LET'S GO OUTSIDE:

THE ROLE OF THE OUTDOORS IN A CHILD'S QUALITY OF LIFE

by

TRES SMALL

(Under the Direction of John F. Crowley)

ABSTRACT

This thesis focuses on the both physical and psychological problems of children who do not get outdoors. The reasons that children do not get outdoors include sitting indoors watching television, playing video games and surfing the Internet. This modern, sedentary lifestyle encourages childhood obesity and poor health. The benefits to resolving these problems include better health, better social skills and a stronger appreciation for the environment. Solutions to the problems are found in both the non-design and design related disciplines. My research, which was inspired by Richard Louv's book *Last Child in the Woods*, addresses the problems, their causes, the benefits of correcting the problems and the solutions for a healthier, more engaged life. This thesis aims to challenge landscape architects field to solve this crisis through better design to get children back outdoors.

INDEX WORDS: biophilia, biophobia, built environment, childhood, childhood obesity, free play, landscape architecture, loose parts, Nature Deficit Disorder, outdoors, play, videophilia

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DEDICATION

This thesis is dedicated to Hannah Moon and Clara Looper, the inspirations for my thesis.

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CHAPTER 1

INTRODUCTION

Prologue

Within the past three years I have become the mother of two children and with this I have gained a better understanding and appreciation for the importance of the time children spend outdoors. Our two toddler-aged daughters ask me often if they have been "nice enough today" to watch a movie. It fascinates me as I neither watch a lot of television nor do I consider myself Internet savvy. In response, I try to make every effort to spend more time with my children outdoors and make it more attractive to them. Today children are not drawn to the outdoors and are not interested in going outdoors, but rather want to be inside watching television, surfing the Internet and paying video games. The most rewarding time spent outdoors is when there is no planned activity, no formal structure in the surrounding built environment and simply enjoy free play. Richard Louv's Last Child in the Woods impressed me, especially at this time in my life. Louv addresses the importance of time spent outdoors. The combination of motherhood and Louv's book were the inspiration and base for this thesis.

Thesis Statement

Landscape architecture as a profession is responsible for creating outdoor spaces that can draw children back outdoors. The current design trend to formalize a play space and fill it with stationary objects may actually be adding to the problems that have arisen and should be reversed in order to reconnect children with nature. The damages are visible in individuals, families and communities. Various elements: society-at-large, politics, technology, media pressure and familial changes keep children inside and do not give them the freedom to go outside. Time in nature and time in the outdoors give children a sense of freedom, which is critical to their development. Benefits include healthier lifestyles, reduction in stress and anxiety, and a new generation of environmental stewards of the earth. For proper physical and psychological growth children should spend regular, unstructured time outside. This thesis aims to answer the question of how the design field can play a role in reconnecting children with nature.

<u>Methodology</u>

This thesis explores ways in which landscape architects can make the outdoors more attractive to get children back outdoors to reconnect with nature. In today's modern world children are not spending enough time outside and as a result they struggle with both physical and psychological problems. The methodology used to present and address the problems with poor design and design recommendations are as follows:

- A literature review of the problems for children who do not spend time outdoors.
- A literature review of reasons behind the problems and limits created by poor design.
- 3. Benefits resulting from better design principles. Louv states "In nature a child finds freedom, fantasy, and privacy: a place distant from the adult world, a separate peace" (Louv 7).
- 4. Steps to take towards good design.
- 5. Overview of non-design solutions.
- Recommendation of principles for landscape architects to incorporate in design approach.

Not only is it important for a child's health to spend time outdoors, but also it is important for their psychological well-being. Through good design children are drawn outdoors and this thesis aims to find ways that landscape architects through design can work towards making the outdoors attractive for children.

CHAPTER 2

PROBLEMS WITH CHILDREN NOT SPENDING ENOUGH TIME OUTDOORS

There is a growing body of evidence that supports the hypothesis that the major increase in children's mental and physical health problems is the lack of meaningful connection to the outdoors. Children are experiencing both physical and psychological problems. Children are getting fat, losing their sight, acting violent, and being reclusive and non-social. The sudden surge in obesity, and increase in maladies such as myopia and loss of sight are directly correlated to the decrease in time children spend out-of-doors. Many of the maladies have been until now considered to be only adult problems. This chapter catalogues separately the physical and psychological problems children experience.

Physical Problems

There is an alarming increase in obesity that is affecting both children and adults. However, truly alarming is the emerging research on childhood obesity. Research indicates that 16 percent of U.S. children could be considered obese (Hedley). Obese children suffer physically, emotionally, and cost the country an enormous amount of money. Data from a 2004 study of children age 17 years and under show the high cost of treatment for obese children (Chang 2005). Many studies of obesity in children focus on the disparities between children with

private health insurance and children covered by public health and Medicare. Thomson Medstat, a healthcare business consultant firm that provides market intelligence, databases and software applications for healthcare decision makers, performed a study in 2004 on the cost of childhood obesity to the healthcare industry. The study separates uninsured and insured children. The Thomson Medstat study found that children treated for obesity cost the health system three times more than the average insured child. Annual healthcare costs for children treated for obesity are about \$6,700 per child for children covered by Medicare versus \$3,700 for children with private insurance (Chang 2005).

Total healthcare spending for children who receive a diagnosis of obesity (a small subset of the 16 percent of U.S. children who are considered obese) is approximately \$280 million per year for those with private insurance and \$470 million for those with Medicaid for a total of \$750 million. If the cost differential between obese and non-obese children is half of what we observe for these children who are diagnosed with obesity, then the national costs for obese children, including those who never get a diagnosis for obesity, are approximately \$11 billion for private insurance and \$3 billion for those with Medicaid (Chang 2005).

Table 2.1 from the National Center for Health Statistics shows the results of a study done by the Centers for Disease Control (CDC) from 1963 to 2002 for two age groups; six to eleven years of age and twelve to nineteen years of age.



Table 2.1: Prevalence of Overweight Among Children and Teenagers Source: National Center for Health Statistics

Table 2.2 shows results from a 2003-2004 National Health and Nutrition Examination Survey (NHANES), in which measured heights and weights were used indicating that an estimated 17 percent of children and adolescents ages 2-19 years are overweight. The table shows that the number of overweight children increased from 7.2% to 13.9% among 2-5 year olds and from 11 to 19% among 6-11 year olds between 1988-94 and 2003-2004. Among adolescents aged 12-19, overweight increased from 11 to 17% during the same period.



Table 2.2: Trends in Child and Adolescent Overweight Source: National Center for Health Statistics The Surgeon General claims that there is a continued rise of obesity in America. In the past three decades the number of overweight children has more than tripled. Nearly 34 percent of children and teens in America are either overweight or at risk of becoming overweight. An overweight adolescent has a 70 percent chance of becoming an obese adult (Surgeon General).

Active Living Research program is a national program of the Robert Wood Johnson Foundation, which contributes to the prevention of childhood obesity by supporting research to examine how environments and policies influence active living for children and their families. Obese children are more at risk for adult diseases, including diabetes, increased blood pressure, high cholesterol, asthma, and abnormal heart rate (Active Living Research). Research conducted by the Active Living Research program shows significant facts of obese children, including high costs, long-term physical ailments and problems in social learning. One-third, nearly 25 million young people, American children and adolescents, are overweight or obese. During the past four decades the obesity rate for children ages 6 to 11 has jumped fivefold and has more than tripled for adolescents ages 12 to 19. Active Living Research Program research estimates that the costs of physical inactivity in the United States are about \$37.2 billion per year. The annual cost of obesity in the United States is estimated at \$117 billion in direct medical expenses and indirect costs, including lost productivity, which is about the same as the annual cost of the Iraqi/Afghanistan conflicts (Glanz 2009).

Dr. David Ludwig, director of the Optimal Weight for Life Program at the

Children's Hospital Boston, compiled information on the complications of

childhood obesity. The complications listed in Table 2.3 illustrate the broad

Table 2.3: Complications of Childhood Obesity Source: New England Journal of Medicine

Psychosocial	Poor self-esteem Anxiety Depression Eating disorders Social isolation Lower educational attainment
Neurologic	Pseudotumor cerebri
Endocrine	Insulin resistance Type 2 diabetes Precocious puberty Polycystic ovaries (girls) Hypogonadism (boys)
Cardiovascular	Dyslipidemia Hypertension Coagulopathy Chronic inflammation Endothelial dysfunction
Pulmonary	Sleep apnea Asthma Exercise intolerance
Gastrointestinal	Gastroesophageal reflux Steatohepatitis Gallstones Constipation
Renal	Glomerulosclerosis
Musculoskeletal	Slipped capital femoral epiphysis Blount's disease* Forearm fracture Back pain Flat feet

A researchers report in the December issue of "Archives of Ophthalmology" shows that nearsightedness in children is on the rise in the United States.

Eyesight research information from a 1971-72 study of 4,400 people showed 25% of all the examinees, including adults, were deemed nearsighted, compared with a 1999-2004 study of 8,300 people, which showed 44% of those examined to be nearsighted. The comparison showed an increase of 66% over nearly three decades (Seppa).

Table 2.4: Nearsightedness rising in the U.S. Source: Science News



Dr. Don Mutti of Ohio State University has followed a group for the past twenty years in an attempt to solve the mystery of the cause of myopia, nearsightedness. Although the causes for the increase in myopia, nearsightedness, remain a mystery the evidence shows that there is also an increase in its occurrence in children. This increase, specifically in children, is attributed to various factors, which will be addressed in the following chapter.

Psychological Problems

The American Psychiatric Association gathered data from 1998-2002 in a study to estimate the prevalent use of prescription antidepressants among children and adolescent (Delate 387). The study was divided into four age categories ranging from birth to eighteen years of age (Delate 388).

Table 2.5: Prevalence of use of antidepressants in children and adolescents Source: Psychiatric Services

Prevalence of use of antidepressants in a national random sample of commercially insured children											
and adolescents stratified by age and gender											
Antidepressant users*											
	1998		1999		2000		2001		2002		
Age and gender	%	SE	Absolute % change								
Overall sample	1.59	0.02	1.81	0.02	1.86	0.02	2.05	0.02	2.37	0.02	0.78
All girls in the sample	1.45	0.03	1.66	0.03	1.83	0.03	2.09	0.03	2.44	0.04	0.99
All boys in the sample	1.73	0.03	1.95	0.03	1.9	0.03	2.02	0.03	2.31	0.03	0.58
Birth to five years of age											
Girls	0.08	0.01	0.12	0.02	0.12	0.02	0.16	0.02	0.16	0.02	0.08
Boys	0.14	0.02	0.13	0.02	0.14	0.02	0.19	0.02	0.23	0.02	0.09
Aged six to ten years											
Girls	0.57	0.03	0.64	0.04	0.72	0.04	0.7	0.04	0.84	0.04	0.27
Boys	1.21	0.05	1.39	0.05	1.18	0.05	1.33	0.05	1.6	0.05	0.39
Aged 11 to 14 years											
Girls	1.44	0.06	1.6	0.06	1.63	0.07	1.8	0.06	2.36	0.07	0.92
Boys	2.56	0.07	2.77	0.08	2.64	0.08	2.85	0.07	3.12	0.08	0.56
Aged 15 to 18 years											
Girls	3.74	0.09	4.28	0.1	4.73	0.11	5.27	0.1	6.36	0.11	2.62
Boys	3	0.08	3.4	0.08	3.49	0.09	3.82	0.08	4.23	0.09	1.23
*Defined as having at least one claim for an antidepressant during the year											

Table 2.5 shows that the overall use of antidepressants in children increased from 160 per 10,000 (1.6 percent) in 1998 to 240 per 10,000 (2.4 percent) in 2002, for an adjusted annual increase of 9.2 percent. The study showed an overall increase of 49% in antidepressant use from 1998 to 2002. Children spend more time watching television, surfing the Internet and playing video games. Few hours a week surfing the Internet may lead to 'a deterioration of social and psychological life and higher levels of depression and loneliness (Kahn and Kellert 283).



Table 2.6: Average daily household TV viewing Source: Organization for Economic Cooperation and Development

Children are more violent, anti-social, and introverted. Dr. Stuart Brown, psychiatrist, professor and founder of the National Institute for Play, 'a non-profit public benefit corporation committed to bringing the unrealized knowledge, practices and benefits of play into public life' (National Institute for Play), has conducted studies showing the affect on children who do not spend time outdoors. In the late 1960s Brown interviewed 26 convicted Texas murderers and learned that most of them had two things in common; they were from abusive families and they rarely had the opportunity to play outside as children. Brown has since conducted over 6,000 interviews with people about their childhoods, and the data have shown that a lack of opportunities for unstructured, imaginative play can keep children from growing into happy, well-adjusted adults (Wenner 23). Children become more violent in their adult life if they learn neither social skills, nor collaborative skills nor compromising skills. Children are becoming more violent and anti-social. In a 1997 study of school

children living in poverty more than one-third of them, by the age of twenty-three, who attended schools with no time outdoors in the curriculum, had been arrested for a felony (Wenner 26).

A society filled with elevators, strip malls, drive-through restaurants and shrinking physical education programs encourages a more sedentary lifestyle. Children treated for obesity are far more likely to be diagnosed with mental health disorders (Chang 2005). National surveys show more than one in four American adults get no activity in an average day. And nearly two-thirds of adolescents do not meet the Surgeon General's recommendations, which is thirty minutes of cardio 3-5 times per week (Active Living Research Program). Table 2.7 and table 2.8 show the decline in physical activity as people age. Inactive children living sedentary lives tend to become inactive adults.

Table 2.7: Amount of Daily Adults' Exercise Source: www.cdc.gov Table 2.8: Physical Activity Levels of Adolescents and Young Adults Source: www.cdc.gov



A resulting disorder of a sedentary lifestyle is called "biophobia", a type of fear of the natural world and ecological problems, a fear of just being outside. David W. Orr, Paul Sears Distinguished Professor of Environmental Studies and Politics at Oberlin College, describes the phenomenon of "biophobia" in Earth in Mind: On Education, Environment, and the Human Prospect (July 2004). Orr writes "biophobia ranges from discomfort in 'natural' places to active scorn for whatever isn't manmade, managed, or air-conditioned. "Biophobia" was termed in response to "biophilia", 'an instinctive bond between human beings and other living systems', introduced by E.O. Wilson, an American biologist, researcher, theorist, naturalist and author. A similar psychological impairment could be "geophobia" meaning the fear of the soil and all organisms in it. If children have less interest in the outside they tend to care less for the environment. Biophobia and geophobia, in short, are the culturally acquired urges to affiliate with technology, human artifacts, and solely with human interests regarding the natural world.

Conservation biologist Oliver Pergams and conservation ecologist Patricia Zaradic, found that children have less interest today in the environment, parks and conservation. Pergams and Zaradic analyzed data on American sedentary recreational pastime of four areas: hours of television, video games, home movies, theatre attendance and internet use per year (Pergams and Zaradic 388). Results from their 2003 study at the University of Illinois-Chicago showed that the average American devoted 327 more hours, which is equivalent to thirteen and one-half days, to electronic pursuits in 2003 than in 1987. Time

spent in the above listed sedentary media activities have been blamed for directly reducing the amount of discretionary time spent in physical activity (Pergams and Zaradic 392). In response to this study Pergams and Zaradic coined a new term, "videophilia", "the new human tendency to focus on sedentary activities involving electronic media," which is a modern day shift away from an appreciation of nature (Pergams and Zaradic 387).

Their studies of Americans' recreational habits found a nearly twenty-five percent per capita decline in camping, fishing, hunting and visits to state and national parks since the mid-1980s. Reasons cited for the reduction in family trips outdoors, specifically to national parks, were attributed to the following; shortage of family time, shorter vacation times, parks are thought to be just for viewing, decline in park budgets and increase in park fees (Louv 148).



Table 2.9: US per capita Camping 1998 to Present Source: www.videophilia.org

<u>Summary</u>

Both physical and psychological problems hinder the normal development of children because the virtual world is replacing the natural world. Children are overweight, going blind, more violent and introverted. Research shows that criminals are more likely to have not spent much time outdoors as children. A rise in the prescription of anti-depressants for children and adolescents gives concern to the state of mind of children. Children are not exposed to the natural world, know of it only from the television and the Internet, have little respect for the earth and struggle with "biophobia". In the next chapters causes, benefits and recommendations, both non-design and design solutions, are considered to determine what landscape architects can do to get children back outdoors.

CHAPTER 3

REASONS BEHIND THE PROBLEMS

Elements of the media, society, administration, and the built environment all contribute to the physical and psychological problems of children. What is causing all the problems? Why are children more obese and nearsighted? What is making children more violent and reclusive? Several key factors, including household role changes, the media, higher required academic standards and safety concerns have lead to the decreased free playtime outdoors for children (Ginsburg 184-185). This chapter outlines and details the reasons behind the problems listed in the previous chapter; rise in obesity, poorer eyesight, more violence and increase in social isolation.

Sedentary Lifestyle

Today children live sedentary lives. They spend hours watching television, surfing the Internet, and playing computer games. With a decreased exposure to outdoor activities there is an increase in childhood obesity (Biederman 2008). The rise in obesity in children is a result of time not spent outdoors (Klein). In the January 2004 issue of the medical journal the *Lancet*, researchers from the University of Glasgow in Scotland reported a study of toddler activity. The researchers attached small electronic accelerometers, a

device that measures physical acceleration, to the waistbands of seventy eight three-year-old toddlers for a week. The results showed that the toddlers were physically active for only twenty minutes a day (Louv 35). Table 3.1 shows results from a study completed in 2006 by the Nielsen Company, an American marketing and advertising company that collects data and measures scientific research results. American children aged 2-11 watch more television than in the past. Results show that children aged 2-5 spend more than 32 hours a week on average in front of a TV screen. The older children, ages 6-11, spend a little less time, about 28 hours per week watching TV, due in part that they are more likely to be attending school for longer hours.

Table 3.1: Average Weekly TV and Peripheral Consumption Source: <u>http://blog.nielsen.com/nielsenwire/media_entertainment/tv-viewing-among-kids-at-an-eight-year-high/</u>

Average Weekly TV And Peripheral Consumption									
Among All Kids 2-5									
Total	TV	DVR	DVD	VCR	Game Console				
Over 32 hrs	24hrs 51mins	1hr 29mins	4hrs 33mins	45mins	1hr 12mins				
Among All Kids 6-11									
Total	TV	DVR	DVD	VCR	Game Console				
Over 28 hrs	22hrs 9mins	59mins	2hrs 28mins	18mins	2hrs 23mins				

Table 3.2 shows results from a 2003 study completed by the Kaiser Family Foundation (KFF) indicating that two-thirds of infants and toddlers watch a screen an average of two hours a day (Rideout 12).

Table 3.2: Percentage of Children who watch more than an hour Source: Henry J. Kaiser Family Foundation



In a typical day, the percent of children who spend more than an hour:

Kids under age six watch an average of about two hours of screen media a day and kids and teens eight to eighteen years spend nearly four hours a day in front of a television screen plus an additional two hours in front of a computer screen. Kids who watch more than four hours of television per day are more likely to be overweight (Gavin 281). Children are bombarded each year with 10,000 advertisements of fatty and sugar-laden food (Kahn and Kellert 281). An analysis of this information shows that children do not find the outdoors interesting or attractive.

Children who view violent acts on the television are more likely to show aggressive behavior. According to the Centers for Disease Control (CDC 2007), the percentage of young people who are overweight has more than tripled since 1980. Sixteen percent, over 9 million of children aged 6-19 are considered overweight. The National Center for Health Statistics reports that the percentage of elementary-age children who are considered obese has doubled since 1980, from 7 percent to 14 percent (Voice of Play).

One theory for the increase in nearsightedness is that children spend too much time inside, most likely watching television, playing on a computer, or surfing the Internet (Shapiro). The causes of nearsightedness are poorly understood, as it is a very new area of research. Too much time indoors is thought to equate with too much exposure to fluorescent lighting. More time outdoors allows one to see more in natural light and focus further, which is healthy for the growth of the eye (Seppa 2010).

Loss of Time

Beyond the physical causes of obesity and increased nearsightedness are the psychological causes, among them depression, anxiety, and violent behavior. From 1998 to 2002 there was nearly a 45 percent increase in prescription antidepressants for children (Delate 387). A reason for the increase in drugs is "... this hurried lifestyle is a source of stress and anxiety and may even contribute to depression" (Ginsburg 185, 45-46). Many advertisements today are for antidepressants or behavior medication (DeYoung 2008). Time spent in front of media screens contributes to the depression children have today. Just a few hours a week online may create an Internet addiction leading to a deterioration of social and psychological life and higher levels of depression and loneliness (Kahn and Kellert 283).

An increase in families with a single head of household, families with two working parents and families with fewer multi-generational families nearby means more children monitored in indoor care (Ginsburg 184). Increases in latchkey children contribute to the rise in anxiety and stress in children. A latchkey child is one who returns home from school to an empty house because the parent(s) are away at work. In response to the rise in latchkey children some states have laws of the age limit at which a child can be legally left alone at home. In a majority of the states the age limit is twelve years of age, but in some states, South Carolina and Maryland, the age is only nine years of age.

Children are left at home with little or no parental supervision (Ginsburg 184). Parents feel their schedules are too hectic and supervising children (outdoors) is too time-consuming (Ginsburg 185, Klein). Parents who are sufficient in balancing time at work and time at home apply these standards of efficiency and productivity at home and treat parenting like a professional job. This is referred to as the "professionalization of parenthood" (Ginsburg 185) and it dehumanizes the relationship between parent and child.

Parents, deluged with articles, the media and peer pressure, feel obligated to actively build on every skill and aptitude of a child from the earliest age (Ginsburg 185). College and secondary school admission processes are more intense and selective. Limited time outdoors results in a generation of anxious, unhappy and socially maladjusted adults (Wenner 24). From 1981 to 1997 the amount of time children spent in organized sports increased by 27%. In 1974, The US Youth Soccer Association had 100,000 members and in 2008 there were

nearly 3 million members (Louv 117). A paper published in 2005 by the *Archives of Pediatrics & Adolescent Medicine,* stated that from 1981 to 1997 children's free time, time outdoors, dropped by a quarter (Wenner 24). Over worked and over committed parents feel they do not have the time to spend with their children. Children do not have as many opportunities to enjoy free play with their parents. In an effort to get their children outdoors the parents instead enroll their children and commit them to organized sports.

Excessive time spent in front of the television hinders the growth of children in that they become obese and learn violent mannerisms, and they gain little respect for the outdoors. Biophobia is a result of this apathy. They fail to develop the social skills that may reduce violent behaviors. A story from Gary Nabhan's The Geography of Childhood summarizes the impediment of television in children's lives and their tendency to become biophobes. "Over ten years ago a Phoenix television station did a story on why the younger generation of the Tohono O'odham Indian reservation were not keeping up with the traditions. A famous O'odham educator, Laura Kerman, was interviewed for the story. The newscaster asked Ms. Kerman, 'Why do you think the younger generation is not keeping up these traditions (of making their living from the desert by gardening and gathering wild plants ...)?' Laura Kerman, who was in her late eighties at the time, stopped in her tracks and pointed straight at the camera, frowning 'It's that TV! They're all watching that TV! They just sit around in front of it, they hardly go outside anymore, so how can they plow or plant or gather fruit? That's the problem, right there!" (Nabhan 105-106).

General safety concerns for children playing outside reduces free time spent outdoors. Parents fear the outdoors; too much sun, an insect bite, 'stranger danger', even wildlife attacks or neighborhood violence in some locations (Louv 129). Parents are afraid to let children leave the house alone and feel safer keeping children inside. Due to poor development children may no longer roam their neighborhoods or even yards without adult supervision. In March of 2008 a New York City mother gave her 9-year old son a Metro Card, a subway map, a \$20 bill and some quarters for pay phones. He arrived home safely on the subway and bus himself. In response the mother has had lots of feedback, both supportive and critical, for this happening. Her article reinvigorated an important debate about children, safety and independence (Brooks).

Louv recounts a story in which a high school teacher expresses concern about a camping trip he takes with his students. One year the students had trouble enjoying the camping trip because they were terrified by what happened in the movie *The Blair Witch Project*. Although real dangers may exist in nature it is the media that greatly exaggerates the truth (Louv 131). An early 1990s study conducted by Joel Best of the University of Delaware proved the mythical base of Halloween terrorism. Best reviewed seventy-six specific stories between 1958 and 1984 and found that there was not one case of a child killed or even injured by a candy contamination (Louv 127).

The national trend to focus on the academic fundamentals of reading, writing and arithmetic decreases the time left during the school day for recess,

creative arts and physical education (Ginsburg 185). In a 1989 survey taken by the National Association of Elementary School Principals found that 96% of surveyed schools had at least 1 recess period. A 1999 survey found that only 70% of kindergarten classrooms had a recess period (Ginsburg 183). Four out of ten schools nationwide, and 80 percent of the schools in Chicago have removed recess from their curriculum. In an effort to improve test scores children are being channeled into more classes and given less time to play outside on playgrounds (Schudel 2001). Pressure on public schools districts throughout the United States to increase standardized test scores has lead to the reduction of recess time and even the encouragement of creative and imaginative skills.

In response to the unacceptable educational performance of America's children in some educational settings Federal legislation created the No Child Left Behind Act (NCLB) of 2001. The goal for legislation was to accomplish standards-based education reform (K6educators). No Child Left Behind Act is based on the belief that higher standards and measurable goals could improve individual outcomes in educations. NCLB requires states to develop assessments in basic skills to be given to all students in certain grades if those states are to receive federal funding for schools. The assumed benefits of the Act include the following: higher enrollment for courses in mathematics, overall academic improved class instruction and classroom practice for more parent involvement and more technology funding. Unintended consequences of the NCLB Act are the oversight of special education cases, manipulation of test

records and results, restricted non-English test assessments, inherent cultural disparity and forced mandatory curriculum in reading, writing, and arithmetic, impairing grade achievement (Borade). In an effort to meet the requirements of the NCLB Act, many schools have chosen to eliminate the time children spend outdoors and participating in the creative arts and physical education courses. In addition to pressure to meet the NCLB requirements, schools have reduced and in some cases eliminated recess because of the fear of playground injuries and law suits, increased exposure to strangers and too much demand on teachers who do not have "time" to supervise children outdoors (Klein). Every year approximately 200,000 children are injured in playgrounds and some lawsuit rewards have gone as high as US \$33 million (Hart 144).

Poor, unreliable public transport, limited walkways, limited bike pathways, poorly maintained parks and open spaces close to home discourage children from spending time outdoors (Cummins and Jackson 12). Today's cities sprawl into forest and farmland with wide roadways and no sidewalks. Every task: school, grocery store, restaurant and church, seems to require an automobile (Cummins and Jackson 11). One researcher has gone so far as to say poor design has lead to a "childhood of imprisonment" meaning children spend their days strapped in a car seat, booster seat or car. Distance between daily activities and fear created from the media and poor designs keep children imprisoned in their homes and cars (White). Children today and in the future grow up in residential areas outside of cities. Current unsatisfactory models for growth including scattered developments in rural developments and suburban

sprawl at the edge of cities, separate children from nature (Louv 272). Sterile playgrounds make a child more passive and reduce the use of their imagination. Asphalt playgrounds, jungles gyms and huge abstract sculptured play lands are useless, waste of time and money (Alexander 368).

Summary

Poor design in the built environment contributes to the problems of childhood obesity, violent temperaments and reclusive individuals. A dependency on automobiles indicates that the built environment is not conducive to a healthy lifestyle. Causes listed in this chapter that are the responsibility landscape architects include limited walk and bike pathways, poor transportation design and limited connectivity. Causes not under the control of the landscape architect include federal mandate of NCLB society dependent on screen media and pressure to over-program children for success. As a multidisciplinary field landscape architects know little about many different professions. With this diversified knowledge base landscape architects are skilled in working with a variety of professionals and through collaborative efforts can make improvements in design to draw children back outdoor.

CHAPTER 4

BENEFITS TO IMPROVEMENTS TO BUILT ENVIRONMENT

Essential to a child's physical and emotional health is the direct experience with nature. "Nature-deficit disorder describes the human costs of alienation from nature; diminished use of the senses, attention deficits and higher rates of physical and emotional illnesses". Louv's research shows that to counter the growth of nature deficit disorder direct exposure to nature is essential for physical and emotional health (Louv 36). With less time spent outdoors and more time spent indoors children experience both physical and psychological problems. According to Voice of Play, a web site dedicated to educating the general public, parents, teachers, organizations, and community groups about the importance of play, children gain many valuable benefits from outdoor free play, including physical, emotional, social and cognitive skills. Long-standing studies show a relationship between the absence, or inaccessibility, of parks and open spaces with high crime rates, depression, and other urban maladies (Louv Benefits in solving the problems help avoid the continued high costs of the continued poor trends such as the high costs of health care. This chapter looks at the benefits of solving the physical and psychological problems children experience when they do not get outdoors. The benefits to the children in the design solutions benefit everyone.
Healthier Lifestyle

Physical Strength

Outdoor play promotes physical endurance and strength (De Young 2009). Children are more physically active outdoors, which is critical as the American sedentary lifestyle contributes the obesity epidemic (Biederman). A child has better health overall if she or he has the opportunity to spend time outdoors. Research by the Active Living Research Program found that regular physical activity for children reduces the risk of developing high blood pressure, diabetes and colon or breast cancer. Regular physical activity helps maintain healthy bones, muscles and joints and promotes overall well-being (Active Living Research). An Environmental Protection Agency (EPA) study shows that outdoor play does not increase the chance of getting sick. Colds are not caught from chilly weather, but rather from germs. Indoors air pollution is the nation's number one environmental health concern; two to ten times worse than outdoors air pollution (De Young 2009).

Dr. Stuart Brown, psychiatrist, professor and founder of the National Institute for Play, found that play keeps children physically and mentally fit. Brown claims that time outdoors is more than just fun, but it is necessary to keep children healthy and fit. Voice of Play research shows that the physical benefits of play include learning movement control and reflexes, developing fine and gross motor skills, and increasing balance and flexibility control. Outside children learn to walk, run, climb, jump, throw, slide and swing (Voice of Play). Children enjoy running, jumping, climbing, playing outdoors and they should learn the

importance of being active. It is in a child's best interest to get a good and healthy amount of exercise everyday. The important thing is that children get enough daily exercise and cardio to keep them fit, to keep them in shape, and to keep them at a healthy weight. (Boris 2009)

Better Vision

Although nearsighted research associated with being outside is in its early phases more time outdoors for children is thought to benefit good eyesight. With more time in the sun and in the natural light children's eye muscles develop by focusing more on objects in the distance, which is thought to improve eyesight. A significant finding was that time spent outdoors during childhood was important because natural light levels have a beneficial affect on the eye (Shapiro).

Independence

In nature a child finds freedom, fantasy, and privacy: a place distant from the adult world, a separate peace. Unlike television, nature does not steal time: it amplifies it (Louv 7). Free play allows a child to think independently and separately. Exposure to nature and time outdoors increases a child's resistance to stress and depression. Children are better able to relate to others in every other facet of life (De Young 2009). Children are better prepared to make individual and societal choices (Mother Nature Network). Play in the outdoors is more creative and egalitarian (Kids Discover Nature). More creative children emerge as leaders (Louv 88). The following paragraphs look at the psychological

benefits for children in reducing stress, focusing attentions, strengthening emotions and fostering an appreciation for nature.

Reduction in Stress and Anxiety

Time spent outdoors in nature can ease pressures that may lead to depression. One rarely sees advertisements for nature therapy as a cure for depression or anxiety (De Young 2009). Free play outdoors is critical for a child's emotional health in that it helps children work through anxiety and stress. The lack of structure in outdoor play affords children endless opportunities for different types of unstructured activities. The competitive nature of structured play like team sports creates a certain level of stress and anxiety. With no boundaries, limits or rules a child's imagination soars and the results are endless. Children with more nature near their home have better chances of getting outside bolstering their resilience against stress and adversity (Louv 51).

Children gain independence in their self-exploration of nature during their time outdoors. Outdoor play helps children develop new competencies that give them enhanced confidence and the resiliency to face future challenges (Ginsburg 183). A child's experience of nature encompasses a wide range of emotions; wonder, joy, satisfaction, but also fear, challenge and anxiety (Kahn and Keller 128). Young people with lives rich in natural experiences are happier and seem to be better grounded. (Keller and Khan 316). Emotional benefits of outdoor play include building self-confidence and self-esteem. Children are more independent, more cooperative, more resilient and better able to negotiate (Voice of Play).

Teamwork

Children who spend time outdoors use their brains more and are not afraid to try out new activities (Wenner 24). There are no time restrictions and no rules in free play; children make up their own rules. Children acquire critical group skills as they must work together, negotiate, compromise and learn the value of teamwork. When children interact with peers and do not have adults telling them how to behave they develop strong social skills. Children learn to be fair, take turns and negotiate (Ginsburg 183). In free play outdoors children learn to understand others and to develop skills of cooperation, sharing and caring. Free play in the outdoors gives children a sense of security. Children establish a sense of control in difficult circumstances (Hart 136).

Alternative Therapy for ADD

A "dose of nature" may be a simple, inexpensive therapy for children with Attention Deficit Hyperactive Disorder (ADHD) and Attention Deficit Disorder (ADD). Studies show that nature may serve as a preventive therapy for Attention Deficit Hyperactivity Disorder (ADHD) (Kellert 158). It is recommended by some researchers that educators and parents offer more nature experiences, especially natural places, to children with ADHD. Children (and adults) find it easier to concentrate and pay attention after spending time in nature (Kids Discover Nature).

A study conducted at the University of Illinois at Urbana-Champaign shows that children with ADHD demonstrate greater attention after a 20-minute walk in a park than after a similar walk in a downtown area or residential area. In

the same manner a 20 minute school recess gives children a break from their scheduled day. The children were taken on walks in three different settings; one really "green and two less "green" with everything about the walks kept as similar as possible. Some children took the "greenest" walk first and some took it second or last. After each walk the child was read a series of numbers and then the child had to recite the numbers backwards. Each child's performance was compared to its own performance on different walks. The comparison results showed that after the walk in the park children generally concentrated better than they did after they did a walk in the downtown area or the neighborhood area (Larson). The physical environment does matter and children who have regular exposure to green spaces have milder symptoms overall.



Table 4.1: ADD Kids: "Go Out and Play!" Source: <u>http://lhhl.illinois.edu/adhd.htm</u>

Indoors: Sedentary Activity, ie. TV, Internet Paved Outdoors: Structured Play, ie. Playfield Green Outdoors: Unstructured Play, ie. Park

Environmental Stewardship

Time outside helps children better understand nature, the environment and the universe. *Biophilia*, the hypothesis of Harvard University scientist and Pulitzer Prize winning author E.O. Wilson, is the "urge to affiliate with other forms" of life". Humans have an affinity for the natural world; a sense of biophilia and geophilia. A person with geophilic tendencies may be referred to as a 'geophile', someone who loves the earth, sustainability or "green" initiatives. People respond strongly to open, grassy landscapes, scattered stands of trees, meadows, water, winding trails, and elevated views (Louv 43). Studies in environmental psychology, an interdisciplinary field focused on the interplay between humans and their surroundings, support the importance of children interacting with nature. Louise Chawla, professor of environmental psychology at Kentucky State University and international expert on urban child and nature states the "positive effects of involvement with nature on health, concentration, creative play, and a developing bond with the natural world that can form a foundation for environmental stewardship" (Louv 44). In her book Silent Spring Rachel Carson, whose writings advanced the global environmental movement, summarizes the positive influence of nature describing, "Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts" (Louv 37).

Schools have a responsibility to educate their students about the natural world. K-12 students who participate in environmental education programs do better on standardized tests in math, reading, writing and social studies (Louv

206). Free play outdoors during recess helps children gain an understanding and appreciation for the natural world encouraging and educating them to focus on the natural world and become stewards of the Earth. Time spent outdoors teaches children about different academic subjects. Mathematics is covered in games like "Hide and Seek" or "London Bridges" because children are using number and counting. Geometrical patterns are explored when children note designs in leaves, flowers and bricks. Science is learned everywhere in the outdoors because children experience all forms of life outdoors from an bird's egg in a nest to an American Eagle, from a caterpillar to a Monarch butterfly and from a seed to a White Oak. In using their bodies to explore, play, to pretend, even to dance in the outdoors children experience the Arts. Movements as simple as running a stick along a fence or banging on a tree trunk to hear a rhythm involves a child in the field of the Arts (Klein 2008).

<u>Summary</u>

The cost benefits of working to solve the physical and psychological problems are too important to ignore as children thrive in the outdoors. Time outdoors means more physical activity and an overall healthier lifestyle. A benefit for children who spend time outdoors and experience free play is the liberty to use their imagination. Direct experience with nature teaches one to share with others, to be inclusive with others and to respect nature with others. A well-developed population both physically and psychologically creates a new generation of environmental stewards. Technology and pathos has made the

indoors attractive and we need to make the outdoors more attractive. In the following chapters solutions, both non-design and design, will be considered in an effort to move towards taking advantage of the benefits to solving the physical and psychological problems. The built environment has become sterile and unattractive and landscape architects need to find ways to remedy the situation. Through good design the profession of landscape architecture will encourage children to spend more time outdoors.

CHAPTER 5 STEPS TOWARDS GOOD DESIGN

The time has come to trade computer screens for grass stained jeans (Mother Nature Network). To solve the problems and to reestablish this connection between children and nature landscape designers need to make changes in their approach towards designing the built environment. This connection is made possible through strong design principles and should encourage children to get back outdoors. Good design, including home, school, neighborhood, community, city and region is necessary to make outdoor activity attractive. Policies to make these changes can be implemented at all levels of government to create activity-friendly environments. School policies can improve physical education programs, recess times, after school programs and active transportation to school (Active Living Research Program). Changes to the built environment of children's daily lives are necessary to protect children and support healthy lifestyles (Kellert et al. 153). A positive and actual connection with nature supports active living, including outdoor physical activity and free play. This chapter looks at design solutions in the field of landscape architecture to "heal the broken bond between our young and nature" (Louv 3).

Design Principles

Biophilic Design

With respect to design principles an area of focus for Robin Moore is the role of physical design in improving the quantity and quality of nature through its integration into the built environment. Moore considers ways to incorporate "biophilic design", design that supports and stimulates children's biophilia (Kellert et al. 153). Moore feels that the current built environment often presents barriers to children's independent mobility and hinders their experience of nature. Children with a connection to nature, who enjoy spending time outdoors, get plenty of physical exercise gain a respect for the environment and become 'biophilic' citizens. Built environments (Kellert 155) need to increase the "activity friendliness" of neighborhoods for children by creating child-friendly street design, including more pathways connecting people to recreation destinations close to home.

The Active Living Research Program has found in its research that communities with pedestrian and bicycle-friendly infrastructure connected to destinations of interests have more physically active residents. Support for bicycle and walking trails, support for exercise programs, and support for public parks near and far, formal and informal, and sidewalks for exercise boost the physical activity level of residents (Active Living Program). Interconnectivity advocates a biophilic design by connecting people and places in a community.

In Moore's biophilic design he advocates more elementary schools to be at the center of neighborhood life and close to a majority of homes so kids can

walk and bike back and forth (Kellert 166). School grounds could serve as neighborhood parks. During school hours the outdoor area serves as a space for physical education, playground or free play. After school hours the neighborhood may take advantage of the area by using the space for community events, including neighborhood meetings, sports events, outdoors market, music shows and educational events (Kellert 171). Neighborhood parks encourage free play and community nature destinations intrigue children and their families to get outdoors. Moore is adamant that the built environment should prioritize walkable communities in designs to advocate children to spend time outdoors, experience free play, and learn about the environment to become biophilic citizens.

Pattern of Language

Architect and author Christopher Alexander coined the term 'pattern language' to refer to common problems of design and ways to solve them. In his book <u>A Pattern Language: Towns, Buildings, Construction</u> Alexander recommends in his design principles that children spend more time outdoors. In the "Towns" section Alexander addresses the fact that children should be encouraged to explore in "57-Children in the City". Alexander writes that if children are not able to safely explore the adult world around them then they themselves do not become adults. Children need to spend time outdoors to explore and need to have safe paths to facilitate this exploration. The development of one system of paths that is extra safe, entirely safe from automobiles and lit up, encourages healthy exploration by children (Alexander

295). Alexander's studies engage in an entire design strategy on safety-centered such as "defensible space" and "safescape".

In segment "68–Connected Play" of the "Towns" section of the book <u>A</u> <u>Pattern Language</u> Alexander points out that at an early age if children do not play with other children there is a greater chance of mental illness developing later in a child's life (Alexander 342). To support this theory Alexander cites a study conducted in 1956.

Table 5.1: Correlation between Childhood Isolation and Mental Illnesses Source: <u>A Pattern Language</u> by Christopher Alexander



A random sample of 1,000 men in the US Army who had been referred to a mental hygienic clinic because of emotional difficulties was questioned about the number of friends they had between the ages of 4 and 10 years (Alexander 344). The men were categorized as Normal, suffering mild psychoneurosis, suffering severe psychoneurosis, or psychosis. In Table 6.1 results of the study show a correlation between the men with fewer friends and their mental state. Nearly fifty percent of the men who with no friends suffered psychosis. In response to

the results of this study Alexander resolved that it is important for design to

connect children with other children

Table 5.2: Diagram of 'Connected Play' designSource: <u>A Pattern Language</u> by Christopher Alexander



Design must identify a play space for children to interact and this connected play space for children could be located in a swath of land between common land, paths, gardens and bridges (Alexander 346).

Loose Parts

With respect to design specifics educators and experts have adapted the theory of loose parts, a theory that explored the connection between environment and landscape investigated by architect Simon Nicholson in the 1970s. Nicholson (1974) theorized "In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variable in it." Nicholson believed that humans are all, by nature, creative and that loose parts in an environment will catalyze creativity.

Loose parts are materials that can be moved, carried, combined, redesigned, reordered, and taken apart and put back together in numerous ways (Biederman). Nature is the richest source of loose parts. Loose parts outdoors in nature may include water, trees, bushes, flowers and long grasses; a pond and the creatures within it, other living things, places to sit in, on, under; structures that offer privacy and views; woods, fields, and streams.

Source. Fernisylvania State Oniversity	
Examples of loose parts in a	Examples of loose parts in an
playground:	indoor environment:
Balls/hoops/jump ropes/tires	Blocks/building materials/manipulatives
Sand/water/dirt/straw	Measuring/pouring devices
Boulders/rocks/stones/pebbles	Dramatic play props
Buckets/cups/containers/digging tools	Play cans, animals and people
Chalk/scarves/ribbons/material	Blankets/materials/floorsamples
Brushes/shovels/digging tools	Water/sand/sensory materials
Wind chimes	Recycled materials
Hoses/plastic gutters/buckets	Plastic gutters/tools
	Art materials
	Examples of loose parts in a playground: Balls/hoops/jump ropes/tires Sand/water/dirt/straw Boulders/rocks/stones/pebbles Buckets/cups/containers/digging tools Chalk/scarves/ribbons/material Brushes/shovels/digging tools Wind chimes Hoses/plastic gutters/buckets

Table 5.3: Examples of Loose Parts Source: Pennsylvania State University

Loose parts in play are vital the to a child's development. The parts become looser and even more compelling powerful to the imagination. Loose parts have infinite play possibilities with no structure or script, which allows children to make of them whatever their imaginations desire (White 1998). For example, if a child picks up a stick and starts to play, most likely that stick can become anything the child wants it to be. (Biederman). For the child the stick may become a tool for digging, a sword or a fishing pole. Environments rich in loose parts allow and encourage children endless manipulation of the environment with much experimentation. Manipulation of materials through play is important in problem solving and creativity.

With respect to playgrounds loose parts encourage children to manipulate their environment. The amount of movement and variability of playground

equipment is a priority in how children make choices on a playground. Loose parts benefit all age groups because each age group interprets loose parts differently. The flexibility and endless possibilities of loose parts inject a sense of novelty into outdoor play. Loose parts encourage various type of play; dramatic play, constructive plays and exercise play (Dempsey 1999). Loose parts in a design provide children with endless possibilities.

Design Practices

Good design practices are necessary to establish a connection between children and nature. For children to connect with nature they need to feel included in the outdoors, safe in the outdoors and curious about the outdoors. Changes in the perspectives of planners, educators, leaders and families increase the child's contact with the outdoors. The incorporation of values of nature in the design of homes, schools, recreational facilities, open spaces and communities, are essential to the lives of children (Kahn and Kellert 147). Focus on the built environment, including neighborhoods, transportation systems, buildings, parks and open space, is essential in active living outdoors (Active Living Research Program).

The 2009 Children and Nature Network "Report on the Movement to Reconnect Children to the Natural World" (Charles et al.) offers future design practices. Practice ideas include an increase in efforts to green cities through better planning and the implementation of green oases in designs to connect children to nature. Better planning to include planting trees, walkable

neighborhoods, and more natural parks is a recommended area of focus of the Children and Nature Network report. The Network wants developers and builders to redevelop decaying neighborhoods and create green communities. The transfer of small slivers of land, too small for even pockets parks, into "wild zones" or adventure playgrounds is an idea to improve accessibility and interest in children to go outdoors. (Charles et al. 43).

Design Team

The participation of children in design is the most reliable method of assessing a successful design. Robin Moore declares it mandatory to involve children at all levels of design. Moore thinks that it impossible to design for a client (child) if the client does not have any input. (Moore 20). Outdoor spaces designed by children are filled with plants, trees, flowers, water, dirt, sand, mud, animals and insects with a wide variety of every imaginable type of play opportunity. Children design and develop places where children want to stay all day (White 1998). A local example of a project that involved children in its design is the World of Wonder playground at the entrance of the Southeast Clarke Park in Athens, Georgia.



Figure 5.1: World of Wonder Logo Source: Athens Clarke County Leisure Services

The playground was constructed in 2004 by 15,000 volunteers and is the largest built playground in the state of Georgia. The design of the playground involved

teachers, children and parents. There was a children's committee made up of 40 students representing 12 areas schools. The children created much of the design and gave it its name, World of Wonder (Gervin 2003). Only a child knows what a child wants in a design.

For a design to succeed in its goal to provide and support a connection between children and nature it is effective to have input from all parties, including children, parents, teachers and maintenance staff. A collaborative effort between traffic engineers, landscape architects, residential developers and urban designers could lead to a child-friendly street design (Kellert 157). Randy White is the Chief Executive Officer and co-founder of White Hutchinson Leisure and Learning Group, a multi-disciplinary consulting, design and production company that specializes in creating compelling designs predominately for families and children. An area of focus in White's firm is children's development, learning and play facilities, which are accomplished in designs that connect children with nature (White Hutchinson). White writes that the involvement of children, teachers, parents and maintenance staff is essential to the success of a design. Children feel it is a special place for them, parents feel safer, teachers are more motivated to incorporate a space into their teachings and maintenance staff feel pride in the space (White 1998).

Designers, therapists and researchers feel that parental involvement is also a key ingredient to a successful design. Parents and other positive adults must be intentional about taking children into nature. Adults cannot assume that the young will do this on their own (Charles et al 43). Green Hearts Institute for

Nature and Childhood, a non-profit conservation organization dedicated to restoring and strengthening the bonds between children and nature, provides sources for parents to get involved. Sources on the web site include the Green Hearts' booklet "A Parents' Guide to Nature Play' and a list of "What Can a Child Do in Nature" (Green Hearts). The Walking School Bus program encourages children and parents to get outdoors everyday. A Walking School Bus is a group of children who walk to school together with one or more adults. Similar to a carpool without the car a walking school bus program can start small and then grow with time: invite nearby families, test a route, set a schedule and have fun. A simple solution to reconnect children with nature and to get children outdoors is to encourage parents too (Biello 2008).

Resources

Children need to reconnect with nature because there has been an undesirable rise in the disconnection between children and nature. Children need to spend more time outdoors. Robin Moore, professor of Landscape Architecture, College of Design, North Carolina State University, is an expert in the design of play, learning, and educational environments. In Moore's research he found that natural settings are crucial for healthy childhood development because they stimulate the senses and integrate informal play with formal learning (Louv 86). If children themselves learn to understand the benefits of spending time outdoors in nature they will go outside more.

Various organizations, researchers and authors are making efforts to shorten the gap between children and nature. Author Richard Louv serves as chairman of the Children & Nature Network. The principle behind the Children and Nature Network is to build a movement to reconnect children and nature. The Network aims to reconnect children with nature, its joys and lessons, by giving every child in every community a wide range of opportunities to experience nature directly (Children & Nature Network). The Network works with local grassroots campaigns connecting children with nature. Presentations, conferences and summits are organized to educate natural leaders, natural families and natural teachers. Children and nature events and programs take place in a variety of outdoor settings, including neighborhoods, backyards, city parks and wilderness. A supporting initiative for the Network's movement is the "Take a Child Outside Week", which is a program designed by the North Carolina Museum of Natural Sciences. The program aims to get children outside, to help children focus in school and to reduce the chance of childhood obesity. To participate in the program children fill out pledges to go outside, share ideas of outdoors activities and collaborate with participating organizations.

Research conducted by the Natural Learning Initiative, an outreach program of North Carolina State University directed by Moore, found that an increasing numbers of children are losing contact with the natural world. The purpose of the Natural Learning Initiative is to promote the importance of the natural environment in the daily experience of all children through environmental design, action research, education and dissemination of information. NLI offers

many services, including design assistance to private and public organizations, action research and evaluation of model environments and professional development, training and distance learning. In its efforts to disseminate information to promote its purpose the NLI provides professional development workshops, seminars and presentations to various groups, including landscape architects, childcare professionals, schoolteachers, parks and recreational professionals, horticulturists and before and after school coordinators. NLI helps communities create stimulating places for children for play, learning, and environmental education (Natural Learning Initiative).

A tie to nature teaches a child intimacy increasing the chance for positive relationships. Land is empowering in that it provides a neutral ground for leadership. Earth allows children to be themselves, active rather than passive, to take control of their play, their time and their imaginations (Nabhan 64). From an early age a child should have positive reinforcements and a way to attain this is by spending time outdoors. Children enjoy the outdoors and benefit from a connection with nature. Formal education programs should not try to replace and cannot make up for the spontaneous hands-on experience of nature (Nabhan98).

The freedom of creativity and imagination experienced outdoors empowers a child. Author Rachel Carson wrote in her 1956 article titled "Help Your Child to Wonder" for the Woman's Home Companion magazine that the years of early childhood are the time to prepare the soil (Carson 46). Carson feels that with the arousal of the emotions, the seeds are planted – a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy,

pity, admiration or love bloom. The pleasures of contact with the natural world are everlasting (Carson 48).

<u>Summary</u>

Children need to get outdoors and reconnect with nature. Good design practice and a good design team, which includes the "client" child, are the first steps in making this connection. Planners need to make an effort to increase a child's contact with nature (Kahn 147). Loose design in nature offers an environment where children contemplate infinity and eternity, something that is not possible inside a restricted structured environment (Louv 97). Design with less structure, loose parts, informal spaces, naturalistic spaces filled with loose parts stimulate free play and discovery learning (White 1998). Children engage in more creative forms of play in more natural settings because it satisfies an urge to explore, touch, manipulate and experiment with their world in order to understand it (Hart 136). Efforts to restore natural ecosystems for environmental reasons bolster the inventory of natural spaces for children's play.

CHAPTER 6

NON-DESIGN SOLUTIONS

Several solutions, including improvements in nutrition, increases in education funding, increases in family involvement and mentoring programs for children and an increase in physical activity and free play make up the major areas to review. A fundamental way to solve these problems is to get children outside to give them more time for outdoor physical activity and more time for outdoor free play. The physical and psychological problems, including rise in childhood obesity, poorer eyesight, more violent behaviors, increase in social isolation, and surge in biophobia should be addressed to insure the future of our children as well as our earth.

Nutrition

One major area of solution is to improve the overall nutrition for children. The Active Living Research Program works to improve access to affordable healthy foods. Dr. David Ludwig, director of the Optimal Weight for Life Program, proposes legislation that regulates junk-food advertising aimed at children, increases funding for better lunches and restructures farm-subsidies program to favor nutrient dense produce (Ludwig 2007). A 2005 report on childhood obesity, Table to Grave, completed by the San Bernadino Sun newspaper, looked at the

environmental causes of childhood obesity. Noted causes included pressure on families to minimize food costs including buying and preparation and limited access to affordable nutritious foods including fruits and vegetables (Table to Grave). The poor quality of foods in schools today makes it difficult to find a distinction between a school cafeteria and a public food court (Barrett 2007). The potential profit for schools from vending machine sales makes it difficult to prioritize healthy foods in schools. The "addiction to income" of the educational systems spreads to the school administrators making it hard to enforce healthier eating standards in the schools. In one year some schools raise as much as \$100,000 through contracts with soft drink companies and other vendors. The areas to benefit include office supplies, computer rewiring, teacher training, staff meetings and field trips (Nakamura 2001). Presently, there are significant efforts to subsidize change in institutional food habits.

First Lady Michelle Obama recently launched a national campaign, "Let's Move", to fight childhood obesity. The goal of the First Lady's anti-obesity campaign is to mobilize the public and private sector resources to help coordinate a "lot of public information out there". With national support of various agencies, including the office of the Surgeon General, Department of Health and Human Services, American Academy of Pediatrics, major soda companies, sports leagues and health foundations. The Let's Move nationwide initiative focuses on four key components: support for parents, healthier foods in schools, more physical education and healthy, affordable food. The First Lady wants the initiative to "take families out of their isolation and give them the nationwide

support they need to get their kids on track to live healthier lives, eat right, get more exercise and make them ready to face the challenges of the future" (interview with First Lady Michelle Obama on Let's Move web site). She also recommends simple changes including no television during the week, low-fat milk, water bottles in lunch boxes, grapes on the breakfast table, apple slices at lunch and colorful vegetables on the dinner table (Benac 2010).

In 2005 the United States Department of Agriculture, USDA, introduced a new food pyramid design to simplify for Americans what they need to eat. The redesign of the food pyramid shows the national efforts to reach out to children and improve their eating habits in an effort to lead to longer, healthier lives (Perri 2005). National initiatives are encouraging steps towards finding solutions to childhood obesity.

Table 6.1: Anatomy of MyPyramid Source: US Department of Agriculture, Center for Nutrition Policy and Promotion, www.mypyramid.gov



Federal Funding

Increased government funding for school physical education programs is an important way to improve the situation. In a 1989 survey taken by the National Association of Elementary School Principals 96 percent of schools surveyed had at least 1 recess period. In a 1999 survey only 70 percent of kindergarten classrooms had a recess period (Ginsburg 183). Schools should have better funding so they don't have to decide between eliminating physical education versus cutting back traditional academic subjects (Barrett 2007). The decline in physical education and recess periods limits the time children spend outside. Adequate funding for regular physical activities at school benefits children (Ludwig 2007).

The No Child Left Inside Act is an effort to address problems for students, which stem from the reduction in time outside as a result of the requirements of the No Child Left Behind Act. The No Child Left Inside Act addresses the necessity for environmental education in schools by giving new incentives and support to school systems to provide environmental education. Environmental education requires students to use math, science, reading and writing skills engaging all subject areas. Don Baugh, director of the No Child Left Inside Coalition, points out that the benefits of increased funding for environmental education in schools go beyond better preparing students for college and the 21st century. The rise in biophobia reinforces the importance in getting children outside. Children learn about the natural world, battle childhood obesity and other health related problems (No Child Left Inside Coalition).

Role Models

Role models play important roles in the life of a child. Parents, family, neighbors and mentors should set examples for children by living a healthy lifestyle with good eating habits and regular physical activity. Parents must take responsibility for their children's welfare by providing high-quality food, limiting television viewing, and modeling a healthful lifestyle. (Ludwig 2007) Parents need to get outside and spend time outdoors in nature with their children. Parental involvement is an assumed role, but with work, social and economic pressure, cultural differences, limited time and a misunderstanding of the source of the problems parents do not play a large enough role. Parents need to understand that time spent outdoors for a child is an investment in their health (De Young). Parents must be vigilant in letting their children spend time outdoors in nature (Louv 117).

Rachel Carson, writer, scientist and ecologist, wrote an article titled "Help Your Child to Wonder" for the July 1956 issue of "Woman's Home Companion" magazine. In the article Carson advocates the importance of adults spending time outdoors in nature with children. A parent does not have to be an expert in birds, plants, or play because it is not half as important for the parent or adult to know as to feel (Carson 46). Carson wrote in her novel <u>Sense of Wonder</u> "If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in". Encouragement for children to play outdoors in green spaces doesn't mean that children need to be on soccer

leagues, but they just need to be able to run around and play outdoors (Associated Press 2006). It is not just children, who should be more active, but rather the whole family as it may well also contribute to the psychological and physical well-being of the parent, and as a result a new generation of environmental stewards.

Summary

Improvements in nutrition, increases in federal funding for schools and more parental involvement are major areas to consider in solving the physical and psychological problems for children who do not spend enough time outdoors. The availability of healthier foods at home and in schools encourages and teaches the importance of healthy living. First Lady Obama's "Let's Move" antiobesity campaign shows national support to solve the problems. An increase in national and local public spending for more physical exercise in schools and legislative action such as No Child Left Inside Act further improves the situation. Parental, adult involvement with children in their time outdoors plays an important role to encourage children to get outdoors. A healthier population would be more economically productive and produce greater rewards for society (Barrett 2007) and avoid continued or even the escalating costs for failure to solve these problems. Non-design approaches to reduce childhood obesity and encourage more time outdoors combined with design solutions lend to a successful outcome.

CHAPTER 7 DESIGN PRINCIPLES

The goal of this thesis was to analyze and address design principles for the landscape architect to implement in his work to make the outdoors more attractive to children. It is imperative that children reconnect with nature and it is possible through the integration of certain design principles. Children spend a majority of their time inside and in return do not benefit from all the wonders of free play in the outdoors. Poor design or simple lack of design has taken away the free, open range that children used to have access to for free play.

It is the responsibility of the landscape architect to reclaim and improve outdoor spaces for children. Attractive outdoor spaces encourage children to experience their own unstructured, free play. Research conducted by landscape architects shows the need for the profession to make improvements. In this thesis works cited by landscape architects support the urgency to make changes to the built environment to encourage children to get outdoors. Landscape designers need to incorporate design that lets children roam beyond the pavement. This is not to say that no one else is responsible for correcting the problems outlined in this thesis. However, landscape architects should have a major responsibility since they are agents of change in the landscape.

As landscape architects certain principles should be adopted to ensure a successful design for children. The following recommended design principles will result in good design that will draw children back outdoors.

Table 7.1: Six Design Principles for Landscape Architects to help Reconnect Children with Nature

- I. Incorporate the needs of children in every design
- *II. Incorporate nature's processes*
- III. Create 'biophilic' design
- IV. Expand the traditional role of the profession
- V. Work on a collaborative basis as a design team
- VI. Evaluate your landscapes

I. Incorporate the needs of children in every design

Children should always be considered in a design. A child enjoys more than just a playground or a manicured lawn. By making children a part of a design they will spend more time outdoors in the designed space. As a matter of fact the child and children's needs should be included in every design no matter whether the child is "client" or not. This design mind set will also increase the potential to connect more landscapes.

II. Incorporate nature's processes

Nature changes by minute. If landscape architects incorporate and showcase rather than hide or tidy-up natural occurrences or processes the

landscape would offer more for children to observe and interact with – autumn leaves, wooly caterpillars, even flowers and twigs - become the base for creative play. The incorporation of nature's existing processes in design is to discourage a landscape architect from over-designing a site. There is a tendency to design sterile and clean spaces and this sanitary approach severs the existing natural processes of a site and hinders the natural strengthening of a child's immune system. Landscape architects need to focus more on informal design as opposed to formal, impersonal, concrete ones. Designers should pay attention to planting more and building less (Nabhan 9).

III. Create 'biophilic' design

A biophilic design is an important principle as it both stimulates and supports a child's biophilia, the instinctive bond of humans with other living systems in nature. A biophilic design increases a child's experience with nature. One of the most valuable and accessible elements of a biophilic design is loose parts. Interacting and playing with loose parts teaches children about academic subjects including mathematics, science and the arts. Loose parts are free, limitless and crucial in a biophilic design.

IV. Expand the traditional role of the profession

Landscape architects need to expand their role from that of strictly a designer. Landscape architects are advocates, mediators, instigators,

community leaders and role models. By playing many different roles landscape architects are better able to work with various professionals to realize a design.

V. Work on a collaborative basis as a design team

Successful designs for children come from collaborative efforts including the following participants: children, landscape designers, parents, urban designers, engineers and developers. Children will feel empowered with leadership roles and begin to better understand the natural world around them. Parents themselves must set examples for children by spending more time outdoors. As role models parents play an integral part in the efforts to reconnect children with nature.

VI. Evaluate your landscapes

And finally to ensure the success of a design a landscape architect should evaluate on a regular basis to see if their landscapes are working for children. If this principle is disregarded, the profession as a whole will not advance its knowledge about children's needs. A management plan allows regular monitoring of a site to determine how children are using the site and if the design is a success. A landscape management plan gives a framework for the general care and a process for the general maintenance of a site contributing to its longevity.

In Carson's magazine article "Help Your Child to Wonder" she writes, "A child's world is fresh and new and beautiful, full of wonder and excitement. It is

our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood". This is a challenge to landscape architects both as practitioners and advocates of public health, safety and welfare, specifically on behalf of children. Landscape architects must take action and apply the recommended design principles to create better spaces for children. Landscape architects who implement the recommended design principles will succeed through better design in improving the lives of children. It is our responsibility to introduce and integrate the outdoors into a child's life, as there is a critical and irreplaceable role of nature for all children.

<u>Epilogue</u>

As a child I remember going to my grandfather's house and running through trees to a field of daffodils to get to a stream's edge for hours of play. I thought that the daffodils were four feet tall and the stream was far from any parent. Since that time a developer has clear-cut all the trees and the field of daffodils has become multiple back yards connecting Mc Mansion styled homes to the channeled stream. "As adults we find that our favorite outdoor place from younger years has been lost; a favorite tree is cut down, a favorite meadow paved, and this may be an impetus for environmental activism" (Kahn 113). I look forward to hearing my two children ask me instead if they have been "nice enough today" to get to spend more time outdoors.

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APPENDIX A

STATE LAWS ADDRESSING CHILDHOOD OBESITY



Source: Childhood Obesity Prevention, 2009 State Legislation Report, American Academy of Pediatrics

APPENDIX B

STATE LAWS ADDRESSING CHILDHOOD OBESITY

State Laws Addressing Uniidnood Obesity, 2009						
	Approach to Address	State Task Force/	Mandates BMI	Requires Menu Labeling		
	Childhood Obesity	Committee	Screening	in Restaurants		
Alabama	Both	Yes	No	No		
Alaska	None	No	No	No		
Arizona	Both	Yes	No	No		
Arkansas	Both	Yes	Yes	No		
California	School nutrition program	No	No	Yes		
Colorado	Both	Yes	No	No		
Connecticut	Both	No	No	Yes		
Delaware	None	Yes	No	No		
District of Columbia	None	No	No	No		
Florida	Both	No	Yes	No		
Georgia	Physical education	No	No	No		
Hawaii	None	No	No	No		
Idaho	None	No	No	No		
Illinois	Both	Yes	Yes	No		
Indiana	Both	No	No	No		
lowa	None	No	No	No		
Kansas	Both	No	No	No		
Kentucky	School nutrition program	No	No	No		
Louisiana	Both	No	No	No		
Maine	School nutrition program	No	Yes	Yes		
Maryland	Both	Yes	No	No		
Massachusetts	None	No	No	Yes		
Michigan	None	No	No	No		
Minnesota	None	No	No	No		
Mississippi	Physical education	No	No	No		
Missouri	None	No	Yes	No		
Montana	Physical education	No	No	No		
Nebraska	None	No	No	No		
Nevada	None	Yes	No	No		
New Hampshire	Physical education	No	No	No		
New Jersey	None	Yes	No	No		
New Mexico	Both	No	No	No		
New York	Both	Yes	No	No		
North Carolina	School nutrition program	No	No	No		
North Dakota	Physical education	No	No	No		
Ohio	None	No	No	No		
Oklahoma	Both	No	No	No		
Oregon	None	No	No	Yes		
Pennsylvania	School nutrition program	No	Yes	No		
Rhode Island	Both	No	No	No		
South Carolina	Both	No	No	No		
South Dakota	None	No	No	No		
Tennessee	School nutrition program	No	Yes	No		
Texas	Both	No	No	No		
United States	33 Yes	14 Yes	8 Yes	5 Yes		
Litah	Both	No	No	No		
Vermont	Both	Yes	No	No		
Virginia	Physical education	Yes	No	No		
Washington	Both	Yes	No	No		
West Virginia	Both	Ves	Ves	No		
Wisconsin	None	No	No	No		
Wyoming	None	No	No	No		
vvyoning	NULLE	INU	INU	INU		

Source: Childhood Obesity Prevention, 2009, State Legislation Report, American Academy of Pediatrics

APPENDIX C

LATCHKEY CHILDREN AGE RESTRICTIONS BY STATE

The following table lists legal age restrictions for children left at home alone categorized by state within the U.S. Please note that city and county ordinances within each state may have more definitive and restrictive laws. Call your State DHS or local child welfare agency to learn about age guidelines in your area.

State	Minimum Age of Home Alone Child	Reference		
Alahama	None	Alahama Babysitting Laws		
Alaska	Unknown	No Resource Found		
Arizona	None	Arizona Dopartment of Economic Socurity		
Arkansas	None	Definitions of Child Abuse and Neglect - Arkansas		
California	None	Child Abuse Prevention Council		
Colorado	12 *	Colorado Department of Human Services		
Connecticut	None	State of Connecticut Attorney General's Office		
Delaware	12 *	Delaware Division of Family Services		
Florida	None	Florida Eighth Judicial Circuit Family Court FAQ		
Georgia	9	NBC Augusta.com		
Hawaii	None	Hawaii Department Of The Attorney General		
Idaho	None	Idaho Department of Health & Welfare		
Illinois	14	University of Illinois Child Care Resource Service		
Indiana	None	No Laws Govern Leaving Children Alone		
lowa	None	Iowa Department Of Human Services		
Kansas	12 *	Kansas Health & Environment		
Kentucky	None	LAW & JUSTICE Children at Home Alone Nov, 2003		
Louisiana	None	Louisiana Department of Social Services		
Maine	None	Maine Kids & Kin		
Maryland	8	Maryland Unattended Children Law		
Massachusetts	None	Massachusetts Trial Court Law Libraries		
Michigan	None	Calhoun County Courts		
Minnesota	None	Minnesota Dakota County Attorney's Office		
Mississippi	None	Mississippi Coalition Against Domestic Violence		
Missouri	None	KRCG Latch-key limbo An Education Report 2006		
Montana	None	Montana Child & Family Services		

Nebraska	11 *	Midwest Child Care Association
Nevada	Unknown	No Resource Found
New Hampshire	None	State Of New Hampshire Attorney General
New Jersey	None	NJ Department of Human Services
New Mexico	None	VogueSeattle.com Lawyer Answers
New York	None	New York Children & Family Services
North Carolina	None	NC Health & Human Services
North Dakota	9 *	North Dakota CSCC (Kid's Council)
Ohio	None	The Cleveland Law: Home Alone Children
Oklahoma	None	Lawton PD - Guide For Working Parents
Oregon	10	City of Albany, Oregon FAQ
Pennsylvania	None	Pittsburg Post-Gazette.com article June, 2007
Rhode Island	Unknown	No Resource Found
South Carolina	8 *	NBC Augusta.com
South Dakota	None	South Dakota Cooperative Extension Service
Tennessee	10 *	Tennessee Juvenile & Family Court Judges
Texas	None	Texas Family & Protective Services
Utah	None	Children's Service Society of Utah
Vermont	Unknown	No Resource Found
Virginia	None	Chesterfield County, Virginia Social Services
Washington	10 *	Child Care Resources
West Virginia	Unknown	No Resource Found
Wisconsin	12 *	Prevent Child Abuse Wisconsin
Wyoming	12 *	Wyoming Child Protective Services

* **Guideline ONLY:** States do not set specific age after which a child legally can stay home alone but do provide recommendations.

Source: Lachkey Kids program, 2010

APPENDIX D

RESOURCES

American Affiliate of the International Play Association <u>www.ipausa.org</u>

Environmental Education Alliance of Georgia www.eealliance.org

International Play Association, Promoting the Child's Right to Play www.ipaplay.org

International Playground Equipment Manufacturers Association <u>www.ipema.org</u>

Kids Discover Nature: Your Guide to Connecting Kids with Nature <u>www.kidsdiscovernature.com</u>

Learning Landscapes Alliance www.cudenver.edu/Academics/Colleges/ArchitecturePlanning/discover/centers/L earningLandscapes/Pages/index.aspx

Living Neighborhoods www.livingneighborhoods.org

Mother Nature Network www.mnn.com

National Association for the Education of Young Children www.naeyc.org

National Institute of Environmental Health Sciences <u>www.niehs.nih.gov</u>

National Institute for Play www.nifplay.org

North American Association for Environmental Education <u>www.naee.org</u>

Videophilia www.videophilia.org