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## The Benefits of Outdoor Education Curriculum for Elementary School Students with Nature Deficit Disorder

Madison L. Allen  
*California State University, Monterey Bay*

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Senior Capstone Binder  
Submitted to:  
Dr. Paoze Thao  
Liberal Studies Department  
College of Education  
In Partial Fulfillment for  
LS 400: Liberal Studies Senior Capstone

By

Madison Allen

Seaside, California

December 16, 2016

LS 400: Liberal Studies Senior Capstone

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## **Research Prospectus**

### **Title: Benefits of Implementing Outdoor Education Curriculum for Elementary School Children with Nature Deficit Disorder**

Since the start of the electronic age, many elementary schools' children in California, and the rest of the world, have suffered from Nature Deficit Disorder. Nature Deficit Disorder is a term coined by Louv (2008) that describes a human being, specifically a child, that spends less time outdoors and results in a wide range of behavior problems. Without environmental integration in schools, children will lose touch with nature which will affect their development and the way they see the safety of our planet at a whole. Children become obsessed with electronic devices and social media networks that draw their attention away from things that we found so important when we were young and that we work hard to preserve today. The sources I found for my Capstone literature review discuss factors that contribute to children's play deprivation and lack of association with nature. They also discuss the consequences of play deprivation and present evidence of lack of outdoor-based play. Many also explain why outdoor-based play and reconnection to nature are essential, and outline some of the programs and initiatives that seek to implement this public health strategy through education and engagement. I would like to research how implementing outdoor education curriculum into elementary schools can affect students. I would specially like to conduct research in the Monterey County area.

My area of concentration is Human Development, so naturally, I am concerned about the behavioral and developmental disorders that Nature Deficit Disorder poses on children. Throughout my Capstone, I must critically analyze the curriculum in elementary school

classrooms to find the benefits of implementing an outdoor education program. This will satisfy my MLO #1- Developing Educator. By researching the benefits of implementing outdoor education, I will try and find the different behavioral and developmental issues that come with Nature Deficit Disorder. This will satisfy my MLO #2 - Social Justice Collaborator. Through this process, I will gain and demonstrate competency in Nature Deficit Disorder and how this will benefit student in the elementary school classroom who do not have access to outdoor education curriculum. This will satisfy my MLO #3- Subject Matter Generalist.

When conducting my research on Nature Deficit Disorder and the ideas behind implementing Outdoor Education curriculum in the Elementary School classroom in general, there are many research questions that must be answered. Through a variety of different sources and interviewing opportunities with professionals in the Monterey County Area, I hope to answer all the following questions for my Capstone. The primary question I propose to answer in my research is: How does implementing outdoor education curriculum benefit elementary school children with Nature Deficit Disorder? Related questions are: Why is it important for elementary schools to implement outdoor education curriculum according to school teachers? What does research say about the benefits of implementing outdoor education curriculum for elementary school children with nature deficit disorder? Are there any schools in the Tri-county area that currently implement outdoor education curriculum for elementary school students? If there are, what does the curriculum entail? And how do they implement it? What are the advantages and disadvantages of implementing outdoor education for elementary school children? How does it benefit those school children with Nature Deficit Disorder, in particular? What happens if elementary school students lack the exposure to outdoor education curriculum? What are ways in

which schools can encourage more outdoor learning in it's curriculum to help elementary school children with nature deficit disorder?

To gather this information, I have so far, collected thirteen internet sources and two book sources that examine the benefits of implementing outdoor education curriculum in elementary schools. One of the books specifically gives information on Nature Deficit Disorder and the threats that it poses to a child's development. I will be interviewing six teachers scattered throughout the Tri-county area and two professors at CSUMB that can give their input and opinions on the benefits of outdoor education curriculum. I will also interview two psychologists that can give their input and opinion on Nature Deficit Disorder in children. I have come up with three different sets of questions for each group of interviewees. Each set of interview questions has six questions. The interview questions for the teachers are Appendix A, the questions for CSUMB professors are Appendix B, and the questions for the phycologists are Appendix C. To do this, I have to contact each teacher, professor, and psychologist. I would like to contact them and set up a meeting by September 30, 2016. I would like to conduct my interviews with them within the month of October and have the data by October 31, 2016. I will be conducting research on my own during the month of October and plan to finish reviewing my literature by the end of November. I would like to have the first draft of my Capstone done by November 1, 2016 and my final draft done by November 30, 2016.

The final product that I will produce is a fifteen page research paper that examines the benefits of outdoor education curriculum for students, especially those with Nature Deficit Disorder. It will be a compilation of my research from my fifteen sources and the interviews that I hope to conduct with local professors, educators, and psychologists. My interviews will shed light on what some of the child educators and child development professionals think about

Outdoor Education Curriculum in elementary schools. Following my Capstone project, I hope to create a Wordpress Website page that informs the public about the dangers of Nature Deficit Disorder, why it is beneficial for elementary schools to implement more Outdoor Education Curriculum, and some suggestions on what teachers can do to implement more outdoor education curriculum in their classroom.

My Capstone project will be of interest to CSUMB Liberal Studies student, Liberal Studies professors and program directors, Liberal Studies/Arts programs at other universities, school districts in the Tri-County area, parents groups in the area, daycares/child care services, and any other child serving organization. I hope to see my paper archived in the CSUMB library so that other Liberal Studies and future teachers can access it. Because my research and findings are valuable to educators and child development enthusiasts everywhere, I hope that my Wordpress blog is easily accessible. I will also include my contact information and other sources that viewers would find educational and useful. I hope that my project will not only help influence school districts to integrate and implement Outdoor Education Curriculum in their elementary schools, but also shed light on it's importance on children with Nature Deficit Disorder.

Bishop, G. (2013). Learning through nature: A real-life testimonial. *Montessori Life: A publication Of the american montessori society*, 25(3), 26-31.

Montessori educators believe that there are a number of important factors that are necessary for a child to successfully attain adulthood. They include family, a stable home, good adult mentors, and a strong system of education that includes fostering of independence, autonomy of the individual, and joyful learning opportunities with a system environment. Geoffrey Bishop mentions one additional element that he believes to be of equal importance in a child's life, and that is unstructured and unrestricted outdoor and nature play. Bishop points toward Richard Louv's book "Last Child in the Woods" (2008), and how it speaks of the "Nature Deficit Disorder" he sees in many of today's children. Bishop writes here that he sees this nature deficit as well in his own role as the head of a Montessori school set on 400 acres. As the head of an Outdoor Environmental Education program, he draws on lessons learned from his own childhood, and describes how he aims to correct this deficit for the children in his program.

Blatt, E., & Patrick, P. (2014). An exploration of pre-service teachers' experiences in outdoor "Places" and intentions for teaching in the outdoors. *International Journal Of Science Education*, 36(13), 2243-2264.

This study explores pre-service teachers' past interactions with "place" in outdoor settings and how these experiences contribute to their current perceptions of the importance of taking their own students into the outdoors. Specifically, the researchers were interested in investigating if current pre-service teachers are part of the "nature-deficit disorder"



generation described by Louv in his book, "Last child in the woods: Saving our children from nature-deficit disorder" (2005), as a generation of children growing up without direct experiences in nature. Study participants included 148 undergraduate pre-service elementary teachers enrolled in science teaching methods instructional courses at an urban college in the Northeastern United States and two suburban universities in the Southeastern United States. Participants wrote essay responses after reading Louv's "Last Child in the Woods" in which they were asked to relate the reading to their own past experiences and their ideas about elementary science education. Results indicate that a large majority of participants (97%) describe significant youth experiences in the outdoors, view nature as important in varying ways (89.9%), and express a desire to expose their own students to the outdoors (65.5%). Key findings are illustrated with direct quotations from the pre-service teachers' essay responses, as they write vividly of their interactions in outdoor places, referred to as "place meanings". Implications are presented for teacher educators working with pre-service teachers to build upon their outdoor experiences and prepare them for implementing nature-based instruction.

Brookes, Andrew. (2004, July). Astride a long-dead horse: mainstream outdoor education theory and the central curriculum problem. *Australian Journal of Outdoor Education*. 11(4), 44 - 204.

In 1859 Herbert Spencer recognized that the key curriculum issue was not what to include but what to leave out. 'What to leave out' marked a shift in curriculum discourse from a search for universal approaches and absolute principles towards curriculum questions understood as only resolvable relative to particular social contexts. Yet, outdoor education is frequently explained and justified in universal, absolute terms that

are incapable of resolving the question of outdoor education's educational worth in any particular situation. The first part of this study outlines some necessary links between curriculum discourse and outdoor education theory. The second uses outdoor education textbooks to investigate how context-free rationales for outdoor education have been framed. The article concludes that the evident flaws in textbooks indicate a more widespread failure in the outdoor education literature to comprehend curriculum questions.

Charles, C. (2009). The ecology of hope: Natural guides to building a children and nature movement. *Journal Of Science Education And Technology*, 18(6), 467-475.

Cheryl Charles, Ph.D gave the 2009 Paul F-Brandwein Lecture. The lecture addresses the impact of children's disconnect from the natural world in their everyday lives. Co-founder of the Children & Nature Network (C&NN) with Richard Louv (2008) author of *Last child in the woods: Saving our children from nature-deficit disorder*, the author describes C&NN's approach to building a movement to reconnect children and nature for their health and well-being. Louv (2008) puts the growth of the movement in recent historical perspective, chronicling relevant contributing factors. Drawing on research as well as common sense, he summarizes evidence that indicates some of the negative impacts on children's health from their lack of contact with nature and other characteristics of contemporary lifestyles, as well as positive benefits to children's cognitive, emotional, social and physical development from direct learning and play in nature-based settings. He describes what she calls "natural guides" to building the children and nature movement as a part of the process of achieving sufficient critical mass to facilitate positive social change. Finally, she offers recommendations for actions.

Dickinson, S. Nettleton, B. Quay, J. (2000). Community, caring and outdoor education.

*Australian Journal of Outdoor Education*. 14(9), 20-87.

In this article we discuss the close ties that exist between the concepts of community and caring on the one hand, and the teaching and learning strategies which are relevant to these concepts in the area of outdoor education on the other. We begin by gauging the extent of our human need for community. The existence of this need leads into an exploration of the ways in which this need can be met in our Western society, which tends to favour the individual. Caring is identified as a major method for achieving community. Ways of educating for caring and community are then revealed through the literature and these are placed, as one would a template, over the existing view of outdoor education to look for any connections and commonalities. These commonalities are identified.

Ferreira, M. M., Grueber, D., & Yarema, S. (2012). A community partnership to facilitate urban elementary students' access to the outdoors. *School Community Journal*, 22(1), 49-64.

Today's children spend less and less time in the outdoors, leading Richard Louv in 2008 to coin the term "nature deficit disorder." Louv pointed out that experiences with nature are essential to a child's physical and emotional development and that the lack of these types of experiences has led to an increase in child obesity, attention disorders, and depression. Poor urban students in particular have little access to experiences with nature, and outdoor classrooms are increasingly being used to foster a sense of community in schools and to provide students with learning opportunities related to nature. This field

study describes a partnership formed between a local university, a school district, and a community organization in order to develop and implement outdoor classrooms and curriculum in seven local elementary schools. Results based on teacher reflections on using the outdoors for educational purposes, collected before and after the implementation of the program, indicated a shift in teachers' perceptions about the value of the outdoors for instructional purposes which translated into a greater number of learning experiences for their students and helped foster a sense of community in their schools.

Hickman, M. & Stokes, P. (2016). Beyond learning by doing: An exploration of critical incidents in outdoor leadership education. *Journal Of Adventure Education And Outdoor Learning*, 16(1), 63-77.

This paper argues that outdoor leader education and training is characterized by the development of procedural skills at the expense of crucial but usually ignored non-technical skills (e.g. contextualized decision-making and reflection). This risks producing practitioners with a potentially unsophisticated awareness of the holistic outdoor environment impeding the development of links between theory and practice. This paper analyses the application of critical incident theory to a study of undergraduates in a UK outdoor leadership degree programme in order to examine the processes of developing non-technical reflective skills in the students. The study examines a range of critical incidents in a purposive homogeneous sample of students who were asked to identify and reflect on critical incidents in practice settings of their own choice. These settings spanned from the United Kingdom to remote locations overseas. Qualitative data analysis was carried out using interpretative phenomenological analysis. The findings indicated

that outdoor leadership programmes need to develop a broader and holistic skills base rather than concentrate on primarily physical and technical skills. A focus on the critical incident method early in education has the potential to equip practitioners with the holistic and complex set of skills required in the contemporary outdoor workplace.

Larkin, D. (2011). "Before today, I was afraid of trees": Rethinking Nature Deficit Disorder. *Rethinking Schools*, 26(1), 38-43.

Science teachers in urban schools often serve students whose experiences with the natural environment are more obviously constrained by human factors than their suburban or rural counterparts. At the same time, parents and teachers are contending with an increase in sedentary indoor activities that have affected youth of every demographic. Coupled with the shrinking opportunities many children have for experiencing nature in an unbounded form, these factors can lead to a lack of familiarity with the fundamental features of ecology and the natural world. Journalist Richard Louv (2008) has called the resulting situation "nature deficit disorder." How can teachers build student comfort with the natural world without seeing city-raised students as "deficient"? Rather than viewing students as having nature deficit disorder, teachers can develop students' naturalist intelligence and critical consciousness by building on the ways they actually experience the world. Educators can extend Louv's ideas into formal science classrooms by seeking to cultivate more opportunities for natural experiences.

Louv, R. (2008). *Last child in the woods*. Chapel Hill, North Carolina: Algonquin Paperbacks.

In this influential work about the staggering divide between children and the outdoors, child advocacy expert Richard Louv directly links the lack of nature in the lives of today's wired generation—he calls it nature-deficit—to some of the most disturbing childhood trends, such as the rises in obesity, attention disorders, and depression. *Last Child in the Woods* is the first book to bring together a new and growing body of research indicating that direct exposure to nature is essential for healthy childhood development and for the physical and emotional health of children and adults. More than just raising an alarm, Louv offers practical solutions and simple ways to heal the broken bond—and many are right in our own backyard.

Louv, R. (2012). *The nature principle*. Chapel Hill, North Carolina: Algonquin Paperbacks.

Our society, says Louv, has developed such an outsized faith in technology that we have yet to fully realize or even adequately study how human capacities are enhanced through the power of nature. Supported by groundbreaking research, anecdotal evidence, and compelling personal stories, Louv shows us how tapping into the restorative powers of the natural world can boost mental acuity and creativity; promote health and wellness; build smarter and more sustainable businesses, communities, and economies; and ultimately strengthen human bonds. As he says in his introduction, *The Nature Principle* is "about the power of living in nature—not with it, but in it. We are entering the most creative period in history. The twenty-first century will be the century of human restoration in the natural world." Richard Louv makes a convincing case that through a nature-balanced existence—driven by sound economic, social, and environmental

solutions—the human race can and will thrive. This timely, inspiring, and important work will give readers renewed hope while challenging them to rethink the way we live.

Lowell, C. (2008). Beyond the lorax? The greening of the american curriculum. *Phi Delta Kappan*, 90(3), 218-222.

As recently as a generation ago, playtime meant outdoor activity that put children in touch with nature. Now, it's chat rooms, video games, and virtual nature. The result is "videophilia" as opposed to "biophilia." This nature-deficit disorder has spurred a national movement that has made its way to Capitol Hill in the form of a proposed No Child Left Inside Act. If children don't care about nature today, they won't care about conserving it tomorrow when they're adults. Environmental education assumes an importance and justification that thrusts it center stage into the educational arena.

Mainella, F. P., Agate, J. R., & Clark, B. S. (2011). Outdoor-based play and reconnection to nature: A neglected pathway to positive youth development. *New Directions For Youth Development*, (130), 89-104.

Modern American society faces challenges that are much different from those that the early pioneers of American play face. Play deprivation, or lack of play, is the result of children's unwillingness to choose free and spontaneous outdoor play such as that which occurs in parks and other natural settings. A lack of play in natural settings leads to not only play deprivation but also what Louv terms "nature deficit disorder." Nature deficit disorder is a disconnection with the environment that stems from the current generation's tendency to focus on built and engineered entertainment rather than the natural world. In this article, the authors discuss factors that contribute to children's play deprivation and

lack of association with nature. They also discuss the consequences of play deprivation and present evidence of lack of outdoor-based play. Then, they explain why outdoor-based play and reconnection to nature are essential, and outline some of the programs and initiatives that seek to implement this public health strategy through education and engagement.

Paloni, J. (2007). Nature's new educational mandate: No child left inside. *Horace*, 23(3)

Is 30 minutes of outdoor time in a six and a half hour school day really enough?

According to child advocacy expert and author Richard Louv, 30 minutes isn't nearly enough. In his book "Last Child in the Woods: Saving our Children from Nature-Deficit Disorder," he discusses the events which have led our culture to move indoors and the subsequent consequences, a national trend of childhood obesity, depression, and Attention Deficit Disorder. Louv highlights the increasing difficulties in getting kids outdoors: competition with screens, media-exploited fears, more homework, and a decrease in natural areas. But there is hope! With a little understanding, some risk-taking and careful planning, courageous teachers can strongly influence the opening of windows and doors for this nation's children while keeping up with mandated standards, personal ethics, and the CES Common Principles. The author offers several teaching suggestions.

Randall, R. R. (2012). Go outside to learn: The value of outdoor learning environments. *Educational Facility Planner*, 46(2-3), 18-23.

Outdoors opens up endless possibilities. Every place and space people experience offers an opportunity to learn. Accepted educational research first theorized by social scientist and author, Howard Gardner, shows that learners have nine multiple intelligences--visual,



logical, intrapersonal, musical, body-kinesthetic, linguistic, interpersonal, naturalistic and existential. Every person has the capacity to learn in each of these strategies; however, some grow stronger than others due to their experiences, opportunities (or lack of opportunities) and environment. What if the learning environments truly were the third teacher and stimulated learning of all the intelligences? What would that look like? In this article, the author explores each intelligence in the context of an outdoor learning environment and brainstorms the possibilities of what is the value of going outside to learn.

Appendix A

**Interview Questions for Teachers in Monterey County**

**The Benefits of Implementing Outdoor Education Curriculum for Elementary School Children with Nature Deficit Disorder**

1. Are there any schools in the Tri-county area that currently implement outdoor education curriculum for elementary school students?
2. If there are, what does the curriculum entail? And how do they implement it?
3. What are the state requirements and standards when it comes to outdoor education and curriculum in elementary school classrooms?
4. According to you, what are the benefits or advantages of implementing outdoor education for elementary school students?
5. Are there any disadvantages of implementing outdoor education for elementary school children? If so, what are they?
6. What are ways in which schools can encourage more outdoor learning in it's curriculum to help elementary school children with nature deficit disorder?

Appendix B

**Interview Questions for Professors at California State University  
Monterey Bay**

**The Benefits of Implementing Outdoor Education Curriculum for Elementary  
School Children with Nature Deficit Disorder**

1. What does outdoor education curriculum mean to you as a Professor at CSUMB?
2. According to you, why is it important for elementary schools to implement outdoor education curriculum?
3. What are the advantages and disadvantages of implementing outdoor education curriculum for elementary school children?
4. In your opinion, how does the exposure of Outdoor Education curriculum benefit the development of a child as a whole?
5. What are ways in which Liberal Studies student and Multiple Subject credentialing students can encourage more outdoor learning in their future curriculum?
6. Are you familiar with the term Nature Deficit Disorder? And if you are, what does it mean to you?

## Appendix C

### **Interview Questions for Psychologists in the Monterey County Area**

#### **The Benefits of Implementing Outdoor Education Curriculum for Elementary School Children with Nature Deficit Disorder**

1. In your opinion, how does Outdoor Education Curriculum in schools benefit elementary school children cognitively and developmentally?
2. In your opinion, what are the disadvantages of implementing Outdoor Education Curriculum in elementary schools?
3. In your opinion and experience, what are the harms of under exposure to outdoor play for young children and how does it affect them developmentally?
4. If children are under exposed to outdoor play, what are the long term effects of their behavior and development?
5. Are you familiar with the term Nature Deficit Disorder? If you are, what are your thoughts about it?
6. Do you believe that Outdoor Education Curriculum can help children with Nature Deficit Disorder?

## Synthesis Paper

Reflecting on my past years at California State University Monterey Bay (CSUMB), it is apparent that I have not only grown professionally and academically, but I have also been shaped into the type of educator that I have always wanted to be. My professors, coursework, and service hours have provided a strong foundation of knowledge and experience that I can use in my future profession as an elementary school teacher. Through my experience as a Liberal Studies student, I have been given the tools to help foster my personal and professional endeavors. I can also apply this knowledge to promote lifelong learning and social/ ethical success for our future generations, which is a gift in itself. With my time as an undergraduate coming to an end the prospects of graduation right around the corner, I believe that it is a good time to reflect on my time spent at CSUMB and the knowledge that I have gained.

I started my journey at CSUMB in 2012 as a first time freshman. I have always known that I wanted to teach, so I declared myself as a Liberal Studies major as an incoming freshman. After a lot of shifting and changing from different minors, I decided to settle on Human Development because it directly aligns with what kind of work that want to do in the future. This includes working with Special Education students and helping the social, emotional, and behavioral development of children in elementary school classrooms. My Liberal Studies classes not only introduced me to current teaching standards, regulations, policies, and a plethora of different legal obligations that teachers have, but also the confidence and capabilities to stand in front of a elementary school classroom one day. My Human Development classes gave me insights and knowledge about children with special needs and helped mold my passion into a

future career. I will carry my educational experiences from CSUMB with me for the rest of my professional career.

***A deeper look into my Major Learning Outcomes***

When reflecting on my courses that I have taken at CSUMB, I feel that they have provided me with the opportunity to gain knowledge, perspective, and the skills that I need to succeed as an elementary school teacher. My goals are to impact the lives of children in a positive way by inspiring social change in and out of the classroom. My CSUMB courses have provided a solid foundation to do so and the Major Learning Outcomes (MLO) integrate arts and humanities, social sciences, and field experiences that emphasize growth as an educator.

When we receive our Liberal Studies Bachelor's degree, we have not only completed the required courses for our major, but have also completed over one hundred hours of service in the community. Through this, we gain direct experience in the field and acquire introductory pedagogical skills that we can use in our future classrooms. In these service learning courses, we go into the field and participate in local elementary school classrooms, and in doing so, we fulfill our MLO 1: Developing Educator. As students we write, think, and converse critically about the general responsibilities as a California public school educator and the skills and knowledge that we need to be successful.

There are four service learning classes that require us to go into local elementary school classrooms: LS 277s: Schooling in Modern Society, LS 394s: Multicultural Literature for Children and Young Adults Service Learning, LS 398s: Social Foundations of Multicultural Education Service Learning, and KIN 374/L: Physical Education for Elementary School Children. We combine the knowledge that we get from these courses and through the field experience to fulfill MLO 4: Social Justice Collaborator. Being in the community and reflecting

on our practices to become ethically and socially responsible educators helps us ensure that we can work towards a more sustainable world that strives for positive social change. We collaborate with other teachers to advocate for equity and justice in the public school education system and other societal institutions by conversing these topics in the classroom and using our knowledge in the field.

Being a student at CSUMB has introduced me to numerous amounts of multicultural content through its courses and interacting with our diverse student population. It is apparent that CSUMB takes pride in its courses being influenced by the diverse community surrounding the campus by making every opportunity a chance to seek positive social change and to inspire others to do so as well. As a Liberal Studies student, I learn how to self reflect and evaluate my own social identity, as well as others around me. We are taught how to analyze historical and contemporary perspectives of socialization practices and societal institutions to critically examine how much we have grown and how we can strive for more positive social change. In many Liberal Studies courses, we are taught educational practices and perspectives of other cultures to better understand how to teach them as well as apply those concepts and theories of diversity and multiculturalism to our own pedagogy. Through this experience and knowledge from the following classes, we fulfill out MLO 2: Diversity and Multicultural Scholar. We are required to take LS 398: Social Foundations of Multicultural Education, LS 394: Multicultural Literature for Children and Young Adults, and LS 233: Arts in Schools and Community.

Taking our general education classes as well as the required Content Area one and two courses help fulfill our MLO 5: Subject Matter Generalist. These classes help up prepare for our California Basic Educational Skills Test and the California Subject Examinations for Teachers exams that we must complete before our credentialing courses. These exams test our knowledge

of basic subject matter and skills that we would need to know to teach elementary school children. The subject matters that we are tested on are Reading/History, Science/Math, and Human Development/Physical Education/Visual and Performing Arts. The courses at CSUMB that help us prepare for these exams are as follows: GS 214: Global History I: Ancient Times to 1500, SBS 252: Wrl/Reg/Geo/Cul/Soc/Sp, HCOM 251: Introduction to US History, SBS 385: Environmental History of California, LING 392: Nature of Language & Language Acquisition, PHYS 121/L: Integrated Physical Science, BIO 204: Introduction to Life Science, GEO 210: Introduction to Earth Science, MATH 308 and MATH 309: Elementary Math, HDEV 260: Introduction to Child Development, LS 233: Arts in the School and Community, and KIN 374L: Physical Ed for Elementary School Children. In these courses, we are not only given the knowledge needed to pass the exams, but we also are taught how to teach these concepts to our students as well.

There is one major learning outcome that I feel may be overlooked in many of my classes and that is MLO 3: Innovative Technology Practitioner. We are taught how to use the Library Research database to help us with our research as well as Google apps to help collaborate with others in group projects and assignments. We are also urged to look on iLearn daily for new and upcoming assignments as well as changes made to syllabi, but unfortunately, there is more to the Major Learning Outcome than just understanding how to use the internet and the tools that we must use to succeed in our studies at the CSUMB. There is also a component of MLO 3: Innovative Technology Practitioner suggesting that Liberal Studies students be prepared for teaching with innovative technologies for effective instruction. There is not a course offered at CSUMB that fulfills this part of the Major Learning Outcome. There are classes that may have this as a component, but it is not the purpose for the course.



In my reexamination of my experiences at CSUMB and the five MLOs, I am proud of what I have learned and accomplished. Through over one hundred hours of field work experience, engaging courses and educational content, intimate class sizes, and fantastic instructors and Liberal Studies staff, I believe the CSUMB has given me a strong foundation for my future career as an elementary school teacher. My service learning opportunities in a variety of different schools and grades, have supplied me with references, mentors, and lasting friendships. I now know what to look for in the future when applying to school districts around the area as well as what grades are best for my pedagogy. I have also learned about the importance of a strong relationship between the elementary school and its surrounding community. Through this, I know that it is important to not only seek to improve the academics of students in my classroom, but also the good of the community as a whole. Being a resource to students and an inspiration to seek positive social change in the community, are really what being an educator is all about. As an incoming freshmen, I had the expectations that CSUMB would provide me with the tools, resources, and knowledge to become a teacher. I had no idea that it would give me so much more.

# Benefits of Implementing Outdoor Education Curriculum for Elementary Schools Students with Nature Deficit Disorder

Madison Allen

2016

Senior Capstone

Advisor: Dr. Paoze Thao

### Abstract

The benefits of implementing outdoor education curriculum and outdoor learning into the state standards are plentiful, and the consequences of children who do not get the exposure to outdoor learning and activity can be severe. Nature deficit disorder is a term coined by Louv (2008) in his book *Last child in the woods* describing a child with little to no contact to nature and the outside world around them. Louv (2008) made connections to behavioral and developmental disorders that may have to do with the lack of outdoor exposure in the child's life. There are countless advantages to implementing outdoor education curriculum in the schools. This capstone examines these advantages through the use of literature review and interviews with professionals who are also advocates for outdoor education curriculum.

## Introduction

One of my favorite pastimes was playing outside with my neighbors in the cul de sac that we lived in. We would spend hours from dawn to dusk at the park by the river, climbing neighborhood trees, and making our clothes so dirty that re-wearing them that week wasn't an option. These are the moments that I lived for and what I would look forward to every night before I went to sleep. For my generation, and many generations before me, childhood memories like these is something that we all have in common; whether it be camping with the family, playing in the yard with neighbors, riding your bike around town, or just sitting and looking at plants and playing in the dirt. In general, our worst childhood fear was the call for dinner that brought us inside after a day of outdoor play. Louv (2008) author of *Last child in the woods* and *The nature principle* says that "When people share these stories, their cultural, political, and religious walls come tumbling down" (pg. 36). These stories are something that we all have in common with each other no matter what our beliefs or morals are.

One of the major themes that I found most related to this project is how much Nature Deficit Disorder will affect the future wellbeing of the earth if we do not change the way things are now. Based on the way things are going now, many environmentalists predict that there might not be anyone who cares about the wellbeing of our planet in the future. There probably will not be as many children interested in becoming the environmentalists as we have today. Let's look at history to try and predict our future.

Before cell phones, Wikipedia, and YouTube, students in elementary school classrooms learned a bit differently. Instead of a teacher showing his/her students a video on seed

reproduction, they might have gone outside to sow seeds in a garden and personally watched them grow. They went out and had more hands on experience in what they were learning, making them more connected and fascinated in the subject. Nowadays, there are less and less modules where teachers do this. Even over a decade ago, there were major changes that occurred in the classroom. Cornell (1994) an environmental integration advocate wrote in his book *Sharing nature with children* an account he had with a teacher in Maryland of 35 years, “Having a classroom in the 70’s was much different than having one now. Bigger is better, faster is better, and teaching is not what it used to be. Kids would rather learn from the computer than experiencing it firsthand.” (pg. 68) Children do not get excited about planting seeds; however when the teacher mentions a movie, they are much more involved. Just a decade ago, kids had played outside and were involved in the outdoors because video games and the internet did not exist.

Throughout my research and conducting my data, I have been working to seek the answer to a series of questions about the benefits of implementing outdoor education curriculum into elementary school classrooms and how this can help Nature Deficit Disorder. The primary question I propose to answer in my research is: How does implementing outdoor education curriculum benefit elementary school children with Nature Deficit Disorder? Related questions are: Why is it important for elementary schools to implement outdoor education curriculum according to school teachers? Are there any schools in the Tri-county area that currently implement outdoor education curriculum for elementary school students? If there are, what does the curriculum entail? And how do they implement it? What are the advantages and disadvantages of implementing outdoor education for elementary school children? How does it benefit those school children with Nature Deficit Disorder, in particular? What happens if

elementary school students lack the exposure to outdoor education curriculum? What are ways in which schools can encourage more outdoor learning in it's curriculum to help elementary school children with nature deficit disorder?

I will be touching base with each of these questions within the Discussion section of my project, but first I wanted to synthesize and convey what I found in my research. My motivation behind this project was to find the benefits of implementing outdoor education curriculum in elementary school classrooms. On a deeper level, I also wanted to research the realities and consequences of children not getting enough exposure to the outdoors or who have already been subjected to Nature Deficit Disorder. So many of these authors, writers, researchers, and outdoor enthusiasts wanted the same answers as I do, so I was able to get a lot of good studies and information from them to better answer my primary and secondary research questions.

## **Literature Review**

I spent my semester researching the benefits of adding more Outdoor Education Curriculum in elementary school classrooms and searching for a cure to Nature Deficit Disorder through a variety of different internet sources and published novels. The authors and researchers perspectives all thrive from similar beginnings; that is to make our earth and our society, a better place. Involving outdoor curriculum, activities, and lessons in school helps children become more interested and passionate about what they are learning in school. From my fifteen sources, I was able to synthesize and group the information from these sources into six different categories that helped answer my primary and secondary research questions.

***How Outdoor Education Curriculum Breeds Comprehension in the Classroom.*** For Ferreira et al (2012), pointed out that one of the most important things that they believe a student

should possess is the ability to understand content, critically think, and analyze what they learn. They have conducted research that found a direct correlation between environmental education and student outcomes, including achievement, motivation to learn, and literacy in elementary school classrooms. The same study also examines the impact of environmental education programs on student achievement in math, reading, and writing, their colleagues and themselves found that schools using environmental education programs performed better on standardized tests than did those using traditional curriculum.

In Louv's (2008) book, *Last Child in the Woods*, he goes through numerous amounts of studies conducted around the globe that directly support the idea that environmental and outdoor education can improve student's learning with common core concepts. Schools like Taylor County High School in Florida teach math, science, language arts, biology, chemistry, and the economics of the county by using the nearby Econfina River. In San Bernardino, California, the students at Kimbark Elementary School study botany and investigate microscopic organisms and aquatic insects in an on-campus pond and vegetable garden. Louv (2008) introduces teachers like Richard Sobel in his book, who describe place-based education as a focus on "learning directly within the local community of a student" (p. 207) and did an independent review of these particular schools mentioned above, including one by the National Environmental Education and Training Foundation. He found that when it comes to reading, writing, comprehension, and problem solving skills, "the Holy Grail of educational reform, place-based or environment-based education, should be considered one of the knights in shining armor" (p. 208).

***Impact of Technology on Nature Deficit Disorder.*** Since the start of the electronic age, many elementary schools' children in California, and the rest of the world, have suffered from Nature Deficit Disorder. Without environmental integration in schools, children will lose touch

with nature which will affect their development and the future well-being of our planet. Children become obsessed with electronic devices and social media networks that draw their attention away from things that we found so important when we were young and that we work hard to preserve today. Louv (2008 and 2012), an environmental enthusiast and inspirational speaker/writer, coined the term Nature Deficit Disorder and has written two books and many articles about the subject.

But is Nature Deficit Disorder really technology's fault? Bookchin (1993) presented a very interesting perspective on "What is Social Ecology?" and has a thought-provoking opinion on the matter. In the reading, Bookchin (1993) conveys that Environmental Crisis not only has to do with Ecological problems but also with Social problems. The perfect saying for this is the "grow or die" (p. 45) idea that encompasses the fact that "impersonal, self-operating mechanism, we will falsely tend to blame technology as such or population growth as such for environmental problems"(p. 46). This is something that our generation constantly does. Many people believe that technology is the reason for the lack of interest in our natural environment. Bookchin (1993) conveys that technology doesn't have as much to do with Nature Deficit Disorder as we think, but it is the newer generation that just decides to stay inside. An opinion of his that really stood out to me was the idea that we tend to always focus on the symptoms of a grim social "pathology" rather than the "pathology" itself (p. 49). Maybe our focus should not be on the early generation using too much technology, but how we can get them to be interested in the outdoors and help the environmental issues going on today. The questions we should ask ourselves are, What kind of programs and lessons should we involve our kids in to help them become more fascinated and inspired by the outdoors?



Torsney (2014) writer of *The Value of an Outdoor Education Experience*, “I would argue that we do not need to offer high-tech classrooms, online opportunities, and updated residence halls. I’m more convinced that if the residents of those halls spent some quality time outside experiencing nature and looking inside themselves, they might learn far more than they could from an umpteenth viewing of *Die Hard III* or *Legally Blonde*” (internet source). Louv (2012), wrote his book *The Nature Principle* to inspire educators and parents to try and get their children/students to reconnect with life and nature in a virtual age. He explains that the more high-tech our lives become, the more nature we need to achieve a natural balance. The mind/body/nature connection, enhance our physical and mental health and by utilizing both technology and nature experience will increase our intelligence, creative thinking, and productivity. He explains that this will give us a “hybrid mind” (p. 55).

***Outdoor Education Curriculum in Relation to Governmental Laws.*** There is also a lot of Outdoor/Environmental integration in our public institution and legal documents regarding California state’s laws and rights for it’s citizens. I reviewed Article 9 (on Education) in the California State Constitution and I am pleased to say that Section 1 fits my project completely. “A general diffusion of knowledge and intelligence being essential to the preservation of the rights and liberties of the people, the Legislature shall encourage by all suitable means the promotion of intellectual, scientific, moral, and agricultural improvement.” It is important to notice the words “moral” and agricultural improvement” in the quotation. In relation to my project, children who are involved with the environment will be more likely to try and save, or “improve” it, as they grow and become adults. This is not only an environmental issue, but also an issue of moral concern.

In 2007, Congressman J. Sarbanes of Maryland and Senator J. Reed of Rhode island introduced legislation related to environmental education known as “ No Child Left Inside,” which was approved in 2008 by the Committee on Education and Labor. In September 2008, the House of Representatives approved the No Child Left Inside Act and the Senate and House versions of the act were introduced in 2009 on Earth Day. This legislation includes funds for teacher professional development and the creation of state environmental literacy plans for outdoor education programs. Ferreira et al (2012) stated “This was an initiative that brought communities together to help offset the lack of educational opportunities related to environmental and outdoor education in some of the most indigent schools” (p. 22). The article goes on to convey to programs that participated on the prerequisites, curriculum development, and predicted results of the program.

*Outdoor Education Curriculum Nurtures Creativity and Imagination.* The trouble is, for the newer generation, nature is more of an abstraction than it is a reality. Charles (2009) indicated that “children are happier, healthier, smarter, less stressed, more cooperative, more self-disciplined, better problem solvers and more creative if they have frequent opportunities of learning in nature based settings in the outdoors as an integral part of their everyday lives. Most of all, nature is reflected in our capacity for wonder” (p. 12).

Louv (2008) puts it as “Nature is a nurturer to creativity.” Louv (2008) introduces Robin Moore, an expert in creating and designing play and learning environments wrote that “natural settings are essential for healthy child development because they stimulate all senses and integrate informal play with formal learning” (p. 44). Multi-sensory experiences in nature help to build the cognitive constructs necessary for sustained intellectual development and stimulate imagination by supplying the child with the free space and materials for what he calls the

children's "architecture and artifacts" (p. 45). Louv (2008) also describes studies done in Sweden, Australia, Canada, and the United States prove that children who play in a greener area compared to a manufactured area say that their engagement in creative forms of play are higher in the green area. Louv interviewed an educator from Australia and she described children's "willingness to learn and succeed was astronomical compared to the other. The sublime and beautiful nature around us offers something that the street, gated community, or computer game cannot." Children have such creative minds that exposing them to the beauty of nature will lead them to a path to restore it.

*Outdoor Education Curriculum Breeds Love of Our "Home" and Community.* In *The Ecology of Home*, Koop (2002) was passionate about the same thing. As a new gardener, she started off as just wanting to enhance and build her garden. Admiring plants from around the Bay Area, Koop (2002) found that her garden had certain hollowness to it and felt that she could never duplicate the natural feeling of the outside world in her backyard. She compared her garden to the natural ecological system that existed in the parks and state reserves around her. Koop (2002) described her love for her natural environment feeling "apart of the larger ecological system that encompassed the Manzanita, for it was the same system that encompassed me" (p. #). Koop explains that the word 'ecology' is Greek for 'home.'

From the published work of Dickinson et al (2000), state how outdoor education curriculum in schools can help build a sense of overall community and care for others. "The outdoors is also a powerful medium for exploring the nature of community. When on a sail training boat, or a mountain expedition we are also engaged in constructing intricate and intense social relationships" (p. 34). They go on to convey that the goal of outdoor education programs is to help participants learn more about being part of a group, which includes establishing these

relationships between other individuals. That challenging children to a wilderness journey can potentially develop an outstanding friendship because there is a common understanding between all involved that it was a group effort and one could not have done it without the other. In an interview with Quay and Denise Mitten an experiential education theorist and researcher, Dickinson (2000) had this to say: "On outdoor trips I have observed that many people attempt to make connections quickly. For example, two people who do not know each other before an outdoor trip can seem like fast friends by dinner the first night" (p. 55). Many of their interviews with other professionals provide personal stories and experimental evidence that children, and adults, have greater bonds with those that they met in the outdoors that they could in the classroom.

*Behavioral and Mental Disorders in Relation to Nature Deficit Disorder.* But why else integrate environmental studies and lessons into school's curriculum? Why waste time, money, and resources when we can teach them in the classrooms? Studies have shown that the health of students being absent from nature has also been dramatically reduced. Studies suggest that nature may be useful as a therapy for Attention Deficit Hyperactive Disorder (ADHD). Nearly 8 million children in the United States suffer from mental disorders and ADHD is one of the more prevalent ones. Louv (2008) recommends that parents and educators make more natural resources available for children with ADHD. In April 2004, Children's Hospital and Regional Medical Center in Seattle has demonstrated that each hour of TV watched per day by a preschool student increases by 10 percent the likelihood that they will develop concentration problems and other symptoms of attention-deficit disorders by age seven.

In 1998, a study done by Carnegie Mellon University found that people who spend even a few hours on the Internet each week suffer higher levels of depression and loneliness.

Psychologists and psychiatrists now treat Internet Addiction, or IA, as they call it. Nancy Dess a senior scientist with the American Psychological Association agrees with this study. “None of the new communication technologies involve human touch; they all tend to place us one step removed from direct experience.” Without touch infants die, and adult with touch deficits primarily resulting from lack of human to human communication, become more aggressive. In a world full of exploration, we need social interactions with nature to keep it and us alive.

Through my research, Outdoor Education Curriculum in Elementary Schools has been linked to improving student’s comprehension and understanding in the classroom, nurtures creativity in their everyday lives, turns students into lifelong learners, and may even help those with behavioral, mental, and emotional disorders and disabilities. Other research I found conveys studies regarding technology in the classroom and how technology takes prevalence before outdoor experiences in instruction as well as the direct correlation between outdoor education curriculum in the classroom and our rights as California citizens and public education system. Many of my sources comment on the effects of Nature Deficit Disorder as well as their thoughts on prevention and a cure.

## **Method and Procedures**

I knew that in order to get a good idea of what the professionals in the Tri County Area thought about Outdoor Education Curriculum in elementary schools, I had to get data from the perspectives of teachers, professors, and psychologists in the area. I decided to make these three professions the targeted population in my data collection and personal research. I knew that I wanted to get their personal stories, experiences, and input on the issues of Nature Deficit Disorder in modern day children and the opinions on the benefits of Outdoor Education

Curriculum in the elementary school setting. I wanted to retrieve this data personally so that I would not only get their opinions, but also understand the emotion behind them. The best way to get this data from these individuals is to conduct personal interviews with each of them and synthesize their answers. I gave myself a goal of contacting the professors, elementary school educators, and psychologists that I wanted to interview by October 1, 2016 and finishing the interviews by October 30, 2016. Now, it was time to make up the questions that I wanted to ask each set of professionals. I first came up with the interview questions that I wanted to ask based on my primary and secondary questions in my project prospectus. I knew that if I used my primary and secondary questions as a model for my interview questions, I would better be able to stay on track with the information that I wanted to gather from my interviewees.

Each set of questions is different depending on what individuals I would be interviewing, because I wanted to make sure that I catered the questions to match their specific expertise. The majority of the questions that had to do with the wellbeing of the students and the curriculum to best instruct young students were for the elementary school educators in the area (See Appendix A). The questions have to do with how to train teachers on adding more outdoor education curriculum in their pedagogy and classrooms went to the CSUMB professors that I interviewed (See Appendix B). Lastly, the questions centered around Nature Deficit Disorder itself and the causes and treatments behind it were directed towards local psychologists in the area (See Appendix C). Luckily, all of these questions were great gateway questions to good flowing conversations that I had with each of my interviewees. I was able to ask clarification questions to their answers so that I could get an even better idea of what their perspectives are. As well as get the personal touch of what each person thought about the topic.

## **Results, Findings, and Discussion**

In this section, I will be answering my secondary research questions from the results of my interviews and the findings from my research. I will be elaborating on the information from my sources that I found most relevant. I will also be including quotations and opinions of teachers and professors in the area that I interviewed. Lastly, I will be discussing my opinions and perspectives on outdoor education curriculum in the classroom and it's effects of students who have Nature Deficit Disorder. These answers will then lead me to answer my primary research question, that goes into the benefits of outdoor education curriculum for elementary school students with Nature Deficit Disorder.

*Why is it important for elementary schools to implement outdoor education curriculum according to school teachers/CSUMB professors?* I first interviewed Dr. Scott Waltz, a Liberal Studies instructor at CSUMB who, every year, instructs and mentors over one hundred students to become public school educators. He spent his time in college as an interpretive naturalist, or an outdoor educator, as well as working on an onsite camp as a naturalist in a naturalist program. Most of Dr. Waltz's classes at CSUMB have to do with getting Liberal Studies students ready to become public school teachers. When I asked him what outdoor education curriculum meant to him as a professor of future public school teachers, he responded:

Outdoor education offers the opportunity to question the assumptions of the classroom and get down to the fundamentals of being a human being. Which is being immersed in a world that provokes your curiosity and your interests and guiding that experience. Outdoor education does that so well (S. Waltz, Personal Communication, 12 October 2016).

When I asked his perspective on why it is important to implement outdoor education curriculum in elementary school classrooms he not only talked about the wellbeing of the student, but also the wellbeing of the planet. " In the Social Foundation class that I teach at CSUMB we ask ourselves, 'What is the most important thing for school to do?' We live on a planet that we are

slowly destroying, maybe the best and the smartest thing that we should be doing is instilling the values that underlie an awareness of the environment and a stewardship of the environment” (S. Waltz, Personal Communication, 12 October 2016).

I also had the opportunity to interview Laura Lee Link the director of the Watershed Institute and Return of the Natives Restoration Education Project which is a community based environmental education program locally in Monterey County. Return of the Natives has provided thousands of students in the local area with outdoor education and partnered with school districts in the area to educate fifth graders on local watershed and native plant life.

For students, their own general health, they need to be active and moving and stimulated in ways that they wouldn't be able to get behind a screen or in a classroom. Students need to be in nature for stimulation and as well as for clean air and being in a more healthy place. The more that children are outdoors, the more enthused they will be about learning. (L. Lee, Personal Communication, 21 October 2016)

Laura Lee also said some insightful things about outdoor education curriculum and how it can contribute to the future of our society.

It gives students real things to write about and to study. It gives students the opportunity to see life in action and learn from real life situations. Context for learning. For society as a whole, the more healthy and engaged learners the world has, the more children will want to stay in school and enthused about learning in general. Therefore they will not be causing other issues for society. Because they value the environment. It is hard for a teacher to have thirty children discovering at the same time. (S. Waltz, Personal Communication, 12 October 2016)

Ferreira et al (2012) also conducted a study involving the comprehension of science topics for teachers. That's right, teachers, not students. There was a dramatic difference in the teacher's comprehension that learned science topics through outdoor experiential learning than in the classroom. In these interviews with the teachers after the workshop some had this to say, “I



learned a lot about energy I did not know before” (p. 35) and “I feel stronger and more confident in presenting and demonstrating science to my students in a more constructive and fun way” (p. 35). Another teacher commented, “These workshops filled a hole in the amount of information I had. I feel a lot more comfortable and prepared when working with the students” (p. 34). Ferreira et al (2012) know that the “schoolyard is an extension of the classroom” and if they can have these types of result with teachers, then they must be able to have the same results with elementary school students.

*Are there any schools in the Tri-county area that currently implement outdoor education curriculum for elementary school students? If there are, what does the curriculum entail? And how do they implement it?* Two years ago, I had the opportunity to work for Return of the Natives as a part of their Nature Detectives program. (Laura Lee Link is the director and creator of this program at the Watershed Institute). In the fall of 2013, I wrote about these experiences and encounters in a paper for my SBS 385: Environmental History of California class.

A few weeks ago, some of the Nature Detective employees including myself were waiting for the school bus of third graders to arrive at the Fort Ord State Park. We had already set up some activities and planned to take them on a tour of the park. When getting off the bus, their excitement and enthusiasm was hard to calm down. I loved seeing how intrigued they were about nature. As we went on our hiking tour through the park, we stopped at booths led by naturalists that talked about the local plants, animals, bugs, birds, and the Concept of Watershed. I cannot express the silence that occurred when we saw a red tailed hawk, the bellowing laughs the students had when we told them the similarities between them and a badger, or the smiles that spread across their faces when they got to hold a four foot snake around their necks. These lessons learned are things that they will remember for years, if not their whole lives. That is not something that can be experienced in a classroom or even the fifteen short minutes they get on the playground for recess. I remember asking one of the smallest girls in my group about her time she spent in the park. She replied, ‘I did not even know this place was here. This is the first time we have been some place like this ever. Today was so much fun; I cannot wait to write this in our nature journals you gave us.’ Hearing this made me very pleased, but also depressed. With a beautiful park just fifteen minutes away from their school, why haven’t they been on more trips like this? Their engagement in every activity was so intense and their brains acted like sponges absorbing every word each nature instructor

had to say. Teachers complain about the lack of attentiveness in classrooms; maybe children need more hands-on experience for their developmental learning. I believe that getting them outdoor activities will make them more focused, absorbed, and inspired.

Reading this from two years ago reminds me of why I want to advocate for my outdoor and environmental integration into the classroom. Children need these lessons to gain the perspective and the knowledge that they should have in the classroom. There are so many programs like Return of the Natives in the Tri-County area that teachers can take more of an advantage of.

There were several teachers that I interviewed in the Tri-County Area and one of the teachers discussed the kind of outdoor education curriculum that she implements in her classroom almost daily.

We have created two outdoor learning areas in the forest around our school. The outdoor classroom has little benches, a pine forest canopy. I have collected things over the years like blankets and pillows that can be used outside and we lay down and we look up to the trees. We start with this during the first part of the year so that students can recognize the environment surrounding them. It also gets them to point out things in nature that they don't see indoors. We will also bring our sustained silent reading outdoors because sometimes the classroom gets so crowded and children should not be in one place for too long. The other outdoor classroom is used for science and social studies. It is called Pixie Path. It is a Social Interaction project because they have to find ways to get along in groups of two or three. This is some of their first exposure to group work. Whatever they build is part of the community for the pixie village. Some students will be in charge of creating a recreation center for the pixies and others will be in charge of making a restaurant. They add all of these touches by themselves. I do not interact with them the entire project. The next morning the pixie path is destroyed because we have animals and insects in the forest that have interacted with the Pixie Path. We talk about what animals might have interacted with their Pixie Village. These are ways in which I bring some common core standards outdoors for the children to learn. If we are studying about animals or the life cycle, I will take them outside to talk about the local animals in the area. (Teacher at Forest Grove Elementary School, Personal Communication, 27 October 2016).

When visiting her classroom I was very impressed by all the hard work and dedication that she showed her students. It was inspiring and made me want to revisit her classroom one day for more lesson plans and hands-on activities for my future classroom.

*What are the disadvantages of implementing outdoor education for elementary school children according to educators in the area?* Since Laura Lee has interacted with many educators in the Tri-county area, I was interested on her input on what she thought the disadvantages are to outdoor education curriculum for elementary school students and for the teachers.

For children it is a great place to learn. However, for classroom teachers, it can be scary. Children are harder to control in the outdoors because they are making discoveries that might make them more excited. A lot of current teachers are locked in the classroom with the descendants of No Child Left Behind and there is a lot of pressure for students to keep up with the standards. Many of them may not know how to incorporate outdoor curriculum in with the mainstream curriculum. Being outdoors is also messy and many teachers are put off by the dirt and bugs. (L. Lee, Personal Communication, 21 October 2016)

When I asked Dr Waltz about disadvantages of implementing Outdoor Education Curriculum in elementary schools his answers were that this type of instruction takes up a lot of time, money, and transportation.

The school must get a bus for all the students which can take more money and time out of the school and teachers. You have to set up a time for the bus to arrive, file all the students into the bus, and set up a time for the bus to come pick everyone back up again. This costs a lot more money than a lot would think. (S. Waltz, Personal Communication, 12 October 2016)

*How does outdoor education curriculum in elementary schools benefit those school children with Nature Deficit Disorder, in particular and what happens if elementary school students lack the exposure to outdoor education curriculum?* A huge symptom of Nature Deficit

Disorder is the lack of attention that a child exhibits inside and outside the classroom. Nearly eight million children in the U.S suffer from mental disorders, and ADHD is one of the more prevalent ones. The disorder often develops before age seven, and is usually diagnosed between the ages of eight and ten. Children with the syndrome are restless and have trouble paying attention, listening, following directions, and focusing on tasks. They may also be aggressive, even antisocial, and may suffer from academic failure. Much of the uninformed public tends to believe that poor parenting and other social factors contribute to the immature behavior associated with ADHD, but ADHD is not considered by many researchers to be an organic disorder associated with differences in the brain morphology of the children.

In April of 2004 Children's Hospital and Regional Medical Center in Seattle maintains that each hour of TV watched per day by preschoolers increases by ten percent the likelihood that they will develop concentration problems and other symptoms of attention-deficit disorders by age seven. In his book *Last Child in the Woods*, Louv (2008) interviewed and studied a couple that may have found a cure for ADHD. Stephan and Rachel Kaplan conducted a series of interviews, experiments, and studies regarding children with ADHD and ADD and their exposure to the environment. The Kaplans coined a term called "directed-attention fatigue," which is when a child exhibits too much directed attention onto something (a subject matter or activity) that they are not interested in. This "fatigue" is what ADHD looks like and this is when the child starts to have trouble paying attention and following directions. The Kaplans found that, "If you can find an environment where the attention is automatic, you allow directed attention to rest. That means an environment that's strong on fascination. That fascination factor associated with nature is restorative and it helps relieve people from directed-attention fatigue." According to the Kaplans, nature can be the most effective source of such restorative relief.

Richard Louv also interviewed a series of parents that have children with ADHD and ADD that were in the same environmental integration experiment. Participants were asked if they had had any experiences, either positive or negative, related to any aftereffects of green settings on their child's attention. One parent said she had recently begun taking her son to the local park for 30 minutes each morning before school because the weather was nice. She then said, "Come to think of it, I have noticed his attitude toward going to school has been better and his school work has been better this past week. I think it's because spending time at the park is pleasurable, peaceful, quiet, and calming." Noticing that their children's ADHD symptoms were calmed by natural settings, they applied more common sense; they were already encouraging their kids to spend more time outdoors, and they felt more affirmed when Louv told them about the studies conducted by the Kaplans.

Scott Walt's experience as a naturalist and outdoor educator really showed him that the students who came to the camp that did not do well in school really thrived when they were in the outdoors. He explained that in the camp they would gather the teachers together before starting the activities with their students to discuss what students the camp naturalists would need to "look out for" or who the so-called "trouble-makers" were. The teachers would always be willing to name the students who they felt gave them a lot of trouble. Dr. Waltz said,

Almost inevitably, those students that were named, were the ones that were getting the most out of the outdoor activities that they planned for the day. Always the ones that were in the front of the hiking line and the first to volunteer. (S. Waltz, Personal Communication, 12 October 2016).

These students were able to prove themselves during outdoor education curriculum lessons to their teachers and peers because they got to participate in something that they were interested in.

I truly believe that the students who have a hard time participating and getting involved in class might just be suffering from “directed-attention fatigue” and need time to do something that they can engage in.

*What are ways in which environmental advocates can encourage more outdoor learning in it's curriculum to help elementary school children with nature deficit disorder?* Laura Lee is an advocate for implementing outdoor education curriculum in the classroom. She helps teachers all over the Tri-County area with environmental lessons and directs them towards programs and resources that can help them incorporate environmental lessons into their classroom.

We live in one of the most wonderful, beautiful areas. Teachers need to take advantage of this. Chances are that if they go to another place, they might not have as rich of an environment. There are also so many different organizations that student teachers can partner with, like the Watershed Institute, that can help implement the outdoor education curriculum that students need to learn and grow. (L. Lee, Personal Communication, 21 October 2016)

I also went into detail and discussed four ways in which educators can implement outdoor education curriculum into their classrooms (See Recommendations section.)

Throughout my Results, Findings, and Discussion section of my Capstone, I was able to touch base and answer every single one of my secondary research questions. I did this through either sources that I read through from my literature review, my interviewers answers and input, and my own opinions and insights on Outdoor Education Curriculum in the Elementary School classroom. Through my experience in Capstone, I have gained a lot of information and perspectives on this topic. I feel more confident than ever that implementing Outdoor Education Curriculum into Elementary School classrooms with not only benefit those with Nature Deficit Disorder, but also children with other disabilities. Even students in the mainstream classroom have something the gain from Outdoor Education Curriculum and the lessons that it includes.

## **Problems and Limitations**

There were some problems and limitations that I came across during the time that I have spent researching and conducting my interviews for my Capstone. The first limitation was the amount of time that we were given to research and conduct the interviews. One semester was not enough time to get all of the information that I needed as well as interview all of the individuals that I wanted to interview. Another problem that I came across was the lack of response from teachers and psychologists in the local area. I reached out to twenty different teachers and only got a response from three of them. I heard no response from any of the psychologists that I reached out to. The third problem was the lack of information and sources that went into the negatives or disadvantages of outdoor education curriculum as well as anyone who disagreed with Richard Louv's Nature Deficit Disorder. The only information that I received about the disadvantages of outdoor education curriculum in elementary school classrooms came from the interviews that I conducted with teachers and professors in the area.

## **Recommendations**

From interviewing professionals and environmental/outdoor enthusiasts in Monterey Bay County, I was able to get a better understanding of the types of resources that are present in the area that teachers can use as well as ways in which teachers can easily implement outdoor education curriculum in small ways everyday. This section also answers one of my secondary research questions: *“What are ways in which environmental advocates can encourage more outdoor learning in it's curriculum to help elementary school children with nature deficit*

*disorder?”* In a way, the answers to this question come in the form of solutions or recommendations.

I have come up with four different recommendations or solutions that teachers can use in their classroom to help those who may already have Nature Deficit Disorder and need more outdoor activity. The first is to seek out trainings and seminars in the local area that give information and lessons to teachers for free. These lessons are available for teachers to use if they attend the seminars and are easy to follow as well as easy to obtain. The second is to seek out programs and resources in the area, like the Watershed Institute or the Monterey Bay Aquarium, that can network and collaborate with your students and school. The third recommendation is to start off implementing outdoor education curriculum into the classroom slowly and building your way up from there. Teachers can start by bringing the students outdoors for their silent reading everyday and then start adding in more outdoor integrated lessons that apply more hands on and experiential learning strategies. The last recommendation is to fall in love with your local area. In order to really know the students in your classroom, you must look at the community that they come from. It is the same thing when discussing adding outdoor education curriculum into the classroom. Once you are familiar with your area, using it to your advantage and for the classroom's benefit will be a less daunting task.

## **Conclusion**

Healing the broken bond between children and nature may seem overwhelming, and even impossible at times. Many children have been sucked into the influence of technology and indoor activities resulting in Nature Deficit Disorder. My primary research question for my Capstone was: *How does implementing outdoor education curriculum benefit elementary school children*



*with Nature Deficit Disorder?* Throughout my research and findings, I have found a vast amount of benefits that come from implementing outdoor education curriculum in elementary school classrooms; Especially for children with Nature Deficit Disorder. Along with accompanying Common Core lessons with substance for children to understand and relate to, outdoor education curriculum also nurtures creativity and the chance for students to critically think about relevant environmental issues. For students with ADHD and ADD, outdoor education curriculum gives them an opportunity to explore nature in a larger environment where they can run, roll around in the grass, and participate in more hands-on activities that being in the classroom cannot provide.

Alone, educators cannot be the only ones to heal the broken bond between children and nature. Parents, city planners, youth nature-program leaders, and environmentalists must all help to lead our world in the direction of environmental integration in schools. Another way of viewing the challenge is using nature as some sort of an antidote. Stress reduction, greater physical health, deeper sense of spirit, more creativity, a sense of play, and even a safer life are the rewards that await a child who invites nature into their life. Citizens of California, and the rest of the world, need to start realizing the importance of environmental integration in school curriculum, because after all, that is where students will spend 60% of their waking hours. These children, who hunger to find a cause worth a lifetime of commitment, could become the architects, designers, and political force that our environmental world has needed.

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Appendix A

**Interview Questions for Teachers in Monterey County**

**The Benefits of Implementing Outdoor Education Curriculum for Elementary School Children with Nature Deficit Disorder**

1. Are there any schools/educators in the Tri-county area (that you know of) that currently implement outdoor education curriculum for elementary school students?
2. If there are, what does the curriculum entail? And how do they implement it?
3. What are the state requirements and standards when it comes to outdoor education and curriculum in elementary school classrooms?
4. According to you, what are the benefits or advantages of implementing outdoor education for elementary school students?
5. Are there any disadvantages of implementing outdoor education for elementary school children? If so, what are they?
6. What are ways in which schools can encourage more outdoor learning in it's curriculum to help elementary school children with nature deficit disorder?

## Appendix B

**Interview Questions for Professors at California State University  
Monterey Bay****The Benefits of Implementing Outdoor Education Curriculum for Elementary  
School Children with Nature Deficit Disorder**

1. What does outdoor education curriculum mean to you as a Professor at CSUMB?
2. According to you, why is it important for elementary schools to implement outdoor education curriculum?
3. What are the advantages and disadvantages of implementing outdoor education curriculum for elementary school children?
4. In your opinion, how does the exposure of Outdoor Education curriculum benefit the development of a child as a whole?
5. What are ways in which Liberal Studies student and Multiple Subject credentialing students can encourage more outdoor learning in their future curriculum?
6. Are you familiar with the term Nature Deficit Disorder? And if you are, what does it mean to you?

## Appendix C

**Interview Questions for Psychologists in the Monterey County Area**

## The Benefits of Implementing Outdoor Education Curriculum for Elementary School Children with Nature Deficit Disorder

1. In your opinion, how does Outdoor Education Curriculum in schools benefit elementary school children cognitively and developmentally?
2. In your opinion, what are the disadvantages of implementing Outdoor Education Curriculum in elementary schools?
3. In your opinion and experience, what are the harms of under exposure to outdoor play for young children and how does it affect them developmentally?
4. If children are under exposed to outdoor play, what are the long term effects of their behavior and development?
5. Are you familiar with the term Nature Deficit Disorder? If you are, what are your thoughts about it?
6. Do you believe that Outdoor Education Curriculum can help children with Nature Deficit Disorder?