediate environment
- To ask questions, to explore, to discover, and to have fun
- To appreciate the beauty found in nature
- To learn to overcome any fears that may have been acquired
- To learn to be cautious about nature when necessary.
- Helping Children Value and Appreciate Nature (Bullock, 1994, p. 5)

Cohen and Horm-Wingerd (1993) conducted a study of ecological awareness among 3-5-year-old boys and girls. Three different tasks were done within rural and urban communities. The three tasks were: a picture discrimination, a picture arrangement, and a picture comprehension task. They found that young children can identify ecological issues with accuracy, relative to the nature of the task and its level of difficulty. It also found that boys and girls, within the test group were comparably aware of ecological issues. Interesting there were no differences relative to children's place of residence. They discuss what these implications of these finding mean ecology.

Kriesberg (1999) examines the idea that even the youngest child can learn about environmental issues by not using the "Doom and Gloom" ideas that we as adults use but instead focus on the ideas of a story-like atmosphere where children can relate to these ideas better. By giving the outdoors a character-like quality, he believes children can better relate to the environment. He continues by discussing that story's being told out loud is nothing new. If this is true, utilizing storytelling and picture books as a tool to teach children about nature should not be confined to school age but instead can start at birth.

The benefits of outdoor education to adults. Besides helping children, these outdoor activities can also be beneficial to adults as well. According to HelpGuide, a non-profit organization devoted to helping adults deal with mental health, outdoor play and education can benefit adults in several different ways (HelpGuide, 2010). Outdoor play can relieve stress, improve brain function, and improve relationships (HelpGuide, 2010). Play is fun and can trigger the release of endorphins, the body's natural feel-good

chemicals. Endorphins promote an overall sense of well-being and can even temporarily relieve pain.

Outdoor exposure can improve brain function like the act of playing chess, completing puzzles, or pursuing other fun activities that challenge the brain and can help prevent memory problems and improve brain function. The social interaction of playing with family and friends can also help ward off stress and depression.

Young children often learn best when they are playing—and that principle applies to adults, as well. Humans learn a new task better when it's fun and you're in a relaxed and playful mood, making outdoor play a perfect marriage of helping children and adults. Play can also stimulate your imagination, helping you adapt and problem solve.

Lack of Research & Creation of Toolkit

Though there is research to support the value of outdoor education, there is not a model for parents and caretakers to use to teach young child between the ages of six and eighteen months. Thus, the creation of an easy to use toolkit that makes it easy for adults to access, use, and one that mixed development mentally appropriate games and activities, could help with the gap of missing information.

Conclusion

As future generations are born, caregivers and parents must help to encourage children to reach their full potential. By using the readily accessible childhood milestones guides, these caregivers can help their children develop into strong and healthy adults. After exploring the research on the healthy benefits of exposing older children to the outdoors, there is no evidence that exposure to the outdoors had negative effect. Thus the

argument clearly illustrates that early exposure to outdoor education can be a successful, healthy and educational beneficial endeavor.

A solution to this disconnect in there not being a guide for parents is to design a toolkit of simple games and activities that would help caregivers and parents alike facilitate teaching both childhood milestones and outdoor education to these very young children. This could greatly improve their child's social, emotional and physical health. A toolkit could offer caregivers and parents of any economic and social background the confidence to teach outdoor education. Having a child and finding time in the day to expose them to nature and to teach childhood milestones could be a cumbersome task for parents. Parents have been only teaching childhood milestones since there sufficient information available to caregivers and parents. For this reason teaching these milestones to children is easier to do for parents to do on their own. Parents also receive milestone checklists at well baby doctor checkups, which contain games to help children reach their age appropriate goals. These are benefits in the short term are able to been seen, such as better gross and fine motor skills, also being able to play better in outdoors situations when they get older and on their own, but the real impact might only been seen as a result after countless future generations had been exposed to a successful mixture of both outdoor education and childhood milestones.

Summary and Introduction to Chapter Three

Overall the current research supports the need for early outdoor exposure do to the fact has had positive health benefits in the studies done found in the literature review. Our current society is not as connected to nature as it once was. This makes early outdoor explore difficult to teach future generations because of the disconnect. Early outdoor

exposure of 6 - 18 month olds children has not be studied at great length. Which means more care and further inquiry needs to be addressed.

Chapter Three will present how the study portion that was conducted of the capstone. How the two components of this study were created the survey (Appendix C) and the toolkit (Appendix D). It will outline how participants were chosen as subjects. Discuss the methodology used to analyze data and how data will be displayed in coming chapters.

Chapter Three

Methods

Introduction

This chapter will describe research methods that were used to conduct a study how much time is going into structured activities caregivers are doing to with their children to reach childhood milestones expectations and how much outdoor time is spent engaging their children. The purpose of this research was learn how much time is being taking to do both helping children reach their age appropriate milestones and how much time is being spent outdoors. There are more than a dozen studies that have been conducted on the health benefits to outdoor play. This is broken into many subcategories, such as fine motor, gross motor, and physical agility. The other categories include lowering obesity levels and stress levels in children. While this research is very valuable, most of it is conducted with children four years of age and older, and while research supports the importance of outdoor play, research is geared specifically towards childhood milestone type games to help children reach their goals, which are not done in the environmental setting. There are many studies to support the benefits of early childhood exposure to nature through play and experience learning; however, many of these focus on older children who are already in the school setting. Most of my findings show that there are an extensive amount of studies and research within the milestone children's goals which is geared anywhere from infants to adolescents. Most of this research is done by the Center for Disease Control and Prevention (CDC) which helped to write the milestone guidelines and the American Pediatric Association. Most of this

research is done within small focus groups and with age appropriate games. Research that I found about the benefits to teaching environmental education at an early age is done through research that often starts more at the school age children such as starting at the age of three and beyond. Since there is not a large amount of research geared towards supporting and teaching children starting from birth about environmental education my study will be structured around something that is very prevalent with young children which is childhood milestones. By mixing games and structured activities directly linked to the Childhood Developmental Milestones in the CDC's *Milestone Guide*. I hope to provide a wide range of benefits to having an easy to use Toolkit for caregivers.

Research Question

The principal research question was investigated was: *Would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?* Within this research question there are other questions that play a large role such as: How can caregivers with little time incorporate both environmental education and important Childhood Milestones into their day-to-day routine? How can a caregiver with little to no knowledge about outdoor education teach their children about nature in an easy to understand manner?

Participants

The subjects of my research were the caregivers of 6-18-month-old children from three primary locations: a local doctor's office, a day care center, and a hospital-run mom's group. These three locations offer a range of social, economic and educational backgrounds. I wanted to gain knowledge based on children's age grouping from 6-9 months, 10-14 months, and 15-18 months.

Since these groupings may or may not cover a wide range in social and economic backgrounds, I should recognize that these are a group of caregivers who will be on average well educated, invested in helping to prepare their child's health and educational well being, and will be financially able to allow their child a better chance for success. To select the subject group of participants, I asked two local doctors' practices; two local day care facilities and two local hospital run mom's groups permission to participate. I first called to introduce myself then asked if I could send an email letter (Appendix A) with a request for participants and a sheet for caregivers to sign to participant. In my email, I asked the doctor's office, day care center and mom's group to pre-screen optimal candidates based on age of the child or children, parent involvement and a history of reaching previous childhood milestones (Appendix B).

I then asked the appropriate contact person to give each caregiver my survey with an envelope to mail back to me (Appendix C). Since I needed to have the participants' identities kept confidential, especially from the doctor's office, each participant was given a code on the bottom of their survey to ID for data collection. Making this anonymous was very important since two of the locations follow HIPPA laws. Only the heads of each organization knew who was involved, so everything could remain anonymous.

Methodology

The general methods I used to collect data was a take home survey (Appendix C) and a toolkit (Appendix D) which was an at home observation done by the parents or caretakers. The take home survey was a ten question multiple choices which was handed out by the respective locations head. The caretakers and parents that were interested in continuing with the study were then giving a take home toolkit that utilized age

appropriate developmental milestones games and activities. The participants were asked to fill in answers based on their experiences.

Quantitative and qualitative method for collection. The best method used to analyze the data found in the survey part (Appendix C) of the study was quantitative. This method utilizes the ideas of “why” and “how” of decision making (Creswell, 2003). Since most of the data was generated using multiple choice in the survey this was used to easily group together data for a Quantitative findings. Since other answers were using questions in which the participant could answer this portion was more Qualitative. “Qualitative researchers tend to use open-ended questions so that participants can express their views”(Creswell, 2003. p.9). All of the toolkit portion (Appendix D) participants were asked to write down personal observations so Qualitative results analyzing is better suited. Given these reasons the quantitative method for data analysis within the toolkit portion of the study. It was beneficial mixed method for the analyzing since data was hard to generate for the toolkit answers.

Data methods the survey and toolkit. I developed the survey based on a few studies that I found but were geared toward older children. Using the below studies as a model only because these utilized a similar survey and ones that looked at just small group activities.

For the survey section of my study I used was adapted from one used by Larson, Green, and Cordell (2011), which was a survey done by the Warnell School of Forestry and Natural Resources at the University of Georgia and the U.S.D.A Forest Service. In this study, the survey examined children's time spent outdoors and whether the activities were physical or nonphysical (Larson, Green, and Cordell. 2011). This survey was given

to children under 16 years of age and their caregivers (Larson, Green, and Cordell. 2001). Since the survey was done on a national scale, there were varying degrees of economic and social backgrounds (Larson, Green, and Cordell. 2011). The data was then broken down by age, gender and racial description (Larson, Green, and Cordell. 2011).

The CDC conducted another study reviewed in 2007 to investigate children who were not reaching or receiving childhood milestone advice from their caregivers. The 2007 study, entitled “National Survey of Children’s Health,” interviewed parents or legal guardians of more than 13,000 children from 10-47 months of age (CDC, 2007). The parents or caregivers were asked questions based on whether a doctor or healthcare provider had asked the parent about concerns they may have about their child’s learning, development, or behavior or physical issues. The research then looked into whether or not the parents were asked to fill out a questionnaire or document specifying concerns or observations about their child’s developmental, communication, or social behaviors during the past year. This study was done nationally through an online survey company. This report also stressed how important it is for parents and caregivers to discuss their child’s development with their healthcare provider at every well-child visit or whenever there is a concern.

A hands-on study by Fjørtoft (2004) investigated the impacts of playing in a natural environment on motor development in children. Fjørtoft (2004) used five-, six-, and seven-year old children with an experimental group playing in a natural environment and a control group playing in a more traditional playground. The study found that when children were provided with natural landscape, and not the traditional playground equipment to play on, they showed a significant increase in motor fitness (Fjørtoft, 2004).

There were also significant differences between the groups in balance and coordination in favor of the outdoor playgroup. This would mean that Fjørtoft findings support that landscape features influence physical activity play and motor development in children. I used these ideas to inform the instructions given to my participants in order to record their observations for the toolkit take home position of my survey.

The toolkit's games and activities were modeled after several different developmental milestone resources and outdoor play ideas. The Children's Hospital of Wisconsin (CHW) pediatrician's handouts were used in part to establish the toolkit ideas. These handouts are given to legal guardians at well baby health check ups. They are filled with helpful games and activities are given to all patrons of the hospital's clinics and doctor's offices (Children's Hospital of Wisconsin, 2012) along with the CDC ideas. For the outdoor play ideas I used

Survey portion of study. The primary method used for research was a brief, ten question survey (Appendix C). Each location, doctor's office, day care facility and the hospital mom's group was asked to gather groups of 5 children per age group; 6-9 month olds, 10-14 month olds and 15-18 month olds respectively (Appendix A). This provided a total of 15 participants per location. There were 45 participants in total that participated in the survey part.

The questions were designed to get an understanding of how much time is currently being set aside for outdoor education type learning, how much time is spent doing one on one time with their children, and how much is being taught in classes to reach childhood milestones.

Toolkit portion of study. The last aspect of my study was a toolkit (Appendix D). This toolkit was the mixture of games and activities from Children's Hospital of Wisconsin worksheets handouts and the Center of Control and Prevention childhood developmental milestones guidelines (CDC, 2016; Children's Hospital of Wisconsin, 2012). Allow with the above mentions of developmental milestone games the UNICEF 2009, Early childhood development kit: A treasure box of activities was also used to create this capstone's toolkit. These were then combined with outdoor education themes found in Bullock (1994), Oltman (2012), each participant was asked for each caregiver to participate. Thirty-five parents or caretakers took part in this part of the study. The parents or caregivers were asked to incorporate these learning tools into their routines throughout a two week span. Each age grouping had six activities or games the caregivers were asked to choose and do with their child They were asked to pick four of these to complete, then were asked follow up questions about their different experiences. These are questions range in the idea of ease of use of the toolkit, noted involvement in reaching childhood milestones, any benefits they had themselves with the toolkit (Appendix, D), interest in continuing use, and any major changes or issues they encountered (Appendix C).

Both the survey (Appendix C) and small group activities of the toolkit (Appendix D) are structured in a way to find an easy middle ground between reaching childhood milestones and mixing environmental education within those ramifications.

Procedure. When the Survey (Appendix C) and Toolkit (Appendix D) were finished and developed, the two items were given to each locations contact with an introductory letter (Appendix B) on how to proceed with the study to make it successful.

Each participant was reminded that his or her identities were confidential and that this was a voluntary study. Subjects were asked to be honest and if they could no longer compete the study to please send a response back to the location so another candidate could be chosen. Each caregiver was told if they did not understand any part of the survey or toolkit to write that on the paper, or contact me directly via email. Subjects were reminded that there was a three-week time limit given from receiving the study to complete it. There was not a follow up given since one of the locations was a doctor's office, and *HIPAA Laws* laws had to be followed. "The HIPAA Privacy Rule establishes national standards to protect individuals' medical records and other personal health information and applies to health plans, health care clearinghouses, and those health care providers that conduct certain health care transactions electronically" (U.S. Department of Health & Human Services, 2002).

Data Analysis. The survey data was first analyzed for any themes to identify an interest in environmental education, total time spend doing activities to reach childhood milestones, and how important childhood milestones caregiver or parent. I then looked at what the real interest level was for learning about outdoor education toward young children.

The Toolkit (Appendix D) proved harder to generate concrete data evidence. To gauge if the Toolkit was successfully in helping children reach their Developmental Milestones relies on the parent's answers to the response portion of the toolkit (Appendix D). There were questions asked if there was a significant change in reaching childhood developmental milestones over the course of doing these study; but no questions about the long term success of reaching milestones later in time.

With this Toolkit (Appendix D) I hoped to learn if parents and caregivers found it easy-to-use, fun, encouraged caregivers to get outdoors with their child more, time saving, and if it was productive in the eyes of caregivers of children in reaching milestones. I would like to have been able to follow these children till they reach school age but since this is an anonymous study that was impossible.

In order to accurately analyze my data, I transferred the survey questions (Appendix C) into tables and Excel spreadsheet. This should help me gauge my results better from specific questions while comparing all the responses based on ages and interest level. The toolkit portion (Appendix D) was a take home portion and allowed parents/caretakers to write their answers on their experiences doing the home study. In order to analyze these answers I created a few charts for the toolkit portion (Appendix D) and use direct quotations and suggestions given by parents that utilize the toolkit. Both the Survey (Appendix C) results and the toolkit portion (Appendix D) of research will also be available in Chapter Four.

Limitations

The Larson, Green, and Cordell (2011) survey that were utilized as a model for my survey (Appendix C) for this research was given on such a large scale without a follow up, which will be different from the survey conducted in my research. The demographics were also quite different than my study since. Most of the parents and caregivers have young children and may not be able to see the direct effect of how beneficial and useful childhood milestones can be till their child reaches them.

There were no studies that I could find that used both a survey and at-home study work within these parameters and doing such a large-scale study is not feasible for this

research. I believe that for the purpose of my thesis the most effective way to gain information was a short survey (Appendix C) and the toolkit (Appendix D), which was the most effective way to gain the most information quickly and accurately. I conducted this study right after school lets out so it should allow for parents to follow the instructions with eases and the weather should provide easy access to the outdoors.

Summary

This chapter spoke to what the research question I hoped to answer in my study portion of this capstone: *Would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?* With the Creation of a Toolkit could help significantly benefit very young children reach their milestone goals? It incorporates the ideas used for methodology, a survey and a toolkit and how the data will be analyzed. This chapter examined the research method used to help understand these questions, which was qualitative. This chapter also broadly discussed how questions were going to be asked and gather information from the survey and toolkit. It lastly explained how this data is going to be displayed in the coming chapter.

Preview of Chapter Four

Chapter Four will present all the results that I found from the survey and toolkit portions. These findings are structured and presented in four major ways: charts, graphs, percentage table, and parents and caretakers direct quotes. Chapter Four examines if the findings to support the survey portion (Appendix C) of this capstone support the research questions and what information can be gained from the findings. It will also examine the

toolkit portion (Appendix D) effectiveness as an useful option for parents and caretakers to expose children to nature in a cost effect and easy to use method.

CHAPTER FOUR

Results

In Chapter Four, I will present the results of the survey that I conducted and the findings of the at home study with the toolkit for children 6-18 months old created using age appropriate guidelines and development milestones. The survey was conducted among three locations in Milwaukee, Wisconsin: a doctor's office, a hospital run mom's group, and a daycare. I will explain the results in order to answer the primary research question: *Would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?* This chapter will analyze the survey (Appendix C) and the take home toolkit (Appendix D) study to determine whether it supports the hypotheses that was presented in chapter three.

This chapter is divided into three major segments: demographics of children, developmental milestones importance, and parents involvement level in daily routine results from survey. This segment will present the results from Survey Questions number 2 (Appendix C), “*How important is it to you that your children reach their age appropriate milestones on time?*” Survey Question number 3 (Appendix C) “*On average, how much one-on-one time do you spend with your child or children while awake?*” Survey Question number 4 (Appendix C), “*When you do spend time one on one time with your child or children how is that time spent on average?*” And lastly, question number 5 (Appendix C) “*when choosing activities for you and your child to do together what are the major deciding factors?*” This group of questions help answer the questions posed about how important childhood milestones are to parents, how much time parents

spend with their child, what type of activities parents spend doing, and finally what their motivations are in choosing these activities.

The second section examines survey questions related to if the parents and caretakers are teaching their children about the outdoors and what their outdoor exposure is currently. This determines if there is an interest in learning more about the outdoors and how to incorporate teachings to their children. This segment will examine the results of Survey (Appendix C) Questions, number 6 “*How often do you take your child outdoors in the span of a week to experience nature?*” It will also look at the results from Survey Question 7(Appendix C), “*Finding outdoor age appropriate activities to do with my child is something I...*” Survey Question number 7 (Appendix C) gave the participants pre written answers to chose from and a space to write in their own answers. The next is looking at Survey Question 9 (Appendix C), “*What is your interest in spending time outdoors?*”

The final question that will be analyzed in this section is Survey Question number 8 (Appendix C) “*If giving a packet of easy to follow activities that are age appropriate and would help my child reach their childhood milestones I would.*” Survey Question number 8 gave critical answers that if parents and caretakers were giving toolkit portion (Appendix D) would parents and caretakers use it, and if so what would the factors be to use it.

Section three of this chapter will be the analysis of the success of the toolkit (Appendix D). The toolkit (appendix D) combined age appropriate games and activities that are given to parents and caretakers in order to reach childhood milestones, and it will examine the answers that the participants gave to the questions about the completion of

the at home toolkit. These questions examine the major goal of this capstone as to whether caregivers with little to no outdoor educational experience can gain confidence themselves and want to be outdoors more with the help of an easy-to-follow and inexpensive educational toolkit.

Participants

All three locations that were asked to participate in the survey did in fact complete the survey via a take home sheet and returned it in a timely manner. The 10-question survey (Appendix C) was completed by a total of 45 caregivers. This was completed in one week and on average when asked took only 15 minutes to complete. The subjects answered all the questions and did not need to follow up with any questions. For the toolkit (Appendix D), there were thirty-five out of the original forty-five parents who completed the at home portion. The other ten had vacations, were not interested in doing the activities, or did not have time. The answers the parents gave to the at home portion were insightful, helpful and encouraging.

Demographics, developmental milestones importance and parents involvement results from survey. The survey portion (Appendix C) of this study asked questions that are grouped in demographics, developmental milestones and parents involvement in children's lives. The demographics played a critical role in how the parents and caretakers were able to expose their children to the outdoors, understood milestone development. Demographics also played into the economic state of the population.

The importance of the developmental milestone to the caretakers and parents needed to be established. Since the toolkit (Appendix D) take home portion of the study

was a combination of both outdoors games/ activities and age appropriate development goals. By asking the parents and caretakers how their views of the developmental milestones it would accurately determine how successful the toolkit take home part can be. It also was established that parents/caregivers have an interest and time in spending time for their children to reach their milestone goals.

Importance of childhood milestones. There were several questions asked in the survey (Appendix C) to determine the involvement of the parents and caregivers in a day-to-day capacity, the importance of childhood milestones to the caregivers, and the amount of time spent with the child every day. The first question is to establish the age range of the child. There were a total of fifteen children between 6 and 9 months; fifteen between 10 and 14 months; and fifteen between 15 and 18 months; caretakers or parents of these children were those who completed the survey. For those children who were close to moving into the next age division, caregivers were asked to answer for the younger age for the take-home study toolkit portion. There were forty-five parents of children who answered the survey questions.

The purpose of survey Question number 2 was to determine the importance that the caregivers place on reaching age-appropriate childhood milestones. Since childhood milestones have become an intricate part of the well-baby checkup visit at a doctor's office, it is important to establish if caregivers and parents gave the same validity to these developmental milestones as health care professionals and the Center of Disease Control and Prevention.

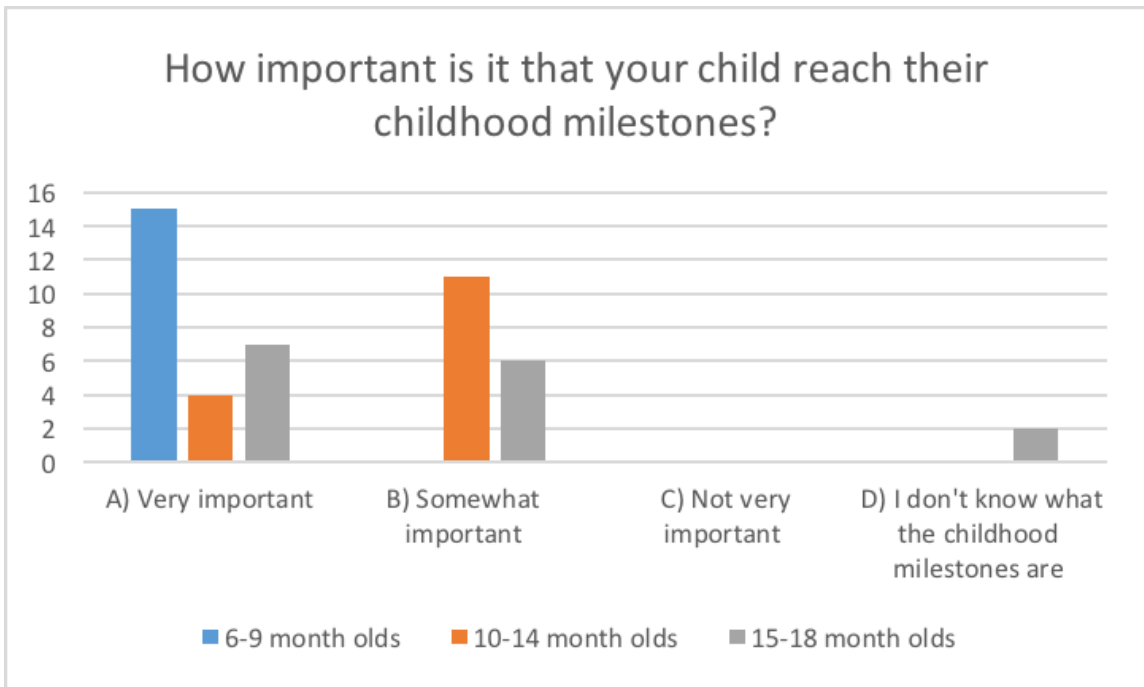


Figure 1. Survey question number 2, “How important is it that your child reach their childhood milestones?”

Figure 1 shows how caretakers for the three ages categories value the developmental milestones. Two major insights were gained from this information. The first is that caretakers, for the most part, do value the guidelines set by the AAP and CDC. The two parents/caregivers who answered that they did not know what the developmental milestones were both were parents from a daycare center. This could be because either they were not taking their children to all suggested well-baby visits or since their children were older 15-18 months, they did not see the milestones as important at older ages or simply were not aware of the term.

The second important piece of information gained was that parents of the youngest group (6 to 9 months old) attributed the most value to their children reaching target developmental milestones; in fact, all fifteen saw it as very important. The other parents of 10-14 month old children and 15 -18 month old children answered “very

important” or “somewhat important.” This answer could be very useful in moving forward in incorporating other forms of teaching. The majority of these parents, 95.5% surveyed understood the age-appropriate childhood milestones and gave a large amount of value to them. This answer strengthen the idea that combining the developmental milestones and outdoor education games would be easy for parents/caretakers to use.

There were several questions that asked about how much time is spent with children in one day and how that time is spent. The purpose of these questions was to establish how much time in one day a caretaker devotes to having one-on-one time with their child.

Average amount of one-on-one time with participants’ child.

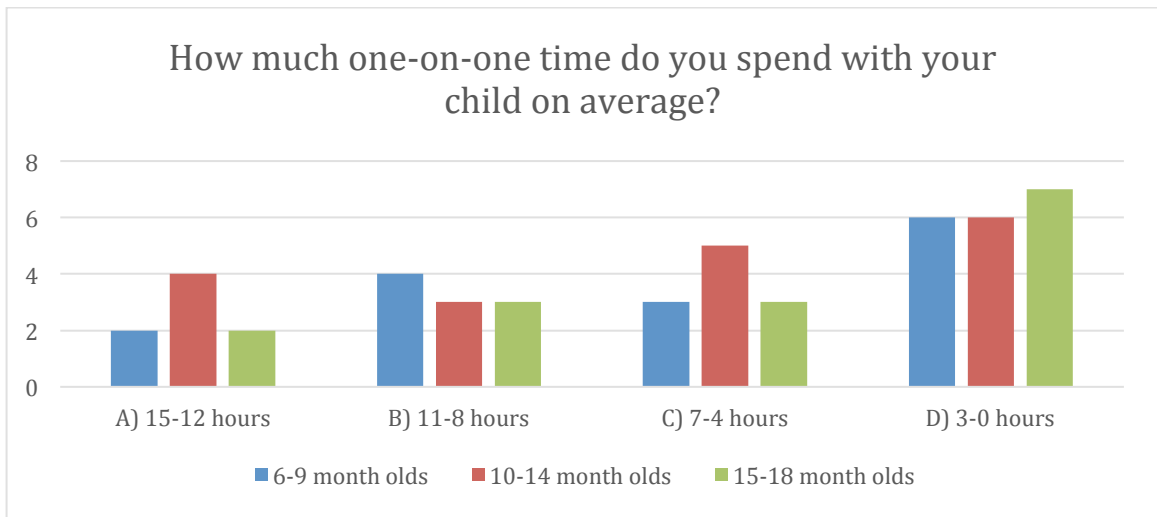


Figure 2. Graph based on survey question 3, “How much one-on-one time is spent with your child?”

These results are broken down by hours spent with the parents/ caretakers based on the ages of the children. Children aged 6 to 9 months old surveyed answered that parents spend the least amount of times in a day while the child is awake. This could be due to several factors including sleep patterns, feeding patterns, or daycare. Most parents

of the 6-9 month old demographic answered that when their child was awake they spent 0-3 hours as a total time one-on-one. Since most “awake time” is likely weekday time because the majority of people work, it might make sense that the parents’ answers could not have included or encompass the weekend. The second highest number of hours indicated was between 8-11 hours. One reason for the discrepancy could be that these parents could be stay-at-home parents who spend more time with their children. Combined that with the idea that parents working full time spend upwards of 40 hours a week working, this aligned with what was expected.

The next age group category of 10-14 month old children the results are again the highest in the 0-3 hours a day while awake with 6 caregivers responding to this giving answer. This again seems to indicate these were households where both parents are working parents. The second and third highest numbers were five parents indicating 4-7 hours and four parents indicating 12-15 hours. Since most children start to sleep longer periods of time during the night it could explain the longer time that older children’s parents are spending with them. as they get older and the American Association of Pediatrics recommends 12-14 hours including night time sleep and two naps between 90-120 minutes on average.

The last age group was children aged 15-18 month, who need the least amount of sleep at 11-13 hours a day, which includes night time sleep, and most children by 12 months are sleeping at least 6-8 hours at night time and taking 1 or 2 naps ranging from 1 to 3 hours. This group is awake the longest, has more motor function developed, fine motor skills, and language development than their younger counterparts. This can translate to many parents expressing these ages are easier, children are very active, and

it's easier to interact on a one-on-one level with this older group according to the CDC developmental milestones information. The wide range of answers makes sense knowing that parents could be spending better quality time with their children and finding that time easy and fun to interact with their child.

The importance in these findings is that mixing activity based learning with developmental milestones would be helpful to parents of children ages 6-18 months. Time spent with children needs to be short due to this age group needing the basic survival needs of sleep, eating and short stimulation bursts (AAP, 2016). This consideration was done with the toolkit making the activities short and very straightforward for caregivers to follow.

Time spent in one-on-one time.

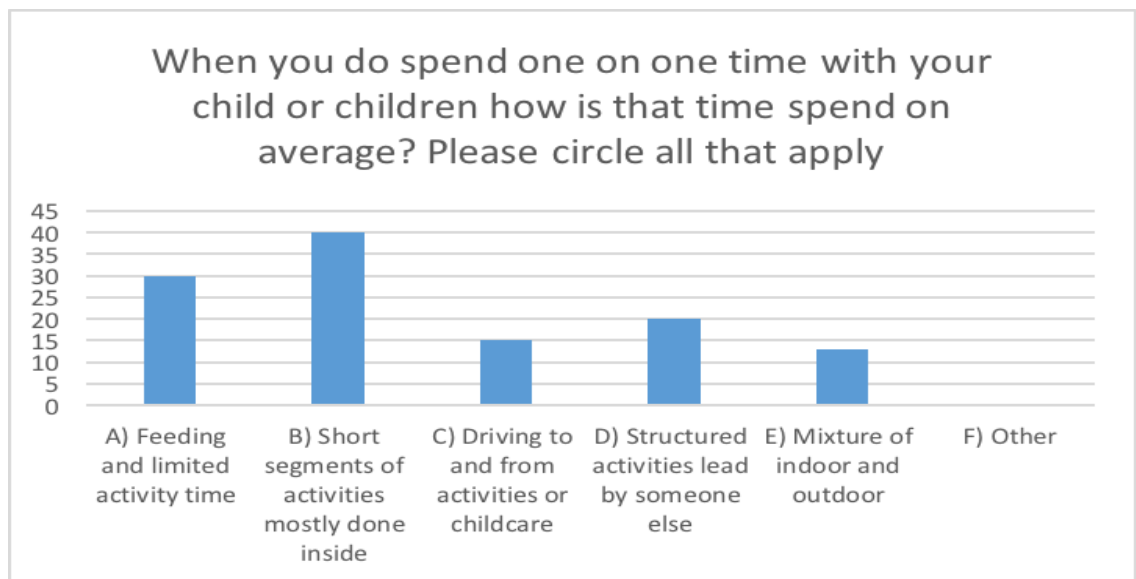


Figure 3. survey question number 4, How time is spent during awake periods

Figure 3 displays the results of survey question number 4, which looks at how parents are spending their time with their children when the children are awake. The

parents were asked to circle all that applied. Most circled one or two answers while other parents three. Figure 1 shows that the majority of time is spent doing one of three things: short segments of activities done inside, feeding and limited activity time, and structured activity lead by someone else.

Most of the activities and games on worksheets that doctors give their patients parents/caretakers are to help with children reaching their age appropriate developmental milestones. These worksheets are all indoor activities that can be done during any weather condition, any time of day and any skill level (Children's Hospital of Wisconsin worksheets, 2012). Caregivers with little to no outdoor educational experience can gain confidence themselves with the use of the toolkit and want to be outdoors more. If giving parents the tools could make doing these activities outdoors, it could be dismiss the thought that the majority of parents are unsure and maybe uninformed as to what outdoor activities to do with their children that are age and developmentally appropriate.

Deciding factors of activity choices. Survey Question number 5, asked participants "*When choosing activities for you and your child to do together, what are the major deciding factor?*" This question poses an interesting thought because, as stated a major reason why children are not being exposed to the outdoors is based on experience. The participants were asked to pick what their two major factors for choosing activities for their children.

Cost	27.70%
Other parents or friends recommended them	13.30%
Easy to get to	15.50%
Sport related or movement related	24.40%
Help my child reach their milestones	17.70%
Other-if I did when I was a kid	1.10%

Table 1. Survey question five *“When choosing activities for you and your child to do together what are the major factor? Choose the major two.”*

Out of ninety possible answers, the largest percentage of participants responded that cost was the largest determining factor. There is a large abundance of child and parent activities available for parents and caretakers to chose from. Since many outdoor education activities are on the expensive end it could be that nature based activities are not done. Due to the expenses involved in outdoor education programing it may explain why outdoor exposure has continued to decline.

The 24.4% of parents and caretakers answered that they choose activities that are “sport or movement related.” This answer by participants is not surprisingly since many activities offered to young children are movement based. These type of movement based activities encouraging children under the age of one year to develop gross motor and fine motor skills. Another fact that movement classes are offered to younger children and are enjoyable is the ease of classes. Children need little skills to master before or during the class to have an enjoyable time.

The percentage of participants that choose activities based on whether the activity would help their children reach their age appropriate millstone was the third highest number. This was an interesting finding. It meant that developmental milestones are very

important to parents and caretakers alike, so much that they are activity-choosing activities to help their child reach them. Another reason this is the third highest could be partly because the study stressed the idea that milestones are important; though the participants were anonymous, it could be that they still did not want it to seem that these highly-valued milestones are not important to them.

It was interesting that an easy location and recommended activities did not score higher. This was surprising since in many occasions parents enjoy to do activities that are easy to get to, have other familiar people in the activities and a guarantee the activity was worth their while.

Reasons caretakers or parents choose activities for their children are a very important question in the survey. It gave an insight as to what the most important factors are when parents choose activities for their children. An understanding of what the major motivations parents and care takers have in making activity choices would shed light on how effective a tool kit could be in teaching outdoor education to young children.

Conclusions of demographics of children, developmental milestones importance and parents involvement level in daily routine results from survey.

Many of the questions in the survey helped elaborate on the hypothesis that parents are in fact interested in helping their children reach developmental milestone goals. It corroborated my hypothesis that parents are also primarily interested in finding cost-effective activities to do with their children in the outdoors. Highlighting the idea that parents overall spend smaller hours one-on-one with their children having a quick toolkit could help parents be successful. This section of the survey questions (Appendix C)

overall was very informative and helped to shed light on helping to prove the research question.

Analysis of outdoor interests, time spent outdoors and interest in learning more about outdoor education.

This section will look at the questions pertaining to parents and caretakers interests in outdoor education, what their current time spent outdoors is now. This section examines if the participants would enjoy a mixture of outdoor education and strengthening their children's developmental milestones activities.

Survey Question number 9 which asks "What is your interest level in spending time in the outdoors?" could shed some light as to why most of the caregivers answered that most of their activities are spent indoors.

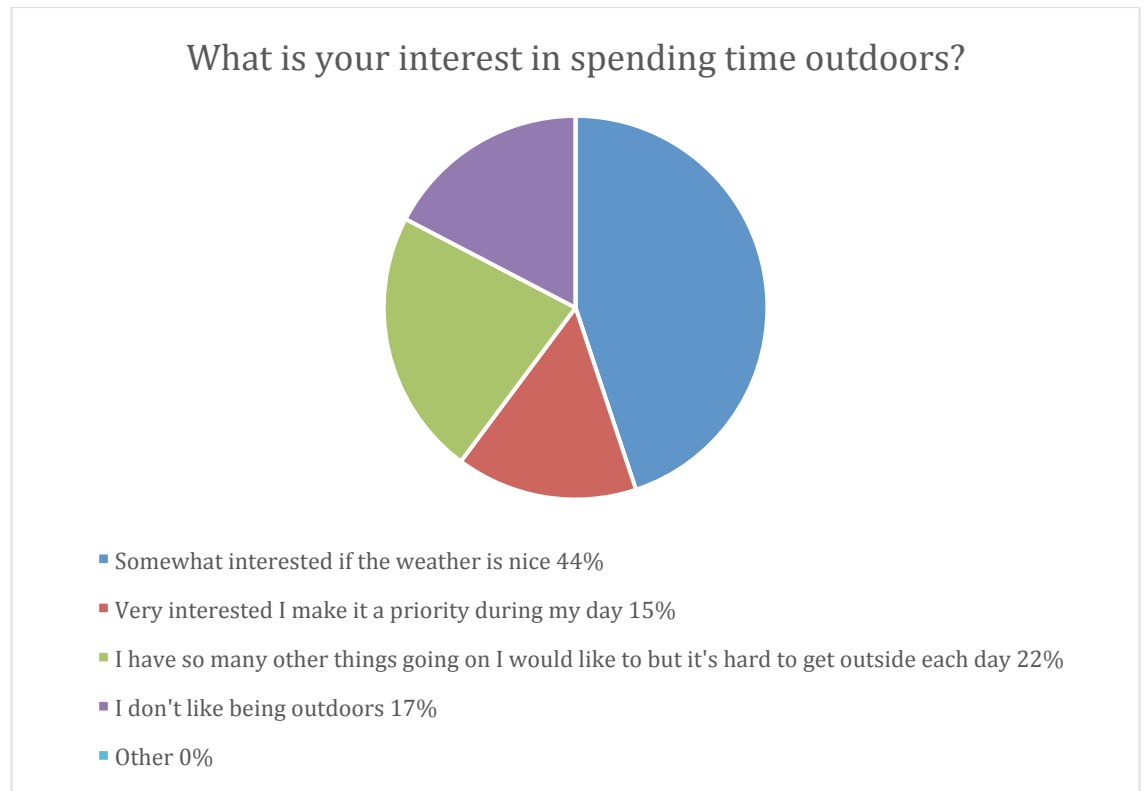


Figure. 4 Survey question 9. "What is your interest in spending time outdoors?"

As seen in Figure 4, most parents are interested in spending time outdoors only if the weather is nice. It is impossible to define what “weather permitting” means for the surveyed group, but one can make the conclusion it means when the caretaker or parent feels comfortable in the outdoors, which would be most likely during warmer, dry times of the year. It is also hard to define as to what time spent outdoors in nature means for this large group since the definition can be different for each participant.

Overall the participants were interested in spending time in the outdoors. The examination of how often caretakers or parents physically take their children outdoors to “experience nature” gives an interesting glimpse into how often parents are really exposing their children to the outdoors. What was not asked in the survey (Appendix C) was how long each participant spent outdoors in the measure of time such as minutes or hours nor what the activity they did or even how their time was spent outdoors. Since these questions were meant to be very basic and to gather a baseline as to natural exposure there was not a question that asked what parents and caretakers did outdoors. It can be assumed that participants did not define that nature exposure to for example short exposure to nature like for example walking to and from a location to another.

How often do you take your child outdoors in the span of a week to experience nature?

1-2 times a week	24
3-4 times a week	10
5-6 times a week	0
7-8 times a week	3
Once every day	1
Depends on the weather	7
Other	0

Figure 5. Survey Question number 6, *How often do you take your child outdoors in the span of a week to experience nature?*

This question also established that time is a factor to doing things outdoors. Caregivers and parents have to prioritize which activities they have time to do, the benefits to themselves and their children, and the interest level of their child. Out of 45 participants surveyed, 24 of them answered that they spend 1-2 times a week. One - two times outdoors per week may seem like a small amount time spent outdoors but it represents 53.3% of the participants, which are at least spending some of their time in the outdoors. The 7 participants that answered “depends on the weather” could mean that these participants are unsure about outdoor activities or don't have an interest in outdoor activities, or simply only do outdoor activities when the climate is to their liking.

The survey (Appendix C) was designed to establish if parents or caregivers of children ages 6-18 months would be interested in using a toolkit if one were given to them. It was explained that the toolkit (Appendix D) had activities that could help their child reach their childhood milestones and expose them to nature. Survey Questions number seven, eight and ten were designed to see if there was even without a toolkit

available now and not many outdoor activities for 6 -18 month olds there was a want for these activities (Appendix C).

Survey Question number 7 asked participants if “*finding outdoor, age appropriate activities to do with my child is something _____,*” the key to this question was not just doing activities with their child that were interesting to them but doing those activities outdoors. Despite the fact that they were given the choice to pick the best answer or write in their own answer, all forty-five participant respondents were prewritten choice.

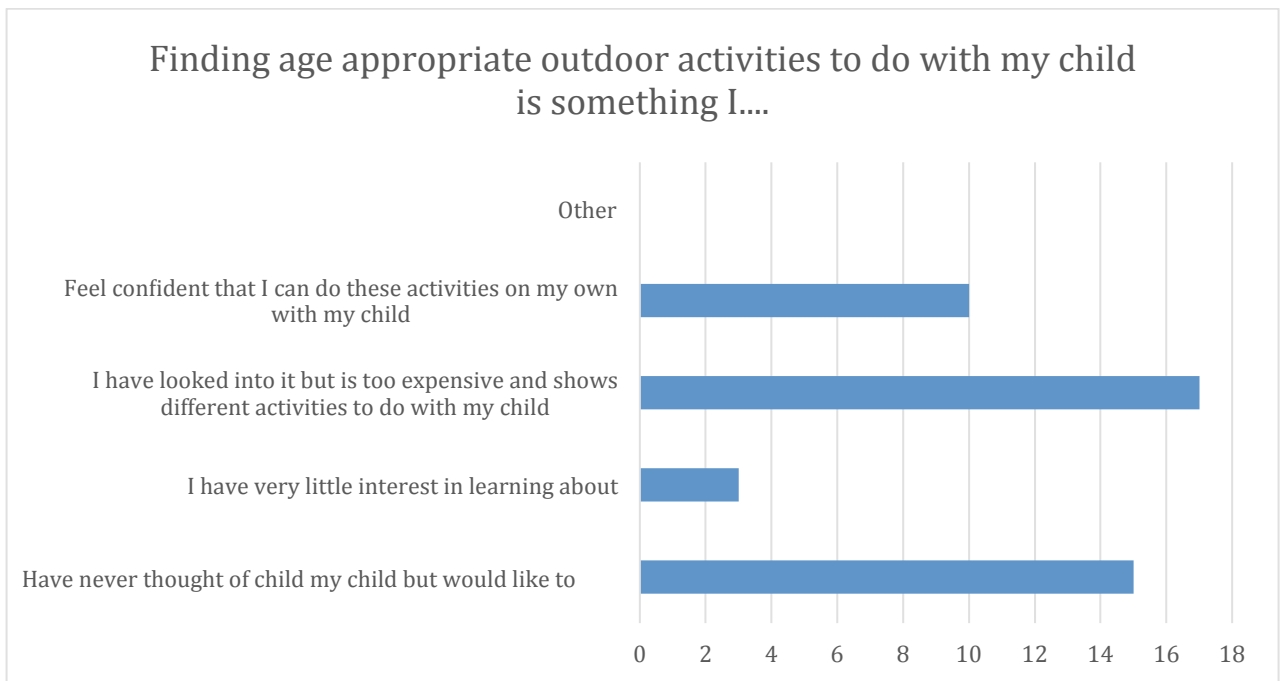
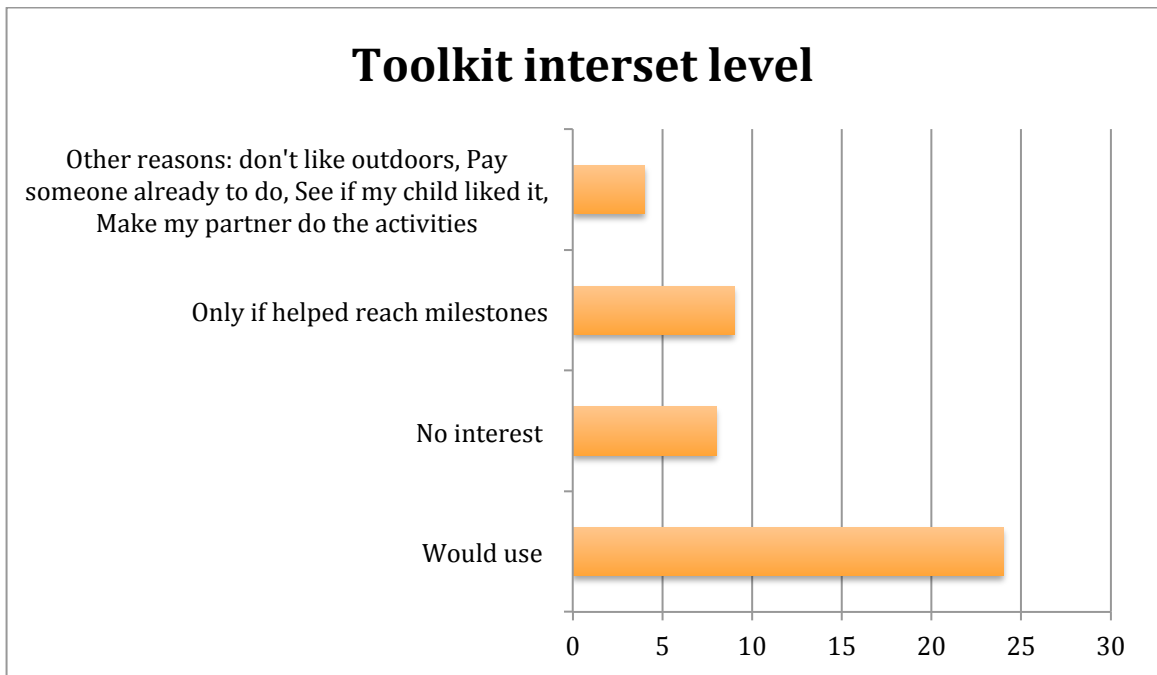


Figure 6, survey question number 7. “*Finding outdoor, age appropriate activities to do with my child is something I..*”

These findings were very important because out of the forty-five parents or caretakers, thirty-two of the participants (71.1%) expressed some form of interest in doing outdoor activities with their children. The largest group chose the answer that upon looking into activities, they decided to do other non-outdoor activities due to cost. This is

a very important factor that supports the need for an affordable way parents can access information on teaching outdoor education to their children in an affordable manner.

The Survey Question number eight asked if “*giving a packet with easy to use activities that would help reach their child’s milestones more quickly.*” The underlying theme to each survey question was to gather overall interest of participants motivation on spending times outdoor. This question asked what is a driving motivation of the caretaker or parent as being: either time dependency, need of activities to do with their child, only use until child reached their milestones, not use a toolkit based on not being worried about reaching milestones, already have informational activities for milestones, or only use if seen a large success and improvement in reaching milestones.



Figure, 7 survey Question number 8 Broken down into interest levels.

The last question in the survey asks if parent or caregiver would like more information about outdoor education. This question would directly determine if they

wanted to take part in the toolkit portion of the project. Of the forty-five parents surveyed, only ten did not want more information and asked not to participate in the toolkit part of the research.

Conclusion on participants' interest in the outdoors and effectiveness of toolkit. The results of the rest of the survey pertain to outdoor interest level. Overall there was a large interest on the part of the participants in doing outdoor activity with their children. The final question in the survey portion of the research project asked if the parents would like more information on teaching their respective child more about the outdoors.

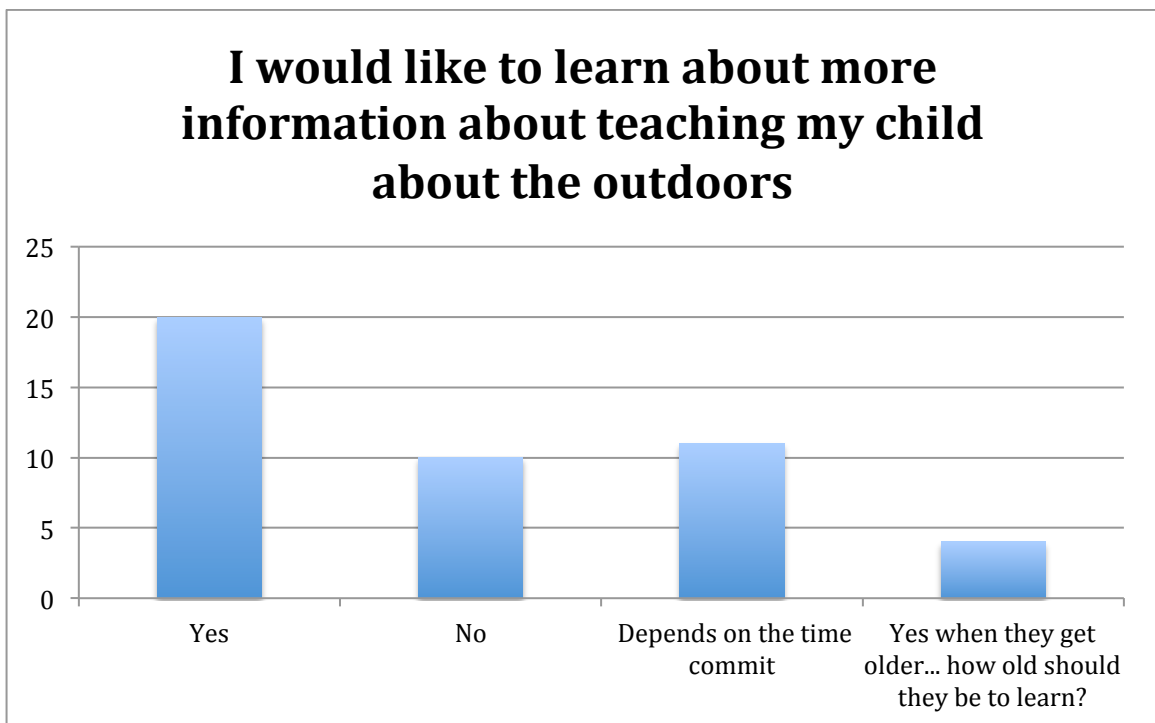


Figure 8, survey question 10, "I would like to learn about more information about teaching my child about the outdoors"

Of these participants, the last group that answered when they get older were asked to write in when an appropriate age to start to teach outdoor education is, and they

answered 3 years old; 5 years old; 6 years old; and 10 years old. These answers correspond directly with current outdoor educational classes and activities that are available in the area around where this study was conducted. Of these 45 participants, only 35 decided to participate in the take home toolkit (Appendix D). To discover which participants did not want to be a part of the take home toolkit portion the coding system on the bottom of each survey was utilized.

Of the ten that chose not to complete the take home portion six were from the local day care and four were from the doctor's office. The ages of these ten nonparticipants were six children 6 -9 month old; three children 10 – 14 month old; and one child 15 – 18 months old. It could be hypothesized that age of a child has a very important role in what activities parents and caregivers want to expose their child too, time children are awake and limited mobility of the child. One could argue that the society's perspective on when children “can” learn about outdoor education, is still misunderstood to be during an older traditional school aged setting of elementary age and on. Most parents were interested in finding out more about how to teach/expose their child to the outdoors.

Analysis of Toolkit Effectiveness

After completing the survey section, the thirty-five participants were given the second portion of the research project, which was the educational toolkit (Appendix D). This toolkit was a mixture of outdoor activities that were age appropriate, fast to complete, and with a variety of goals that parents would recognize as consistent with the childhood developmental milestones. The parents were asked to indicate the age of their current child and if the child was moving into another age bracket were asked to stay in

the lower one. After reading each section of six activity choices, they were asked to complete four choices over a two-week time frame, completing one activity per day. After the completion of all four activities, they were asked to fill out a short question and answer section. Question number one (Appendix D) was please fill out the age of your child. The second question was: *“Did you find this toolkit easy to understand and used words and terms you have heard before from your doctor, healthcare provider or books? Circle Yes or No (if No please give examples of words or terms you did not understand.”* This question directly asked if the toolkit used language and terms that the participants had heard before. This was important in the success of the toolkit’s language because it meant participants understood the purpose of the toolkit. Of the 35 participants, 32 answered ‘Yes, they understood the verbiage used in the toolkit.’ The three that answered ‘No’ were asked to provide an explanation, which were:

1. English is my second language so some of the activities were hard to understand and hard for me to follow.
2. I understood the language used but some of the milestone goals were unknown to me, like the cognitive ideas.
3. The toolkit was slightly confusing for me to follow, the language used I was familiar with.

These answers were interesting since it proved that most the participants (94.3%, or 33 out of 35) found the toolkit easy to understand, and they had heard the terms used before. Considering that only three participants had some issues with the toolkit would mean that overall it was easy to follow.

The next question of the toolkit questionnaire was: *“Did you find these games and activities easy for your child to do? Circle Yes or No (if No please briefly explain.”* Of the participants that completed the toolkit, 29 answered ‘Yes these activities were easy for their child to do.’ The six that answered ‘No, they thought these activities were hard for their child to do’ had children aged 6-9 months old (3) and 10-15 months old (3). The second part was to explain why these parents answered the following:

1. “ I liked doing the activities outdoors with my child, and she liked them I think, but my child is not as advanced in some of the milestones, so they were hard to complete with her.” (6-9 months)
2. “My son has sensory issues, so the parts of the activities that asked him to be on the ground was hard for him to do, granted it is good to continue to expose him to things he dislikes to help him.”
3. “When our family spends time outdoors we’re seldom [sic] sitting down and doing calmer activities, so it was hard to do the activities that made him sit still like reading, since he is used to reading indoors.”
4. “My child went through the activities too fast.”
5. “I was so excited to try these with my daughter since she really dislikes being outdoors unless she is on the playground, so every activity she had a temper tantrum and yelled No!! Maybe this toolkit would work with older children?”
6. “These activities seemed to easy and fast for my son, I tried to draw them out.”

These six answers are very diverse in nature ranging from too advanced to too short. Since most the parents found the toolkit easy to use, and the children enjoyed it,

making the toolkit a successful endeavor. Another question that would help support the combination of the developmental childhood milestones guidelines and outdoor activities as a basis for early and successful outdoor education exposure was from this question in the toolkit question and answer portion.

The question states: *"Did you see any changes in your child from reaching their milestones compared to other milestone activities you have done in the past inside"*.

Parents/ caregivers were asked to provide their own answer and of the 35 participants who took this portion of the study, 28 (80%) of them answered, "Yes".

While this answer is promising because it meant that parents saw an increase in their children reaching their milestones while doing outdoor activities, other factors should be considered. First, these changes could have pointed out other outside factors that helped to contribute in having seen a positive result of reaching the child's milestones. One outside factor could be that if the child was already close to achieving a Developmental Milestone goal for which the toolkit play a slight role. The next outside aspect could be that parents/caretakers are now hyper aware of their child's abilities in reaching milestones. This indicates even though the toolkit was an effective tool in helping a child reach their milestone, it is impossible to accurately gauge the sole success of the toolkit. It should be argued that the toolkit alone is not the sole driving source for the success of reaching developmental milestones.

There were 7 participants (or 20%) who answered "No". The below list are the answers given:

1. " I saw no large change in my daughter reaching her milestones due to this toolkit many of the activities were the same we do but were done outdoors."

2. " My husband and I agreed to try this toolkit in hopes of speeding up own son's success in reaching milestones quicker we did not see that result."
3. " Honesty, I saw no large difference in him reaching his milestones when I asked our doctor if she did she said he is on track. So while the toolkit did not accelerate him reaching [his developmental milestones] [the toolkit] did not harm him reaching them either."
4. " I did not like doing these activities so I did not pay as much as attention as I should have on her success, it did force me to get outside more which I liked!"
5. " We, my husband and I have seen better results with other activities our doctor has giving us."
6. " No large scale changes have been seen, but we enjoyed doing these as a family!"
7. " I'm unsure I can answer if this toolkit has made a difference in him reaching his goals."

The answers given by the parents and caretakers alike were for the most part positive. For example, writing that they enjoyed the toolkit for "forcing" their family to go outdoors more and "enjoyed doing" as a family.

It is hard to determine if the toolkit played a pivotal role in this group for reaching their milestones better or faster since children can reach milestones at a range of different ages. It most likely would need further study over a longer period and larger population to determine the real success rate of the toolkit over all.

The next question in the toolkit's question portion to examine if these activities were enjoyable to parents/caretakers and child alike. The question was a multiple-choice question asking to circle one of four answers that best described their experiences: "*Did*

you enjoy doing these activities and games outside? And do you think your child did as well? Circle one set that best describes your thoughts: Yes for both; No for Both; I did but my child did not; I did NOT and my child did."

Of all 35 participants:

- 25 answered Yes for both
- 3 answered No for both
- 4 answered I did but my child did not
- 3 answered I did Not but my child did

It can be assumed that Yes the toolkit overall was enjoyed by the participants based on the large percentage of parents answering positively. A large percentage (91.4%) saying either: Yes to both child and parent enjoyed it, Yes the parent or caretaker enjoyed the toolkit but not the child and Yes my child enjoyed it but not the parent or caretaker. Since there was not space to write why the parent or the child did not fully enjoy the toolkit, there are many variables that could play a part in the caretakers and parents answering this way.

The next question in toolkit question asked parents and caregivers to respond with answering if this statement was true for them and to explain if their finding were no.

"Would you enjoy doing more activities outdoors and feel more confident in doing activities you make up on your own from completing this toolkit? Circle one Yes or No."

33 (94.3%) parents circled 'Yes', meaning they felt more confident in doing more in the outdoors and could use the toolkit as a template to devise more activities. The 2 parents (5.7%) that answered 'No' explained their answers as follows:

1. "I was pretty confident in the [sic] time we as a family spends currently in the outdoors. I also feel take making [sic] of these activities are better suited to doing indoors. When we do spend time outdoors, it is spent doing more free playing."
2. "Don't get me wrong I enjoyed being a part of this study and enjoyed doing the activities, but I'd rather pay someone to do these types of structured activities with my child at [sic] a place like the Audubon or an outdoor education school."

With 91.4% of parents circling that they gained more confidence and would attempt to do these and other activities with their children can be considered that hypothesis three is proved to be almost 100% true.

Question number 8 in the toolkit (Appendix D) *"Did you find after doing these outdoor activities with your child they wanted to be outdoors more and enjoyed themselves learning outdoors? Circle Yes or No."* Again parents or caregivers were asked to explain if they answered 'No'. Of all the parents and caretakers who answered this question, all but one (97%) said 'Yes'. The one parent who circled no explained why this was true for their child.

"Our daughter doesn't like to spend much time outdoors, she dislikes bugs and dirt, therefore she really did not increase her enjoyment of the outdoors. I had hoped that this might help her get over her dislikes but we will just have to keep exposing her to the outdoors." Considering the daughter's age of 15 months old, this answer is not totally unexpected since many children this age are strong-willed and have formulated options like what was discussed in chapter two.

Each participant was given contact information to reach out for any questions, comments or concerns and of the original 45, only thirteen participants connected as a follow up and wanted more information on how to better expose their children to the outdoors. These ten participants were grouped into three major categories based on what they asked.

1. Reports on current outdoor experiences
2. Wanting more activities to do with their now older child
3. Questions on the results of the study's findings

7 of the 13 (%) follow-up's wanted more information on more activities to do with their older child. 4 of the 13 (%) wanted to report on current outdoor experiences. The last category, 2 of the 13 (%), was questions on what the results of the study were. The overall experience from parents was excellent, and parents/caretakers were excited by the prospect of free activities to do that could help their child succeed in meeting developmental goals.

Support of Research Question and Study Conclusion

In closing the results mostly support research question of "*Would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?*" As discussed in Chapter Two both the Center of Disease and Control Prevention (2016) and the American Association Pediatrics (2016), discuss the importance of children reaching their age appropriate Developmental Childhood Milestones. At 80% of participants in the toolkit part of the study answering that they saw their child reaching their respective milestones while enjoying the outdoors this means the outdoor educational toolkit is successful.

The research of R.A. Wilson (1996) supported the findings of the survey (Appendix C) and the toolkit (Appendix D) that there are lasting health benefits of early outdoor exposure. This capstone study also supports Kriesberg (1999) research that even the youngest child can learn about environmental issues. Since there were no parents/caretakers who argued the toolkit harmed their child in reaching their age appropriate milestones it can be proven as effective.

This survey and toolkit allowed parents/caregivers with little to no outdoor educational experience to gain confidence themselves and want to be outdoors more. While parents and caregivers gained confidence in teaching their children about the outdoors the study also had children and caretakers to be outdoors more. This will allow children gaining the health benefits and to care about the natural world around them.

Overall the study was designed to provide results with the survey, which was used in gauging interest in the outdoors and understanding of Developmental Milestones. Then the toolkit, which was used in making the observations that early exposure to nature and combining Developmental Milestones can positively, help the health benefits of children.

Preview to Chapter Five

Chapter Five will make final conclusions on the research question success. It will reflect on the experiences of conducting research in the literature review. Chapter Five will discuss the study portion of the capstone implications and its limitations. Chapter Five will state what future research needs to be done. It will examine who can benefit from this capstone's study portion of the toolkit. Chapter Five will conclude personal opinions as the completion of this capstone.

Chapter Five

Conclusion

Reflection on Research Question

The research and project component for my capstone centered around my interest in providing an easy to use toolkit for parents and caregivers. The goal as a researcher, teacher and parent was to conduct research using established studies that would support teaching young children about the outdoors. The use of this toolkit would provide a very simple tool for parents to use with their children to help reach childhood milestones. As a parent, it provides an easy way of finding activities, inexpensive, and fun to do with my children that was lacking in the community I live in. With the creation of an easy to use toolkit to help expose 6-18-month-old children to the outdoors. I will explain that it fulfilled many of these goals. Using both developmental milestone goals that were age appropriate and outdoor educational geared games, I was able to create an easy to use, fun and successful toolkit for parents to utilize. This chapter will reflect upon the primary research question, which was, *would the creation of an environmental, outdoor education toolkit help significantly benefit very young children reach their childhood milestone goals?* It will also explain what was learned in three major sections, my research experiences, the noteworthy results from my survey and toolkit, and recommendations for future study.

Designing the research project. When I designed my project portion of my capstone, I was surprised there was nothing in my reading that incorporated both a survey and at home component. I considered different options on how to easily present these

questions and the study to parents that would be both provide valuable information and be easy to use.

The survey was originally going to be online but was changed when I found out a few parents and caregivers did not have access to reliable internet, so a take home survey was easier and would not exclude parents based on economic differences. Many of the studies I found were based on long surveys that were done with large populations. These surveys did not allow for participants to fill in answers that may have suited their personal experiences better.

When I was designing my observation component of parents using the toolkit was having on site meetings to observe the parents and children interact. Since some of my families were generated from a doctor's office that would not work within the ramifications of HIPAA. I then thought having pre arranged meeting times with families one-on-one from the two groups the Mom's group and the day care might work. I quickly found out this was not an option due to scheduling conflicts and privacy issues again. Also taking into account the fact that having a stranger involved in "one-on-one" parent child time might prove to skew the results.

Research Experiences

I was excited at the prospect in finding an already established toolkit for older children that mixed developmental milestones and outdoor activities, but no such kit existed as I could find. After reading and studying many different theories about outdoor education, which discussed the timing of when to expose children, I was happy that most of the resources pointed to early exposure to nature supported a better well rounded child

due to having many health, emotional, physical and mental benefits. Some of my most interesting research was E.O. Wilson (1996) and Perry, Hogan, & Marlin (2000).

E.O. Wilson (1996) expressed the very idea that the earlier the exposure age of child is the better the benefits in health, mental stability and love of the outdoors. This research stressed how even just being outdoors for child can have positive effects. When I found this study, it solidified that there was an academic need for the creation of the toolkit portion of my study. Many of Wilson's findings were in line with the results I gathered from caretakers and parents' answers on their survey and toolkit portions. That they could see the positive effects of their children after being exposed to nature.

Perry, Hogan, and Marlin (2000) examined how the act of play can stimulate the brain of children and created positive effects in future brain development and how "With play, we have an inexpensive and efficient means to help children develop" This was also true in most of my findings that with playing outdoor it allowed some help in children to reach their age appropriate milestones though perhaps not at an accelerated rate; it did, however, help reinforce some aspects of development their parents or caretakers had already established.

I was excited at the prospect of developing a study that could benefit this age demographic. Some of other of my most interesting research, thought provoking and writings that supported the need for the toolkit's success were Louv, (2005); Ginsburg, (2007, November) and Sobel, (1996). These three writings gave valuable information that helped to support the need for more research into this very young and specific age demographic.

Noteworthy Results from Survey and Toolkit Portion

After compiling all the survey answers and toolkit results, I was not surprised about some of the overall themes present in the answers. The survey was done anonymous which was very important in the collection of data. The only issue that could have made a large difference in the results without it being a blind test is there is some pressure to answer according to what the study wishes to prove. This was not a totally blind test since there was a formal letter sent explaining to the participants the study ideas, and capstone theme the participants knew study was primarily about. Thus many of these participants answered and reacted positively toward the prospect of exposure to the outdoors of their children. While some participants did not enjoy the activities in the toolkit or did not find it overall successful, over 80% responded positively and with an interest in spending time outdoors in nature. If I was to take into consideration that our population has become more invested in becoming better environment citizens as a whole, this is a positive prospect.

There were noteworthy findings in that as many parents follow back up with me about how the overall study concluded. There were a large amount of the participants who said they would be interested in finding out more about exposing their child to the outdoor and nature at a young age. I'm hopeful these parents took it upon themselves to research and gain more confidence in teaching their child about the outdoors after using the toolkit. The findings were very encouraging that though our society has lost a strong connection to nature there is an interest in regaining that strong inherent bond humans had once before.

Recommendations for Further Studies

The overall results of this study were very interesting and worthwhile, but there is a need for further study. Research is lacking for children between the ages of 6 to 18 months old. Serious studies need to be conducted to concretely gain the best information. Future studies would need to be done over the course of a child's growth from toddler to adolescent to see long-term success.

Summery

Overall the research study proved that early environmental education, outdoor play and being exposed to nature play are beneficial to children and their adult caretakers. Most of the research found was geared toward older school aged children and adults. The research also showed that due to our society's lack of overall interest of wanting to be involved in their natural world humans connection to the natural world is not as important as it was in past generations. I think creating an affordable study/activity group where age appropriate childhood milestones games and outdoor activities could be taught to parents hands on would dramatically increase the interest. My personal plan for the use of this capstone would be to provide this capstone to educators of early childhood backgrounds. I would like to provide the toolkit portion of the capstone to outdoor educators as a guide to help establish an easy to use course for 6 to 18 month old children. I would like to possibly expand the toolkit to incorporate more games/activities.

Overall Conclusions

Overall the research supported the ideas that children benefit from outdoor learning and early exposure to nature. With a society that has lost its intrinsic connection to nature through technology, not going outdoors often, and children not being exposed early to nature, our children have had several health consequences. As a modern society, there is a resurgence of wanting to regain our lost affection towards nature. These are seen in the large scale acceptance of teaching outdoor and environmental education in schools, allowing recess to be less structured and allowing children to take "healthy risks" in the outdoors by themselves.

This capstone gave valuable information that a toolkit for 6 to 18 month old children which incorporated the combination concept of age appropriate Developmental Milestones and outdoor exposure to young children was successful. I enjoyed the process of discovery from the study portion of the findings that toolkit validity was worthwhile and productive.

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Appendix A

April 22, 2013

Dear Dr. or Mrs. or Ms.,

My name is Jessica Hillstrom and I am a graduate student at Hamline University working toward the completion of a Master's degree in Education: Natural Science and Environmental Education. I'm currently completing my final project called a capstone. My paper is focused environmental education and childhood milestones of children 6-18 month olds. I would like to invite your organization or practice or mom's group to be a subject in my research.

Participants that need to be prescreened by you will be asked to complete a short questionnaire Survey so that I can learn about the types of environmental education activities, nature play, and sustainability initiatives in place in various daycare settings. I realize that this is above and beyond your daily routine of running a daycare or managing a practice or other hospital duties if you are unable to participate please let me know I understand that your job comes first.

Your part of the survey will be to just pre screen participants and hand my packet of information to them.

The five qualities I'm looking for in participants are as follows:
3-5 children within each of these three age categories:

- 6-9 month olds
- 10-14 month olds
- 15-18 month olds.

Children that have met most of their previous Childhood Milestones
Parents that are interested in the outdoor and doing activities with their children
Parents that have enough time to devote to my project 20 mins a day for a week.
Caregivers or parents that would benefit from some new activities to do with their children.

The majority of the questions are multiple choice and a toolkit of activities. These subjects choose unless they express interest will remain Anonymous. I would appreciate it if you could think about helping me conduct my research and to please respond back to me by Friday, May 17th (2013) it is critical that I have a sufficient sample size as part of my research so I can conduct my study this summer. If you have questions or concerns please feel free to email me back (jkhillstrom@gmail.com)

I would be happy to share with with you my findings after my study is complete. let me know if you are willing to participate or are open to learn more about what this project entails. If I don't hear from you in the next couple of weeks, I will follow up with you the week of May 6th.

Thank you in advance for your consideration in helping me,
Jessica Hillstrom

Appendix B

Hello!

Thank you for participating in this short survey and the toolkit attached. My name is Jessica Hillstrom and I am a graduate student at Hamline University working toward the completion of a Master's degree in Education: Natural Science and Environmental Education. I'm currently completing my final project called a capstone. My paper is focused on environmental education and childhood milestones of children 6-18 months old.

First let me assure you that this will not be very time-consuming! You were chosen by either your doctor, the group facilitator, or daycare provider based on three important categories:

The age of your child had to be between 6 months and 18 months

Time commitment for your child to reach their childhood milestones

And possible interest level and having more activities to do with your child

If you can't participate any longer in my study, please hand your materials back to the location you received them. This should only take 20 minutes a day for a complete week.

Information you provide to me will be strictly anonymous and confidential. So please do not use last names when describing anything.

Section 1 is a very short survey of 10 questions to be completed first (please complete this by Friday, June 21st)

Section 2 is a toolkit with activities that make both childhood milestones together with outdoor activities. These are to be done with your child.

Section 3 is the recording portion of how the toolkit was helpful or not helpful. (please complete this part by Friday, July 12th)

Your honesty and good feedback is greatly appreciated for this research.

If you would like other information about more outdoor activities you can do with your child or how the study ended up, please don't hesitate to contact me at:

jkhillstrom@gmail.com

Thank you again for your time. I know as a mother, finding time to squeeze outside things in is not always the easiest thing to do!

Thank you,
Jessica Hillstrom

Appendix C: General Survey questions

How old is the child or children that you currently are the caregiver or parent for?

How important is it to you that your child or children reach their age appropriate milestones on time?

- A) Very important
- B) Somewhat important
- C) Not very important
- D) I don't know what the childhood milestones are

On average, how much one on one time do you spend with your child or children while awake?

- A) 15-12 hours
- B) 11-8 hours
- C) 7-4 hours
- D) 3-0 hours

When you do spend one on one time with your child or children how is that time spend on average? Please circle all that apply

- A) Feeding and limited activity time
- B) Short segments of activities mostly done inside
- C) Driving to and from activities or childcare
- D) Structured activities lead by someone else
- E) Mixture of indoor and outdoor
- F) Other _____

When choosing Activities for you and your child or children to do together what are the major deciding factor? Please circle the major two

- A) Cost
- B) Other parents or friends recommend them
- C) Easy to get to
- D) Sport related or movement related
- E) Help my child reach their milestones
- F) Other _____

6. How often do you take your Child or Children outdoors in the span of a week to experience _____ nature?

- A) 1-2 times a week
- B) 3-4 times a week
- C) 5-6 times a week
- D) 7-8 times a week
- E) Once every day
- F) Depends on the weather
- G) Other _____

7. Finding outdoor age appropriate activities to do with my child is something I _____ . Please choose the best answer for you.
- A) Have never thought of trying with my child before, but would like to.
 - B) Have very little interest in learning about.
 - C) Have looked into but is too expensive and choose a different actives to do with my child.
 - D) Feel confident I can do these actives on my own with my child.
 - E) Other _____

8. If giving a packet of easy to follow actives that are age appropriate which mixed outdoor actives and would help my child reach their childhood milestones I would.
- A) Try it to see how I liked it first
 - B) Use the packet daily I need actives for my child to do
 - C) Use the packet only to help with milestones my child is struggling with
 - D) Not use it, I'm not concerned with my child reaching his or her milestones
 - E) Not use it, we already have another book or reading material for reaching our milestones
 - F) Use the packet if I saw it was easy and productive to my child
 - G) Other _____

9. What is your interest in spending time outdoors?
- A) Somewhat interested if the weather is nice
 - B) Very interested I make it a priority during my day
 - C) I have so many other things going on I would like to but it's hard to get outside each day
 - D) I don't like being outdoors
 - E) Other _____

10. I would like to learn about more information about teaching my child about the outdoors.
- A) Yes!
 - B) No (why _____)
 - C) Depends on the time commit
 - D) Yes when they get older (how old should they be to learn? _____)

Thank you so much for cooperating survey please participant in the hands on activity please see the attached sheets and bring back to the location you received the survey from within two weeks or by Friday, July 12th.

Code (Doctor's office) D01-D15 ;Code (Hospital mom's group) MG01-MG15;Code (Daycare) DC01-DC15 (these were written on the bottom of each survey corresponding to the participant)

APPENDIX D: Toolkit take home portion

This was sent to participants in a different format but contained the following information

A Toolkit for 6-18 month olds for helping reaching Childhood Milestones and exposure to Outdoor Education

By Jessica Hillstrom

Table of contents

Introduction: Instructions on how to use the toolkit and how to record information

Section One: Introduction to what are the important Childhood Milestones for 6-9 months

6 games and activities for caregivers to use in teaching

Section Two: Introduction to what are the important Childhood Milestones for 10-14 months

6 games and activities for caregivers to use in teaching

Section Three: Introduction to what are the important Childhood Milestones for 15-18 month olds 6 games and activities for caregivers to use in teaching

Section four: Data collection and attached envelope for sending data

Introduction:

Thank you for your participation in this home study on competition of my Capstone for my Masters. The purpose of this toolkit is to help teach the youngest child early about our environment by mixing developmental age appropriate Childhood Milestones set by the American Pediatric Association and outdoor education games and activities.

-Please first select a good time for you and your child when they are awake, feed and have a clean diaper. This time frame is about 20 mins for each activity or game.

-Second step is to choose your child's age based on these three groups:

*** if your child is close to moving into another group do the younger age group****

6-9 month olds

10-14 month olds

15-18 month olds

-Third read the short distribution of each 6 games and activities and choose 4 to do.

Please only do one per day.

-Lastly, take a few moments to record a short description of how everything went.

There will be five short multiple-choice questions, then write a brief 3-4 sentences on how the activity went a pro and con list would be perfect!

After you have finished each of the activities please send back your results in the self addressed envelope provided.

Thank you for your cooperation, help and have Fun!

Section One: 6 - 9 month olds

What are the major important Childhood Milestones for 6 - 9 months? Here is a shorten list as it pertains to this toolkit.

For this toolkit the Social/Emotional section is left out to focus on Language/Communication, Cognitive, and Movement/ Physical Development. Please remember these are guidelines and every baby may reach these abilities at different times.

For 6 - 9 month olds Childhood Milestones

Language/Communication

- Responds to sounds by making sounds
- Strings vowels together when babbling (“ah,” “eh,” “oh”) and likes taking turns with parent while making sounds
- Begins to say consonant sounds (jabbering with “m,” “b”)
- Has favorite toys
- Copies sounds and gestures of others
- Uses fingers to point at things

Cognitive (learning, thinking, problem-solving)

- Shows curiosity about things and tries to get things that are out of reach
- Begins to pass things from one hand to the other
- Watches the path of something as it falls
- Looks for things he sees you hide
- Plays peek-a-boo

- Moves things smoothly from one hand to the other
- Picks up things like cereal o's between thumb and index finger

Movement/Physical Development

- Rolls over in both directions (front to back, back to front)
- Begins to sit without support
- Stands, holding on Sits without support
- Crawls
- Can get into sitting position
- Pulls to stand

6 games and activities for caregivers to use in teaching on following page

Games and Activities for 6 - 9 Month Olds: Pick Four

Language/Communication

1) Read to your baby two out of the five of these books

"Brown Bear, Brown Bear what do You See?" By Bill Martin Jr. and illustrated by Eric Carle

" Baby Bear, Baby Bear what do you see? By Bill Martin Jr. and illustrated by Eric Carle

"Polar Bear, Polar Bear what do you hear?" By Bill Martin Jr. and illustrated by Eric Carle

" Where is Spot?" Eric Hill

Pick your own title it must have Animals in in

When you read these books try to read outdoors and when reading make the animals sound for example " The Bear says Grrrrrr... Do you hear the bear?"

2) Bring your child outdoor and lay on his or her tummy or back on a blanket. Practice their already sounds they currently use for example " ahhhh..... eeeeeee..... ooooooo" do each sound till your baby joins in. While outside find things around you both that have those sounds in them and tell them to your baby " Oh look it's a bird bbbbbbbb....."

Cognitive

1) Bring your child outdoor and lay on his or her tummy or back on a blanket. Place 3-5 of his or her favorite toys around them just out of reach. Let her try to grab them. Then find 2-4 safe outdoor objects for your baby to touch and feel (make sure they don't make it into their mouths!) tell your child what each item is and what it looks like. For example " Look at this pretty leaf it had red and green leaves come from trees"

2) Outdoor music! Bring your baby outdoors and some Tupperware and a big wooden spoon. Helping her or him sit play the drums with your baby with a CD player, on a cell phone, or a sound machine have a few different outdoor noises to listen too after and during your symphony. Help point out the sounds the best you can to your child " ask what is that sound? Oh it's a loon."

Movement/ Physical Development

1) Movement outdoors: Bring your child outdoors and sit or lay them on the edge of a blanket. Allow them to move on and off the blanket. You can do this on a grass yard setting or a different setting. Talk to your child when they move back and forth from the different areas " oh that's the grass, it's green, it smells different..." If your child is not into the switching off the blanket. Hold them in your lap to allow them to feel the grass or different setting in the safety of your arms

2) Baby Obstacle Course: Bring a blanket, pillows, and stuffed animals (these will go on the grass or ground). Let your baby explore uneven areas by weaving around your Obstacle Course. Help them by saying things like " let's go over Mr. Bear..." If your child is not crawling hold him or her and move over the obstacle course together.

****Yeah! Thank you please go to the end of this packet to answer a few questions*****

Section Two: 10-14 month olds

What are the major important Childhood Milestones for 10-14 months? Here is a shorten list as it pertains to this toolkit.

For this toolkit the Social/Emotional section is left out to focus on Language/Communication, Cognitive, and Movement/ Physical Development. Please remember these are guidelines and every baby may reach these abilities at different times

Language/Communication 10-14 month olds

- Understands “no”
- Makes a lot of different sounds like “mamamama” and “bababababa”
- Copies sounds and gestures of others
- Uses fingers to point at things
- Responds to simple spoken requests
- Uses simple gestures, like shaking head “no” or waving “bye-bye”
- Makes sounds with changes in tone (sounds more like speech)
- Repeats sounds or actions to get attention
- Says “mama” and “dada” and exclamations like “uh-oh!”
- Tries to say words you say

Cognitive 10-14 month olds

- Watches the path of something as it falls
- Looks for things he sees you hide
- Plays peek-a-boo
- Puts things in her mouth
- Moves things smoothly from one hand to the other
- Picks up things like Cheerio's between thumb and index finger
- Explores things in different ways, like shaking, banging, throwing
- Finds hidden things easily
- Looks at the right picture or thing when it's named
- Copies gestures
- Puts things in a container, takes things out of a container
- Bangs two things together
- Starts to use things correctly; for example, drinks from a cup, brushes hair
- Lets things go without help
- Pokes with index (pointer) finger
- Follows simple directions like "pick up the toy"

Movement/ Physical Development

- Stands, holding on
- Sits without support
- Crawls
- Can get into sitting position
- Pulls to stand

- Gets to a sitting position without help
- Pulls up to stand, walks holding onto furniture (“cruising”)
- May take a few steps without holding on (older children may walk)
- May stand alone

6 games and activities for caregivers to use in teaching on following page

Games and Actives for 10-14 month olds: Pick Four

Language/Communication

1) Playing the who is that calling game. In this game if your baby has a play phone or two bring those, and 5-7 stuffed animals (what you know what sounds they make) and a blanket to sit on outside. Sit your baby on the blanket and play who is that calling us? Pretend the phone is ringing and answer it "Hello who is this?...(make the animals sound) then say "oh hello to that animal" (or something along those lines you can be as creative as you want to have a long conversation but let your baby talk to each animal.

2) Walk the yard or playground game. Take your child around the yard and point out different parts of your yard or playground. For example " Let's go this way toward the pine tree, that it the really tall tree."

Pick out areas in the yard that are not right next to each other and try to do 5-7 things.

Use the ideas of asking questions too "Did you hear the bird?" Encourage your child to ask questions and point things out to your, " Show me where the tree was?"

Cognitive

1) The holding sand toys game. On a blanket or in the grass or if your brave the sand box

or beach! have 5-7 sand type toys. Hand two of the toys for your child. Let her play with them then give her a third toy to hold for you. See if your baby can problem solve how to hold them all! If they can't have them pick the ones she want to play with. At the end of your play time ask your child to help you clean up. See how many toys your baby will hold at once!

2) Hide-and-Seek outdoor sounds. If you have a sound machine or a cellphone that will play sounds on it pick out a sound, have a photo or if on a cell phone be ready to pull up a photo of the item making the sound for example a picture of a Thunderstorm. Take everything outside with a few pillows and blankets. Hide your phone or thing making the sound under the blankets and have your baby find the sound. After your child finds it show your child what outdoor thing made the sound talk about the sound " Was this loud?"

Movement/ Physical Development

1) Outdoor tunnel fun. Bring several blankets and pillows outside. With yard furniture make a tunnel and place pillows on the ground inside but under the tunnel. Have gaps of grass and pillows under the tunnel. Encourage your child to go into the tunnel with you and crawl through the tunnel pointing out how the grown is different in some areas. If your tunnel is tall enough to and your baby is walking have him or her walk though.

2) Light rain walk: PREPARE TO GET A LITTLE WET! The next warm rain shower not thunderstorm! Or lighting! When the rain is slowing down, take your baby in a

stroller, or carrier, or walking, put on rain coats and bring an umbrella. Walk around on a hard surface first like a driveway or sidewalk listening to the rain hit the umbrella and how the rain sounds hitting the ground. Then take your baby onto a grassy area and if they are walking or even crawling allow him or her to feel the wet grass. Engage him or her by asking questions about if they are getting wet or what the grass feels like. If there are puddles and your up to it puddle jumping!

*Yeah! Thank you please go to the end of this packet to answer a few questions***

Section Three: 15-18 month olds

What are the major important Childhood Milestones for 15-18 months? Here is a shorten list as it pertains to this toolkit.

For this toolkit the Social/Emotional section is left out to focus on Language/Communication, Cognitive, and Movement/ Physical Development. Please remember these are guidelines and every baby may reach these abilities at different times

Language/Communication 15-18 month olds

- Responds to simple spoken requests
- Uses simple gestures, like shaking head “no” or waving “bye-bye”
- Makes sounds with changes in tone (sounds more like speech)
- Says “mama” and “dada” and exclamations like “uh-oh!”
- Tries to say words you say
- Says several single words
- Says and shakes head “no”
- Points to show someone what he wants

Cognitive 15-18 month olds

- Explores things in different ways, like shaking, banging, throwing
- Finds hidden things easily
- Looks at the right picture or thing when it's named
- Copies gestures
- Puts things in a container, takes things out of a container
- Bangs two things together
- Starts to use things correctly; for example, drinks from a cup, brushes hair
- Lets things go without help
- Pokes with index (pointer) finger
- Follows simple directions like "pick up the toy"
- Knows what ordinary things are for; for example, telephone, brush, spoon
- Points to one body part
- Shows interest in a doll or stuffed animal by pretending to feed
- Points to get the attention of others
- Scribbles on his own
- Can follow 1-step verbal commands without any gestures; for example, sits when you say "sit down" older children

Movement/Physical Development 15-18 month olds

- Gets to a sitting position without help
- Pulls up to stand, walks holding onto furniture ("cruising")
- May take a few steps without holding on
- May stand alone

- Walks alone
- May walk up steps and run
- Pulls toys while walking
- Can help undress herself
- Drinks from a cup
- Eats with a spoon

6 games and activities for caregivers to use in teaching on following page

Games and Actives for 15 - 18 month olds: Pick Four

Language/Communication

1) Help me Game": collect 5-10 item that are easy for your child to carry for example a small ball. When your child is sleeping or in a safe location inside go outside and quickly hide these items not hard to find but hind them near outdoor things for example next to a truck of a tree. After you have hidden the items take your child outside and ask them to " help me find the ball" giving simple directions like " the ball is red and it is near the big tree in the yard... Let's go look together." Ask him or her to point out things " can you see the big tree I was telling you about" give lots of praise when they find it " oh thank you so much!" and look at the nature it was around, " it was next to this big tree let's look at the leaves!"

2) Stretching the sentence out: for this activity have 3-5 items of food your child likes for a snack. Not a ton of food is needed just a normal amount for what he or she eats during a snack. Set up a blanket outside and put each snack in a different container. Open each container and ask if your child would like some. Instead of them just saying the word

they use for the snack try to make them say a sentence. " oh you're you like some strawberries? " Say I want some strawberries please." Even if the sentence is not perfect praise them for trying to make it longer.

Cognitive

1)Water painting: get a clean paint brush and a small bucket of water and let him or her outside to paint on the sidewalks or side of the house. Make sure it is warm out and show your child how the water dries up! " wow the painting disappeared can you make another?" If you child get mad help him or her understand that they can recreate another drawing. " oh don't worry let's make an even taller tree!"

2) How it works: collect a few items 2-5 like a flashlight or a timer and take them outside nothing they could break. Show your child how they work, then let him or her experiment with turning it on and off. You can use outdoor items too like a watering can or broom. Saying things like " this is a flashlight it helps us see in the dark, watch me turn it on, and off , now you try".

Movement/Physical Development

1) Moving day: scatter 8-12 small items that your child and pick up outside. With a small box or wagon bring your child outside to collect items. "Let's move these things back inside" or if there are outdoor toys " oh this is not where the sand shovel goes let's put it in its place."

2) Mud painting: on a few pieces of paper draw simple shapes like circles or squares or rip out a page of a coloring book. Bring these and a paint brush, water, shovel and a small plastic bowl outside. Set everything down and explain that you need to make mud paint. Show your child how to collect some mud with a shovel and put it in the bowl. Always

explaining each step miss the mud and water till you have mud paint. Take it and paint in the pictures. Talk about what mud and dirt do. And don't be shocked if you get a tad dirty!

Yeah! Thank you please go to the end of this packet to answer a few questions

Question and Comment Page

Thank you for completing this toolkit that mixes outdoor education learning and Developmental Milestones in an age appropriate manner. My hope is that the toolkit was easy to follow, gave you some fun activities to do outdoors with your child and helped him or her reach their milestones.

If you could please fill this sheet out and bring back to the location you received the original survey from within two weeks or by Friday, July 12th that would be fantastic!

What is the age of your child? _____

Did you find this toolkit easy to understand and used words and terms your have heard before from your doctor, healthcare provider or books? Circle Yes or No (if No please give examples of words or terms you did not understand.

Did you find these games and activities easy for your child to do? Circle **Yes or No** (if No please briefly explain

Did you find these games and activities easy to follow? Circle **Yes or No** (if No why)

Did you see any changes in your child from reaching their milestones compared to other millstone activities you have done in the past inside?

Did you enjoy doing these activities and games outside? And do you think your child did as well? Circle one set that best describes your thoughts:

Yes for both **No for Both**

I did but my child did not **I did NOT and my child did**

Would you enjoy doing more activities outdoors and feel more confident in doing activities you make up on your own from completing this toolkit? Circle one Yes Or No (if no please explain)

Did you find after doing these outdoor activities with your child they wanted to be outdoors more and enjoyed themselves learning outdoors? Circle Yes or No (if No please explain)

Final thought: Please take a moment to write on anything you think would be helpful and could be learned for your experience doing this toolkit please be honest!!!!
