GROUNDS TO GROW: CLOSING THE DESIGN GAP

BETWEEN CHILDREN'S HEALTH AND PUBLIC PLAY SPACE

by

GRETCHEN GIGLEY

(Under the Direction of Marguerite Koepke)

ABSTRACT

Current research reveals a decline in children's health in the U.S. This thesis explores the effects of the built environment, free play and nature on children's health and a landscape architects role through public play space design. The design gap exists in understanding this complex user group and design elements that can directly affect health. A review of the latest data on the decline and the history of free play, play spaces, and play equipment is conducted. Three case studies of new, community-built play spaces are presented using site inventories, participant observations, parent/guardian interviews, and photo interviews with children. Design criteria are written to help bridge the gap, including elements that encourage free play in nature to benefit health. Collaborating with developmental health experts can additionally assist landscape architects in strengthening public play space design and serendipitously improving children's health.

INDEX WORDS: Free play, Play, Children, Developmental Health, Health, Childe Development, Play space, Design criteria, Photo interviews, Cunard Memorial Playground, World of Wonder, All Children's Playground.

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DEDICATION

Thank you so much to my family for your tireless love and support and the hours of encouragement. I couldn't have done this without you Mom and Dad! Thank you to Britt for enduring this process with me, cheering me on and loving me all along the way. Thanks to little Miles for forcing me to take Frisbee breaks and always making me smile! Thanks to Heather and Dave for always believing in me and being there when I needed you most. Thanks to Alfie Vick for sparking my interest in Landscape Architecture. Thanks to my classmates, A.K.A Dark Bark, for making the last three years so much fun. I am forever inspired by you! And thanks to all of the children that have inspired me throughout the years for opening my mind and reminding me that anything is possible.

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INTRODUCTION

"I am struck by the fact that the more slowly trees grow at first, the sounder they are at the core, and I think the same is true of human beings." (Thoreau, 1892)

The majority of my childhood was spent investigating every inch of my family's fourteen acres. I was free to spend hours digging in the dirt, searching for unusual insects, collecting interesting treasures and snacking on vegetables from our garden. I had my favorite Maple tree, my favorite winding woodland path, and my favorite flower scent. As stated by Gary Paul Nabhan and Stephen Trimble (Nabhan & Trimble, 1994) in their book, The Geography of Childhood , *"With these childhood experiences we begin. They form the secure foundation to which we return again and again in our struggle to be strong and connected, to be complete."* Indeed, I have always felt relaxed, free, inspired, and intrigued in the outdoors. As a child I had the freedom to play and outdoor space which provided a rich experience.

I have spent hours with children over the past ten years in a variety of capacities. During this time, several compelling moments triggered my interest in the connection between children's health and landscape.

- I worked at a daycare one summer where over 50% of the children had been diagnosed with ADD or ADHD. The staff carried a toolbox full of Ritalin to every field trip.
- One child, when asked to draw a picture of his house, drew a large box next to a small box; he labeled the large box “Wal-Mart” and the small one “my house.” There was not a single representation of nature in the picture.
- I have been warned many times of children who have been said to be disruptive, have the inability to listen, and can not participate in learning only to find the direct opposite. I conducted most of my classes or workshops outside.

How healthy are our children? Health researchers have stated that children and adolescents are leading more sedentary lifestyles with little time for free play outdoors. Statistics show their bodies and minds are suffering. Issues of childhood obesity have made recent headlines. According to the American Obesity Association (Ogden et al., 2006) the number of obese children and adolescents is higher than ever. In the Journal of the American Medical Association, researchers state that between 2003-2004 17.1% of all American children between the ages of 2-19 were considered obese, a number that has almost tripled in the last twenty years and continues to rise. (Ogden et al., 2006) Prevalence of obesity is increasing in all age groups, even toddlers and preschool children. The Center for Disease Control (2007) reports a dramatic rise in obesity between 1980 and 2004 from 5% to almost 14% among children ages 2-5. This is not something children are likely to outgrow according to The National Center for

Health Statistics. (2006) In fact, research has shown that obese children are as much as 70% more likely to become obese adults. (Alliance for a Healthier Generation, 2007) One study published in the New England Journal of Medicine in 1997 reported that over 80% of children that are overweight by ages 10-15 become overweight adults by age 25. (Center for Disease Control, 2007) A 2001 report in *Pediatrics* stated that 25% of overweight adults were clinically overweight as children. (Center for Disease Control, 2007) Research continues to point to childhood obesity as a national epidemic.

A number of diseases linked to obesity are on the rise, as well, including hypertension, orthopedic complications, sleep apnea, heart disorders, asthma and diabetes. (American Obesity Association, 2002) Health researchers point out the tremendous stress that excess weight puts on the body. During critical periods of growth, cartilage and bones of overweight children are prone to strain, causing bowing, pain, overgrowth and limited range of motion. (American Obesity Association, 2002) The number of children diagnosed with Type 2 diabetes, a disease instigated by obesity, rose from 4% in 1992 to an alarming 16% in 2000. (American Obesity Association, 2002) Obese children have a 12.6% higher risk of having issues with blood insulin levels eventually leading to Type 2 diabetes (American Obesity Association, 2002). In addition, obese children are nine times more likely to suffer from persistent hypertension which can lead to heart attacks and strokes. (American Obesity Association, 2002) According to the President's Council on Physical Fitness and Sports, over 40% of children ages 6-17 show early signs of cardiovascular and/or circulation problems. (Louv, 2005) Obesity has also been linked to depression, eating disorders, disrupted hormonal functions, social immobility and low self-esteem.

Psychologists have found that the longer a child is obese, the greater the risk of developing mental disorders. (Lawson, 2003) Dr. Sarah Mustillo of the Duke University Medical Center states that both social and biological factors related to obesity can lead to behavioral and emotional problems (Lawson, 2003).

Currently, almost 8 million children have been diagnosed with a behavioral or emotional disorder in the United States (Louv, 2005). Attention Deficit/Hyperactivity Disorder (ADHD) accounts for over half of these cases. According to The Center for Disease Control, there are over 4 million children that have diagnosed with ADHD in this country. (Centers for Disease Control and Prevention, 2005) In addition, drugs disseminated for ADHD increased 600% from 1990-1995. (Louv, 2005) The startling increase in cases of behavioral/emotional disorders in children, including ADHD, has provoked researchers and health care practitioners to question why this is happening. An increasing body of research is linking the decline of free play in nature to a higher risk of obsessive worry, depression, fear, rage, issues with attentional functioning and additional developmental delays often related to stress.

Overall, children and adolescents are spending an average of 4-6 hours per day on computers, watching television and playing video games. (Alliance for a Healthier Generation, 2007) Almost one in four are not involved in any type of free play activity outdoors. (Alliance for a Healthier Generation, 2007) The reduction of free play in schools is happening simultaneously, no longer providing a guarantee of daily, unstructured physical, outdoor activity. An estimated 40% of schools around the nation have either reduced or eliminated playground time despite the fact that research shows healthy development depends on movement. (Strong National Museum of Play, 2007)

According to researchers in environmental psychology and child development, opportunities in nature for the development of body and mind are boundless, leading children "*to discover new properties of the world, providing a necessary testing ground for emergent skills.*" (Moore & Young, 1978)

The notion of a connection between public health and landscape is not new. Early philosophers Plato, Quintilian, and Aristotle spoke of the benefits of free play on child development, specifically its cognitive, behavioral and emotional benefits that lead to overall happiness. Frederick Law Olmsted made a significant impact through his clear understanding of this connection, as well. In the 19th century he began designing public parks and gardens to improve health. *"He instinctively knew that the architect and the landscape designer, the road builder and the house builder, were contributing as much as any physician—perhaps more—to the health of all."* (Jackson, 2001) The changing perception of children and outdoor play that emerged during this time was certainly impacted by Olmsted's philosophies and designs. In the early 1900s, an effort was made by the government to encourage outdoor play for the health, safety and welfare of children, and manufacturing companies began to make standardized play equipment. (Gaster, 1992) The child development movement followed and outdoor recreation was seen as a necessity for good health. The ideas from these early philosophers and forward thinkers still resonate today.

Edward O. Wilson, Pulitzer Prize winner and Harvard scientist, called the connection between humans and nature "biophilia", believing it is biologically based. (Louv, 2005) This concept has been taken a step further by Richard Louv, author of Last Child in the Woods. (Louv, 2005) Louv coined the term "nature deficit disorder" to

describe a current phenomenon of disconnect from nature. He defines the "disorder" as:

> *"…the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses. The disorder can be detected in individuals, families, and communities. Nature deficit disorder can even change human behavior in cities, which could ultimately affect their design, since long-standing studies show the relationship between the absence, or inaccessibility, of parks and open space with high crime rates, depression, and other urban maladies." (Louv, 2005)*

Both Wilson and Louv note the startling implications of the separation between children and nature. Their work has led to increased research on the effects of free play in nature and developmental health, and has encouraged further investigations on how to repair this break. Current research has certainly established the urgency of this matter, which calls for multi-disciplinary action involving not only educators, therapists, doctors and child development specialists, but also psychologists, environmental scientists, policy makers, and designers.

The primary objective of this thesis is to identify a landscape architect's role in the decline of children's developmental health through defining the gap that exists between design and public play space. Current research on free play and children's health as well as information on the history of the play movement will be compiled and analyzed. In addition, three recently built public play spaces will be studied to identify current trends in play space design, user preferences and specific health benefits. Interviews, participant observations, photo interviewing and inventory/analysis will be

used to gather additional useful information. The data collected will clarify the design elements necessary to make a play space “successful” in terms of health. Specific criteria will be determined to provide landscape architects with practical tools to design effective public play space in community and urban design projects in an effort to improve children’s developmental health. Ultimately, this thesis seeks to inspire landscape architects to be part of the solution through understanding the impact of free play in nature on children’s developmental health and, as a result, advocate for the inclusion of public play space in design.

Chapter 2

THE HEALTH BENEFITS OF FREE PLAY IN NATURE

"I like to play indoors better, cause that's where all the electrical outlets are." Paul, a fourth grader in San Diego (Louv, 2005a)

Most would agree that play is healthy for children. However, current evidence suggests outdoor free play may be more crucial to overall healthy child development than previously considered. The American Academy of Pediatrics (Ginsburg, 2007) recently released a report stating that free play is vital to healthy child development. Other significant research done by health care practitioners, child development specialists and play therapists substantiates this claim. Free play is unprompted, voluntary, engaging, and imaginative; it is natural, unstructured and is different from daily experiences. In free play situations children have the "free will" to decide what and with whom they will play. Robin Moore and Donald Young note:

> *"A person lives simultaneously in three interdependent realms of experience: the physiological-psychological environment of body/mind; the sociological environment of interpersonal relations and cultural values; and the physiographic landscape of spaces, objects, persons, and natural and built elements." (Robin C. Moore & Young, 1978)*

Experiences in nature challenge and stimulate all of the "realms of experience" in different ways. Spaces in which children play affect both the body and mind simultaneously, thus impacting not only social, emotional, physical and cognitive well-being, but also influencing a child's sense of place and parental relationships. *"Play is a process of exploration, investigation, and manipulation; the broader the range of experiences, the better for development."* (Frost, Brown, Sutterby, & Thorton, 2004)

Physical Benefits

Perhaps one of the most easily quantifiable developmental health benefits of free play is the physical benefit. Dramatic increases in childhood obesity reveal the harsh affects of the lack of physical activity. Oddly, as the cases of childhood obesity are on the rise, the increase in participation in organized sports is happening concurrently. (Louv, 2005a) Play researchers and health practitioners note that organized play does not allow the freedom to explore physical capabilities and fully challenge motor development.

The obesity epidemic is occurring at all ages. According to the Amercian Heart Association, over 10 percent of children two to five are considered clinically obese (Alliance for a Healthier Generation, 2007). Obese children are not only at higher risk for heart disease and diabetes, but health practitioners say they are also vulnerable to locomotor issues associated with the stress on muscles and joints from the weight. (American Obesity Association, 2002) Free play in nature promotes active bodies at all developmental levels through providing a more complex environment within which to move; it is a natural means to combat obesity in children.

Categories of play that increase age-appropriate physical movement and improve motor skills have been defined by Piaget and Frost and as: functional play (jumping, climbing), construction play (building, playing with loose objects), and symbolic play (dramatic, pretend play.) (Fjortoft, 2004) All three play forms are stimulated by free play in natural settings, where movement calls for a "*self-organization of body systems*." (Fjortoft, 2004) Through free play in nature, child development experts contend that children have greater chances to learn about their bodies, discover physical and spatial abilities and practice controlled movement, thus improving fine and gross motor skills. Swedish researchers conducted a study comparing behaviors of children in two different childcare settings. (Robin C. Moore & Cosco, 2006) One setting required children to be outside all day every day, whether rain or shine and included nearby nature; the second setting included a small, structured play environment surrounded by buildings. The children in the natural setting had more advanced motor coordination and greater directed attention capabilities; interestingly, there were also lower incidences of colds and flu.

Cognitive Benefits

"Outdoors is a necessary counterbalance, an explorable public domain providing engagement with living systems and the prevailing culture – the locus of volitional learning." (Robin C. Moore & Young, 1978) The latest research in child development has linked play in nature to improved cognitive functions. There is neurological evidence to support this notion. Scientists state that the connection between cognitive development and play is "*a result of electrochemical synapses working within sensory*

cells inside the brain." (Frost, Brown, Sutterby, & Thorton, 2004) They further explain that during younger years these synapses happen more frequently, thus making it crucial that young children are exposed to stimulating environments in order to acquire experiences that will prepare them for future learning. *"The risk is that if some experiences are not had early, the brain may be ill prepared to respond to similar experiences later in life."* (Frost, Brown, Sutterby, & Thorton, 2004)

Exposure to stimulating natural environments is not just crucial in the early years. "Middle childhood", designated by child psychologists as ages 6-12, is period when the brain is fully developed. (Nabhan & Trimble, 1994) Author of the book, *Childhood,* Melvin Konner, states, "*These are the years when the child is seen by societies throughout the world as a vessel into which knowledge, skill, and tradition – in short, culture – can be steadily and reliably poured."* (Nabhan & Trimble, 1994) Early researcher, Piaget, agreed that exposing children to nature facilitates learning and thus, the development of mature thought. (Frost, Brown, Sutterby, & Thorton, 2004)

Opportunities for dramatic play are more abundant in natural free play situations which provide movable parts in diverse settings; dramatic play has been shown to stimulate all brain functions and instigate problem-solving, imagination and critical thinking as well as advance language skills. In natural environments children can satisfy the innate need to investigate and discover at their own pace and level. *"Wonder is an important motivator for lifelong learning."* (Wilson, 1997) Exploratory learning in nature has been linked to enhanced observation and analyzation skills and an increased sense of wonder.

Schools continue to reduce the amount of recess and time for free play. Yet, hundreds of studies have been conducted linking cognitive development and play in nature. This research sustains that the ability to learn is enhanced or even enabled by a dramatic change in activity and environment as provided by free play in natural settings. Design of play space is a necessary part of any setting within which children dwell. Free play in nature is where the line between formal and informal education is blurred. Landscape architects, Robin Moore and Nilda Cosco state *"The purpose of design is to ensure that the necessary stimuli are ever-present in the child's environment to set the learning process in motion through play."* (Robin C. Moore & Cosco, 2006) The UN Convention on the Rights of the Child (UNHCR, 1990) has established a list of children's rights which include Article 31 where "Children have the right to relax and play, and to join in a wide range of cultural, artistic, and other recreational activities." and Article 27 that states "Children have the right to a standard of living that is good enough to meet their physical and mental needs." Landscape architects have the responsibility to design for the health, safety and welfare of people. Studies are showing the standards within which children are living could be leading to a decline in not only cognitive development, but overall health.

Social Benefits

Because of its diverse quality, free play in natural settings can provide a variety of open and intimate spaces that encourage socialization while congregating with peers of varying abilities. *"Physical activity is a social activity…"* (Frost, Brown, Sutterby, & Thorton, 2004) Children are able to practice cooperation, compromise, and negotiation

in pretend play where rules are often a key component. According to child development experts, children are better able to connect with peers in outdoor play environments where they tend to feel more relaxed, imaginative and free. One study done by Swedish researchers (Louv, 2005a) showed an increase in numbers of friends amongst children who live in settings that include outdoor access than that of children who live in settings with restricted access. Exploring social identity in natural settings through play parallels discovering where individuals fit into different situations and settings. Both problem-solving and decision-making are investigated, leadership skills are challenged and a sense of self is nurtured. Child psychologist Brian Sutton-Smith states,

> *"Given that it has long been known that children up until about 7 years communicate with each other more adequately by play than in speech, an argument can certainly be made that their childhood right to play is the same as our adult First Amendment right to free speech." (Nabhan & Trimble, 1994)*

Communication has been shown to be less ambiguous in play where children can be less inhibited and more liberated. As a result, relationships and individuals evolve. According to the American Medical Association,

> *"Although many abilities may contribute to achieving social connections, we maintain that empathy, which can be defined as recognizing the emotions of self and others and conveying that recognition, is an ability that emerges in early childhood, is the key to meaningful affiliation, and arises, in part, from the experience of free play." (Burdette & Whitaker, 2005)*

The feelings of empathy may lead to overall compassion for other living things.

Behavioral/Emotional Benefits

Little scientific research has been done to directly link children's behavioral and emotional development to physical activity. However, the Journal of Psychiatric Services published a survey in 2003 that revealed "*the rate at which American children are prescribed anti-depressants almost doubled in five years; the steepest increase – 66 percent – was among preschool children."* (Louv, 2005a) This is an astonishing figure that has prompted researchers to further study emotional health and play.

Expectations of children to perform in school, home, extracurricular activities, and life are proving to increase stress levels, making play outside increasingly important. Free play in nature that has been linked to stress reduction. Stress can be linked not only to physical issues, including high blood pressure and sleep disorders, but also to emotional and behavioral distress such as to depression, anxiety, and aggression. In the book, The Developmental Benefits of Playgrounds, authors state,

> *"The importance of physical activity is circular; children who are physically active have greater feelings of self efficacy, while children who have feelings of self efficacy are more likely to be physically active. (Biddle, Sallis, and Cavill, 1998; Fogelholm, Nuutinen, Pasanen, Myohanen, and Saatla, 1999)*"

Physical activity in nature can place children in positions to develop confidence and cultivate feelings of self-worth.

Additional research has been conducted on free play in nature and directed attention. Attention Deficit and Hyperactivity Disorder (ADHD), defined as a developmental lag, has become one of the most widespread childhood neurobehavioral disorders in the U.S. An estimated 4.4 million children in the U.S. ages 4-17 have been

diagnosed with ADHD by a health care professional. (Centers for Disease Control and Prevention, 2005a) Many more have been diagnosed by parents or school officials. Prescribed stimulants given to treat ADHD have, in turn, increased dramatically; over 2.5 million children ages 4-17 were being treated with medications as of 2003. (Centers for Disease Control and Prevention, 2005b) In his book Last Child in the Woods, Richard Louv (Louv, 2005a) stated between 1990 and 1995 stimulants disseminated to children rose by an alarming 600 percent; moreover, the amount of money spent on ADHD between 2000 and 2003 grew by 369 percent. At the same time, researchers have found substantial evidence that these stimulants can delay cognitive and social development through hindering academic achievement and the ability for children to relate to peers. Additionally, the stimulants given for ADHD can cause appetite suppression, social anxieties, depression and insomnia. (Centers for Disease Control and Prevention, 2005b)

Noted psychologist William James first looked at attention and children in the 1890s; he identified two categories of attention: involuntary or effortless and voluntary or deliberate. (Louv, 2005a) Environmental psychologists Stephen and Rachel Kaplan took this idea a step further when, in the early 1970s, they conducted a nine year study on the positive affects of nature on attention. (Louv, 2005a) Through this study they developed the Attention Restoration Theory which suggests attentional functioning is impacted by nature. This theory holds that directed attention, or what James called voluntary attention is fatigued after prolonged use; natural environments provoke indirect or involuntary attention which enables the recovery and relaxation of directed

attention. In other words, nature helps to restore the ability to give directed, focused attention, as required particularly in school settings.

Additional groundbreaking research carried out by psychologists Andrea Taylor and Frances Kuo at the Landscape and Human Health Laboratory measured the affects of nature on ADHD. Their revolutionary study (Kuo, Sullivan, & Taylor, 2001) showed a significant decline in symptoms when children with ADHD spent time in nature, indicating that nature may serve as an alternative therapy for the disorder. One parent who participated in a focus group for the study pointed out, "*that his son, although usually struggling against his attention deficit symptoms, can 'hit golf balls with me for 2 hours at a time and he fishes for hours at a time alone.' This father reported that, after these activities, his son's attention deficit symptoms are minimal and he's very relaxed." (Kuo, Sullivan, & Taylor, 2001)*

Skeptics on the link between nature and ADHD designate the reason for increased cases to be the advance in medical knowledge, allowing practitioners to effectively diagnose and treat those with the disorder. At the same time, Robert Sallis, director of the Active Living Research Program at the Robert Wood Johnson Foundation states definitively "*that an indoor, sedentary childhood is linked to mental-health problems." (Louv, 2005b)* The Children's Hospital and Regional Medical Center in Seattle has determined television viewing as having an effect on attentional capacity. Researchers state, "*that each hour of TV watched per day by preschoolers increases by 10 percent the likelihood that they will develop concentration problems and other symptoms of attention-deficit disorders by age 7." (Louv, 2005b)* As numbers of children with mental disorders, including ADHD increase, psychologists say it is clear

that more research is necessary, especially given statistical findings which, thus far, have substantiated that play in nature promotes healthy child development.

Parental Bonds

Because free play encourages uninhibited interaction between children and the world around them, parents are able to gain insights about and fully engage with their child. According a report published by the American Academy of Pediatrics, child-driven play gives parents the opportunity to "*see the world from their child's vantage point as the child navigates a world perfectly created just to fit his or her needs." (Ginsburg, 2007)* Medical professionals agree that this type of play may improve communication between parent and child; it permits a child to express their feelings, opinions, and experiences in a less verbal, potentially more comfortable way. Lowered stress levels during free play in nature can open up avenues for guidance, sharing and bonding between child and parent.

Sense of Place

Robin Moore, Professor of Landscape Architecture at North Carolina State University and author of the book Natural Learning defines place-making or sense of place as "…*the feeling of belonging that exists between people and the environments in which they live. They feel it is their place, they belong there." (Robin C.; Moore & Wong, 1997)*

In natural play settings, no two spaces are exactly alike; unique and movable elements within natural play spaces can eliminate the danger of sameness. "*Sameness*

of play spaces makes them interchangeable in the minds and emotional experiences of children." (Frost, Brown, Sutterby, & Thorton, 2004) Children are highly motivated to connect to their surroundings through curious discovery using their senses and bodies. During free play in nature, children can manipulate loose parts, leave their mark and make the space their own; green play spaces are boundless, forgiving and flexible settings. A strong sense of place can lead not only to increased self-identity, but can also promote environmental stewardship and community involvement.

As indicated by research presented, considering children's health necessitates a holistic approach. Children's developmental health is a woven complex, cooperative system impacted by the environment within which each child lives. Daily interactions and experiences with the natural environment can not only shape a child's perception of other living things, but it can also directly impact their physical, cognitive, social and behavioral/emotional health. The idea that free play in nature can be therapeutic and restorative instigates a new way of thinking about solutions to declining health. *"Play includes imagination and leads to perception and action."* (Fjortoft, 2004) Studies confirm that free play in nature can simultaneously stimulate age- appropriate, healthy functioning of physical, cognitive, social, and emotional/behavioral systems. Perhaps this can not be done within four walls.

Chapter 3

HISTORICAL CHANGES IN PUBLIC PLAY SPACE

"The test of the morality of a society is what it does for its children." –

Dietrich Bonhoffer (Booth & Crouter, 2001)

Historical Perceptions

The late nineteenth and early twentieth centuries were a time of great socio-economic change in North America. Children had been considered "little adults" and a source of labor. However, the effects of the Industrial Revolution were felt across social boundaries, and societal attitudes towards the labor force, therefore, began to reflect radical changes in the roles of women and children. Advances in the understanding of child development, psychology and health began to shed light on the needs of children. Overall, public health conditions were severe during this period, especially in overcrowded, pollution-filled urban areas where immigrants from all over the world came as a result of expanding trade and changing economic demographics.

Figure 3.0
Children Playing In the Street, circa 1900
Jane Addams Memorial Collection, negative 296, Special Collections, University Library,U. IL Chicago

Parents were forced to work long hours away from home, leaving children alone to fend for themselves. (Figure 3.0) During this period, children spent much of their time playing in unsupervised, unsafe streets, alleys, open fields and abandoned buildings; juvenile delinquency and theft were common activities. (Figure 3.1) Early statistics compiled in a 1910 document by child welfare experts in New York City show that "*one in five children died before the age of five (from all causes and not just from accidents); 95% quit school before the age of 14; and for each city child there was but one square foot of playground space.*" (Gaster, 1992) These problems were not limited to local jurisdictions; even the federal government discerned a need to address child welfare. President Theodore Roosevelt remarked:

Figure 3.1
Children Playing In an Alley.
http://us.history.wisc.edu/hist102/photos/html/1028.html

> *City streets are unsatisfactory playgrounds for children, because of the danger, because most good games are against the law, because they are too hot in summer, and because in crowded sections of the city they are apt to be schools of crime." (Gaster, 1992)*

Figure 3.2
Crowded Streets of Chicago, 1910
http://us.history.wisc.edu/hist102/photos/html/1028.html

Because of crowded conditions, space was considered a commodity rather than a

place for children's play. (Figure 3.2) Strangely, the parks movement, beginning in the late 1800s also did not consider the importance of children's play space; park designers focused largely on sculpture and horticulture. Issues of child welfare became increasingly urgent across the nation, especially in urban areas.

In 1852, the Children's Aid Society was formed specifically to address public health issues, working particularly with impoverished immigrant children. (Gaster, 1992) The Society instigated the children's play movement by bringing issues of child welfare to the forefront. The Society was started by radical social reformer and Methodist minister, Charles Loring Brace in New York City, and emphasized crime prevention, exercise, social interaction, patriotism and character development. (Children's Aid Society, 2007) The New York Times wrote an article praising the Society for their progressive approach to child welfare reform, stating, "*Left to their own devices, (the boys) were just the stuff of anarchists, the destined victims of Red propaganda*." (Gaster, 1992) While some historians consider the original goals of the Children's Aid Society to be about control of the poor, it is also true that the Society significantly contributed to the way child welfare was viewed and played an important role in social reform by broadening society's understanding of the needs of children.

Following the establishment of the Children's Aid Society much of the work done to modify the lives of urban children was done by churches working to help underprivileged children find relief from their heavily industrialized environment. Recreation programs continued to be formed throughout the 1880s in schools and health clinics by various religious institutions, yet there were no official supervised public play spaces until late in the decade.

The Unitarian Universalists Urban Ministry, founded in 1826, was an outreach program working primarily on children's health and recreation. The ministry developed the Children's Mission, a program which led to the construction of the first supervised playground in the United States in 1889, called the Sand Gardens of Boston. (Partners Healthcare, 2005) After observing sand gardens in Berlin, Germany, Boston physician, Dr. Marie E. Zakrsewska approached the Children's Mission, who was already interested in building a space for play. (Figure 3.3) The playground was literally a large sand pile placed in the Mission's yard. It was such a success that the Children's Mission and playground became a formal children's center in 1893. (Partners Healthcare, 2005) The Sand Gardens of Boston would inspire public play space development throughout the country over the next decade.

Figure 3.3
Sand Gardens of Boston, 1889
http://www.northendboston.com/history5.htm

By the end of the nineteenth century, psychologists and health care professionals had begun to define a link between health and play. It is important to note that most play at this point was happening outside. Play theorists Herbert Spencer, M. Lazarus and G.T.W. Patrick agreed that play is an innate need and a necessary action that children take to renew and restore. Spencer called play, "…*the activity by which surplus energy is used up."* (Kirkpatrick, 1917) He coined the "surplus-energy theory" which establishes play as a necessary means to release excess energy that builds up after life-sustaining activities have been satisfied. This theory would later influence modern day environmental psychologists and researchers, Stephen and Rachel Kaplan.

Known as the grandfather of German gymnastics, Johann Friedrich Gutsmuth believed outdoor space could be designed to encourage greater physical fitness. (Gill, 2007) Using principles from the German exercise tradition, his theory had great influence on American play equipment and formal playground design, advocating the use of indoor exercise equipment out in nature.

These sociological and psychological theories, along with the success of the Sand Gardens project encouraged schools and settlement houses became common locations for public, supervised play space. Jane Addams, Nobel Peace Prize winner for her work with social justice, founded the Hull House in 1892. (Gaster, 1992) This secular, social settlement house was located in a densely-populated, poor section of Chicago, and not only provided health services, but also accommodated a preschool and kindergarten for underprivileged children of working mothers. (Figure 3.4) Children's healthy development was an important focus. As a result, Addams started a model play yard for preschool and kindergarten children at the Hull House. This exhorted other kindergarten programs and settlement houses throughout the country to include play spaces for students. Additionally, in 1898, many schools began to include evening recreation programs for children to cover for the long work hours of parents.

Figure 3.4
Children at the Hull House
http://us.history.wisc.edu/hist102/photos/html/1028.html

At the beginning of the 1900s, the children's play movement became more visible, gaining greater support from wealthier citizens who believed this was a way to protect the upper-middle class from the poor. To what extent street life provoked criminal behavior is not known; however, the major goal of the children's play movement continued to be to improve the lives of children primarily by developing programs that would get them off the street. The movement maintained its focus on the poor, working-class, mostly Irish immigrant population. It was also during this period that play researchers made advancements in their understanding of play and health. They began to link specific areas of child development to play. While theorists such as Karl Groos, saw play as a way for children to practice and develop skills and ideas needed for healthy adult life, others like psychologist, G. Stanley Hall defined play as a necessary evolutionary step. (Hart, 1993) Hall's theory may have influenced outdoor play equipment such as monkey bars, swings and ladders designed to mimic early primal stages.

Friedrich Froebel opened the first Kindergarten in Germany in June 1840. (Froebel Web, 2006) He took a more holistic approach to children and play, adding to the list of benefits cognitive, social, and emotional development. His play spaces included plants, animals, sand, water, wood, and tools, as well as metal playground equipment. (Figure 3.5) He stated, "*Play is the highest expression of human development in*

Figure 3.5
Kindergarten circa 1900.
http://www.theiff.org/images/Kindegarten/quick3.jpg

childhood, for it alone is the free expression of what is in a child's soul." (Lowenfeld, 1991) Dr. Maria Montessori, a doctor and researcher from Italy during the early to mid 1900s, followed Froebel's way of thinking. (Hendricks, 2001) She was the first woman in Italy to receive a medical degree and combined psychiatry, anthropology and education. Through her work with mentally ill children, she was one of the first to conclude that children need more freedom in play and should not be forced to conform to adult ways of thinking. (Hendricks, 2001) Like Hall's theory, Montessori's belief was that childhood was a life stage that must be acknowledged and respected.

The research during this period heavily influenced the way play spaces of the time were designed. Many began for the first time to account for additional developmental affects of play other than motor development, such as social and cognitive. Froebel and Montessori's approaches were adopted by many educators who began to see play spaces as an extension of the classroom. This perhaps marked the first steps toward the outdoor classroom design of today. Despite this advancement, such play spaces were still not the norm and often catered to upper-middle class children. However, the push continued for safe play spaces of any kind; safety depended on supervision. The nation's first Playground Department was formed in 1904 by the city of Los Angeles to help provide more options for children. (Gaster, 1992) The Department, in turn, pushed cities to construct play space and had great success. Authors W.P. Bowen and E.D. Mitchell, authors of the 1928 book The Theory of Organized Play, state that by 1906, supervised play spaces existed in an astounding 36 cities around the United States. (Gaster, 1992)

Park departments around the nation began to contribute by advocating gardening programs and allowing schools to use city parks for art and education. Designer Frederick Law Olmstead was an important advocate of public health and landscape as made evident in his plan of Central Park. Regarded as the first urban public recreation space, the initial design of Central Park included consideration of children. Though there were no playgrounds in the park until Heckscher Playground, built in 1926, there were areas designated for children in the original design. (Gaster, 1992) These spaces included a dairy where children could get milk, a carousel, and space for goat wagon rides. (Figure 3.6) In addition, there were sections of the park allocated for women and small children. There was much opposition, particularly by conservationists, to the installation of Heckscher Playground. As a result, the playground was originally open just three days a week with strict rules imposed. Children using the playground were required to carry a note from their school teacher verifying good school attendance and excellent character. Heckscher Playground was a tremendous success, and by 1940 there were over twenty playgrounds throughout Central Park designed specifically for outdoor play. (Gaster, 1992)

Figure 3.6
Young Girl in Goat Wagon, Central Park, early 1900s
http://wirednewyork.com/forum/showthread.php?t=3012

The beginning of the Playground Association of America (PAA), in 1907, was crucial to the spread of the children's play movement. (Gaster, 1992) The Association

was originally formed by several child welfare reformers, including Jane Addams to assist cities in progressing the development of play space. The PAA was made up of eighteen men and woman involved in the children's play movement in a variety of capacities. President Theodore Roosevelt, with his clear interest in children, issues of poverty and health served as Honorary Vice President of the Association. As stated in the National Recreation Association Records, "The Early Days," one founding principle of PAA proclaimed:

> *"That inasmuch as play under proper conditions is essential to the health and the physical, social and moral wellbeing of the child, playgrounds are a necessity for all children as much as schools."* (Anderson, 2006)

In its first meeting held in New York City, presentations were given on play as related to citizenship, character-building and physical health, as well as its socially-fostering characteristics, and its impact on delinquency. The connection made between health and outdoor play clearly helped shape the Association's early goals. One promotional document produced by PAA entitled "Playgrounds Develop, Playgrounds Diminish", declared:

> *"Playgrounds develop health, initiative, purity of mind, cooperation, ambition, honesty, imagination, self-confidence, obedience, and justice. Playgrounds diminish idleness, delinquency, exclusiveness, unfairness, gang-spirit, selfishness, rowdyism, temptation, social barriers, reformatories."* (Anderson, 2006)

Lee Hamner, member of PAA, and its major funding agency, the Russell Sage Foundation Child Hygiene Department, stated in a speech at the National Conference of

Charities and Correction in 1910, *“The playground of today is the republic of tomorrow.”(Anderson, 2006)* Adequate supervised play space was seen by play advocates as essential to society in developing responsible citizens and vibrant, healthy neighborhoods.

> “*Recreation not only benefited individuals but also transformed a nation of alien immigrants, or downtrodden, unhealthy factory workers, into cohesive, healthy, population of citizens working for common good or ready to defend their country.” (Anderson, 2006)*

The Association’s journal, *The Playground, (Anderson, 2006)* along with various other books on the benefits of play and playground design shared criteria for designing adequate play space, helping spread the children’s play movement to cities throughout the country.

Additionally, in its work to encourage sufficient play space, the Playground Association of America early on considered supervision as a priority. Again, unsupervised play was thought to foster juvenile criminal behavior. In 1909, the Association developed a training curriculum for playground and recreation supervisors with the help of such experts as Jane Addams of the Hull House, revolutionary psychologist, Karl Groos, and Frances Froebel, who advocated a play based curriculum. (Anderson, 2006) The training manual covered various topics related to children’s play, from child development, race history and hygiene, to playground development, environmental and conditions and landscaping. The curriculum was instrumental in gaining educated advocates for the children’s play movement.

By 1911 when the Playground Association of America became the Playground and Recreation Association of America, the children's play movement appeared to be quickly growing and becoming more visible. Play equipment began to be manufactured in the United States during the early 1900s as a result of the increasing prevalence of play programs throughout the nation. This marked the era of what author Craig Hart calls the "metal jungles," which were often constructed on concrete or asphalt. (Hart, 1993) (Figure 3.7) This type of play space was inexpensive and low maintenance and went up at a rapid rate in public parks and schools throughout the country. In their book, *Theory of Organized Play*, Bowen and Mitchell note the astounding increase in play space throughout the nation - from 36 in 1906 to 414 in 1916 and 748 in 1925. (Gaster, 1992) They recognize the Playground and Recreation Association's role as imperative to the growth.

The play movement continued to thrive in the 1920s. Play and recreation were revolutionized into a product that could be sold, not only for children, but also for adults. The children's play movement was transforming into the broader recreation movement. As noted in the 1940 book, Introduction to Community Recreation by G.D Butler, personal investments in recreation activities in the U.S. increased to over $33 million between 1920 and 1929 – nearly five times what was spent in the previous decade. In 1929, at the start of the Depression, while most industry suffered severely, the recreation industry was one of

Figure 3.7
Children on Metal Slide
http://www.leeds.gov.ukdiscoverdiscovery/asppage

the first to receive governmental assistance through the New Deal Initiative launched by President Franklin D. Roosevelt. (Gaster, 1992) The New Deal helped to considerably increase the number of public recreation facilities nationwide. Trails, tennis courts, golf courses, public swimming pools, ski trails and more were built by the government. During this era, American society welcomed large-scale, comprehensive recreation facilities. Although the New Deal Initiative increased opportunities for play and playground development, some experts contend:

> "*It is the New Deal's policies that concern us, and its effects can be reduced to two: it built facilities on a scale that dwarfed even the swollen public and private expenditures of the 1920s and it removed nearly all traces of the play movement's moralism and paternalism."* (Gaster, 1992)

Poor children were widely overlooked in the initiative. Few impoverished areas saw retrofits or the addition of amenities. The primary goal of the New Deal Initiative was not to assist impoverished children and create play spaces for character-building, social interaction, physical movement and increased patriotism, but to fuel the nation's failing economy. However, in the process it changed the way children's play was viewed once again. The recreation facilities created infrastructure within which more structured, supervised play spaces were being developed. Large numbers of children were no longer using streets, alleys, and piers as playgrounds, and as a result, child injuries and fatalities significantly dropped during this period by over 50%. (Gaster, 1992) By 1930, the children's play movement had been completely swallowed by the recreation movement; the Playground Association of America became the National Recreation Association (NRA.) The Federal government passed the responsibility of child

development to the NRA and established private organizations such as the Boy Scouts and Girl Scouts of America towards the end of the Depression.

One task of the NRA was to create the first standards for playground equipment. Following this effort, the effects of potential over-regimentation and supervision of play was of immediate concern. Many child development and recreation experts were troubled by the potential impact of a robotic, industrialized society combined with controlled play spaces. As written in a 1930 document entitled, Recreation *in a Settlement Program*, one reformer suggests:

> *"Recreation, like education, has suffered from regimentation…To be done good to, to be planned for, to be cast into a mold, to be the victim of a program means the fixing of well defined patterns of thought and conduct according to a predetermined standard…Recreation then has to begin with the understanding of the individual….Recreational guidance, like vocational guidance, has its base in a psychology which takes into account native gifts, practical opportunity, the background of social experience and tradition in which the individual is placed."* (Anderson, 2006)

Increased knowledge about child development related to play had broadened at this point to include the emotional and psychological benefits. Nevertheless, the NRA and play reformers would continue to grapple with the following question for the remainder of the decade - where is the line between too much and too little free play necessary to grow joyful, healthy individuals?

Post-war initiatives in the mid 1940s and into the 1950s focused on highways and housing developments, and generally did not include public play space. In an article in *Children, Youth and Environments,* environmental psychologist, Sanford Gaster notes:

> *"Where previous eras had missed the mark with children's play, the immediate post-war era did not even take aim. There were no advancements – let alone revolutions – in parks, playgrounds and related facilities; urban planning affected neighborhood play largely through omission." (Gaster, 1992)*

This governmental shift to disregard children's health through play was of great concern to many child development and playground advocates. In his 1946 book Values of Survival, Lewis Mumford wrote:

> *"If we are to create balanced human beings, capable of entering into world-wide co-operation with all other men of good will--and that is the supreme task of our generation, and the foundation of all its other potential achievements--we must give as much weight to the arousal of the emotions and to the expression of moral and esthetic values as we now give to science, to invention, to practical organization. One without the other is impotent." (Halton, 1995)*

The Federal highway system which was designed to move military equipment quickly across the United States was indeed shaping the landscape in a new way. By 1961, Lewis Mumford declared, "*We have sold our birthright for a sorry mess of motor cars." (Gaster, 1992)* Children and play spaces were noticeably affected by this emphasis on

roads and asphalt. Playgrounds were widely paved, fenced-off spaces that children had to walk several blocks in order to use. Crime amongst minors was still a major public concern and restrictions on use of space were often stringent. In many housing developments built in the 1950s and 1960s, running, skate-boarding, and riding bicycles were often restricted or forbidden on walkways or lawns. Play spaces were built in confined spaces away from where children might disturb the public. In the 1950s, the domestic air-conditioner and the television became widely used, encouraging people to stay inside and perhaps contributing to the start of a more sedentary lifestyle.

Ironically, play equipment design, however, became more creative and artistic in the mid to late 1900s. Playgrounds were full of manufactured metal ships, dinosaurs, and other equipment intended to capture the imagination. (Figure 3.8) Despite the push for playground development by play advocates and the recognition that spontaneous play was necessary for a healthy body, mind and spirit in the 1960s and 70s, city municipalities were cutting recreation programs from budgets at a rapid rate. Concurrently, millions of Americans began moving out of urban areas to the suburbs where space was vast, lots were large and there was an abundance of nature available for children to explore. Farmland, open fields, water and forests surrounded the suburbs providing invaluable play space that met a broad range of developmental needs, a trait often lacking in previously designed spaces, whose emphasis had been on controlled, prescribed play.

Figure 3.8
Metal Rocking Horse
http://www.detailedplaypro.com

In 1966, the National Recreation Association joined together with several organizations to become the National Recreation and Park Association (NRPA). With its emphasis on organized recreation rather than free play, the NRPA initially focused much of its energy on playground safety and equipment manufacturing. Community organizations were formed around the same time to independently handle play space development, repairs and safety issues such as accessibility to play space within their neighborhoods. Designers, child development experts and environmental psychologists pushed for more creative, unsupervised play spaces with supervised nature programs.

Researchers at the time ascertained that materials in play spaces influenced to what degree a child's body and mind were stimulated, thus affecting how the space is used. As a result, designers began to consider using a wider range of materials in play space design. Adventure playgrounds, originally developed by a German landscape designer in 1943 after observing children playing in post-war rubble, were built in several U.S. cities in the late 1970s. (Solomon, 2005) The playgrounds were essentially "junk" play spaces full of wood, dirt, stones, and other loose parts that would allow children to design their own play equipment. (Figure 3.9) The adventure playground concept used a particularly wide variety of often unconventional items to inspire creative play.

Figure 3.9
Berkeley Adventure Playground
http://www.ci.berkeley.ca.us/parks/parkspages

Though materials became more important in play space design through such inspirational concepts, by the 1980s most playgrounds still consisted of metal and

concrete. Creating artistic, imaginative play spaces was overshadowed by the continued fear of juvenile crime, injury lawsuits and overall public safety. The Consumer Product Safety Commission was formed in 1972 and published the first national playground safety guidelines in 1981. In 1993, the American Society for Testing and Materials published national playground safety standards which led to the development of the official Handbook of Public Playground Safety by the US Consumer Product Safety Commission in 1997 and what some call the beginning of standardization of play equipment and play space design. (Solomon, 2005)

Today, the Handbook of Public Playground Safety continues to be used, and safety concerns persist in significantly impacting design. Outdoor play spaces are commonly fenced by chain-link; open areas are covered with turf, mulch or rubber with prefabricated play equipment placed in the center. Play spaces are often disconnected from communities and only safely accessed by car. Low-income urban areas often contain remnants of old play space designs from the 1950s and 60s with asphalt and metal. In addition, living in the suburbs no longer guarantees access to natural play space. Dependency on the automobile and urban sprawl have driven the increase of "big-box" businesses, malls and over-manicured landscapes that do not respond to the natural systems of their locales. Traffic has dramatically increased in neighborhoods adding to the list of safety risks and anxiety. There is a current trend of disconnect from nature – an epidemic of nature-deficit disorder, as noted by author, Richard Louv. Louv states, *"In some cases, they (suburban developments) offer fewer nature play spaces than the centers of old industrial cities."(Louv, 2005)* He further explains that *"In the*

space of a century, the American experience of nature has gone from direct utilitarianism to romantic attachment to electronic detachment." (Louv, 2005)

Researchers note that the societal push for productivity has begun to affect children's free play. Katharyne Mitchell, professor of geography at the University of Washington, Seattle states, "*The persistent valuation of a child's free time as productive or unproductive is a relatively new phenomenon and one that is clearly associated with the increasingly competitive drive to create high-performing adults." (Mitchell, 2007)* She continues by stating that "corporate play", "hyper-parenting" and "over-scheduling" do not always foster socially, physically and emotionally balanced and capable children.

Current health statistics outlined in chapter 2 support that children are spending less time outdoors than past generation; however, researchers are still working to quantify exactly by how much. Tighter boundaries for children within neighborhoods, excessive fear of danger, and dependency on television and computers are possible reasons for this decline. Joel Best, researcher and professor at the University of Delaware calls this phenomenon "monster hype" in his book, "Damn Lies and Statistics." (Louv, 2005) He challenges that some of the latest data on safety issues shared by the media are not fact. In addition, Stanford psychology professor, Lynn Henderson, asserts that greater fear can decrease a child's self-confidence and cause lasting change in behavior. (Louv, 2005) Mitchell indicates that there is unsubstantiated "stranger danger," shown in latest statistics which state abduction by family members as highest risk of kidnapping in the US. There exists a question of actual risk that is

difficult to answer and can be relative. Meanwhile, this may be an era where children are even becoming fearful of the outdoors.

Professor Robin Moore of the Natural Learning Initiative indicates that our current state of play space design has not only been shaped by parental fear and overly-committed, overly-structured family schedules, but also current school curriculum which includes an emphasis on standardized testing and allows little time for outdoor play. Fortunately, advocates for free play in nature like Moore are continuing to work to quantify the interrelationships between health, play and landscape and have made great progress. Children's play has changed dramatically throughout history, from focusing on citizenship and good character to development and health. Perhaps, we are now moving into a new multidisciplinary play space movement that will draw upon this knowledge to combat declining health and increased fear, and create grounds to grow.

Phases of Playground Equipment

The following section is an account of play space equipment starting in the late 1800s to present. This timeline attempts to define periods of play space design through examining play equipment used over time and what events may have impacted the use of such equipment. Much of the underlying driving force to play space and equipment advancement has occurred due to the grassroots efforts consistently made by play and child development reformers over the more than two hundred years that have passed since the first play space was designed.

Late 1800s: **Physical Development and Good Character Period**

During this period, spaces largely included equipment that would work fine and gross motor skills and increase social interaction in a controlled environment in order to build good character. Equipment was simple and frequently consisted of natural materials such as sand, water, and plants. Spaces were designed for easy supervision and equipment was often kept to a minimum.

Equipment Overview:

- Sand gardens
- Modified gymnastics equipment: swings, horizontal and overhead bars,
- Maypoles (Figure 3.10)
- Packed dirt groundcover

Figure 3.10
Maypole
http://www.toronto.ca/archives/rules/spdsmaypole.jpg

Early 1900s: **"Metal and Asphalt Jungle" Period**

Steel became a popular building material during the early 1900s for constructing play equipment. It was low-maintenance, sturdy, and functional. Most play equipment was placed on concrete or asphalt and surrounded by a metal fence. The play spaces in this period were inexpensive and quick to build. Spaces occasionally included gardens which were used to grow vegetables for school teaching staff or community members and were cared for by school children as part of their curriculum.

Equipment Overview:

- Functional gardens
- "Metal jungles" - steel equipment
- Concrete or asphalt groundcover

Mid 1900s: **Imaginative Play Period**

Equipment design became important in the imaginative play period. Manipulating a wider range of materials allowed designers to get more creative. In addition, equipment designers were no longer limited to simple shapes; metal was used to make child-sized, artistic equipment that mimicked real-life objects. Although linked equipment would not become popular until later in the decade, the more creative use of metal during this period led to the adoption of the first swing sets and jungle gyms.

Equipment Overview:

- Imaginative play equipment such as metal rockets, animals and other features reflecting real life.
- Swing sets and jungle gyms.
- Wider use of materials – reused railroad ties, tires, pipes, and scrap wood
- Concrete or asphalt groundcover

Late 1900s: **Standardization Period**

The manufacturing of play equipment in America was the primary factor that led to the standardization period. Although themed equipment also existed, it was rare to see a play space without certain customary apparatus such as swings, slides, and climbers. However, designers began to link this equipment together in creative ways, furthering with the “jungle gym” concept. Increased numbers of injury lawsuits and the establishment of the Consumer Product Safety Commission in the late 1990s encouraged designers to begin to use different groundcovers for playgrounds as well. Research conducted during this period found that falling on inappropriate play surfaces, such as cement and asphalt, was the major cause of injury on playgrounds.

Equipment Overview:

- Novelty themed equipment such as space travel, western
- Linked play equipment connecting swings to slides to climbers, etc.
- Standardization of play equipment
- Concrete or asphalt groundcover, some mulch, pea gravel and turf

***Current:* "Safety First" Period**

Current trends in play equipment design in the U.S. can be seen as response to an increasingly safety-driven society. Plastic play equipment is common, spaces are open for clear visibility, and groundcovers often consist of rubber mulch or wood mulch. Spaces continue to generally be fenced, although some recent designs attempt to use natural boundaries. Equipment designers are creating elements, such as recycled rubber climbing walls, to mimic nature. At the same time, plant material is not commonly seen as an important design element in a large number of mainstream play spaces.

Equipment Overview:

- Safety often over design
- Recycled rubber, turf or mulch groundcover
- Prefabricated plastic play equipment
- Fenced

Chapter 4

RESEARCH METHODOLOGY

"Never let formal education get in the way of your learning." - Mark Twain

(www.changeschools.ca.html, 2006)

Goals

The goal of this research is to discover what makes a successful play space in terms of children's developmental health. The information gathered through this study will be gathered by user groups in order to strengthen design criteria for healthy play spaces developed as part of the overall objective of this thesis. These criteria seek to unify perspectives from children, parents, designers, and health practitioners. The information required for this study reflects social science aspects of landscape architecture and thus, data collection and analysis will be largely qualitative. The researcher will consider the following from the data collected:

1. *Functionality:*

Useful attributes of the play spaces according to users will help determine the degree of functionality. The research seeks to establish whether a space provides adequate opportunities for social, physical, cognitive and emotional development according to children and parents. Additionally, it will consider whether a site provides users with a sense of place versus space through examining the parent and child's

connections and associations to the landscape. Specific data collection will look at gathering spaces provided, occasions for imagination, exploration and discovery, chances for fine and gross motor movement, preferences for nature and whether a child is relaxed, free, excited, easily bored or confused while in the space.

2. *Accessibility*

Because all three play spaces chosen for this study exist in vibrant communities, examining accessibility of these spaces is particularly important in determining success. This category will look at capacity for community connections through studying how far users travel to get to the play space. It will also determine the mode of transportation, and if the space is walkable, any safety issues encountered, as well as how often they walk vs. drive and why.

3, Parental Concerns

Parental concerns may include hazardous equipment, visibility issues, groundcover, traffic, “stranger danger” and more. Information will be extracted from the study indicating primary parental concerns and their views on possible solutions. Parallel to this, fears of children may be determined to find out if they share the same concerns.

4. Children’s Perspectives

As the primary users of play spaces, children are important experts of what makes a space successful. There are a growing number of researchers conducting studies <u>with</u> children as opposed to <u>on</u> children through charrettes, interviews, and art in order to gain perspectives adults cannot provide. This study seeks to discover what

children think about the play spaces they use. More detailed information on the methods used will follow.

Play Spaces for Case Studies

Through discussions with parents in Atlanta, Athens, and Peachtree City Georgia, a preliminary list of recommended play spaces was determined. The list included spaces the individuals felt were successful and heavily used. After further investigation and analysis, three play spaces were chosen based on a number of similarities. First, all were built through a community volunteer effort which created a sense of ownership and community pride. The chosen spaces were all built in 2004 within existing public parks. Details specific to individual play spaces from initial analysis are as follows:

Site #1: Luther T. Holt All Children's Playground - Peachtree City, GA

- Built within Picnic Park
- Size: Over 5 acre lakeside site
- Designed to accommodate children with disabilities.
- Characteristics of location: Peachtree City is a planned community developed in the 1950s. It is best known for its 90 miles of intricate path system for golf carts, pedestrians and bikes. The city was named in 2005 by CNN/*Money* magazine eighth on the list of top 100 cities to live in the United States. Over half of the residents own a golf cart.

Site #2: Cunard Memorial Playground - Atlanta, GA

- Built within John Howell Park
- Size: 1 acre linear park
- Built in response to a tragedy as a tribute to 3 former community members.
- Designed in conjunction with Frawley Associates Landscape Architects
- Characteristics of location: Virginia Highlands is an affluent neighborhood surrounding John Howell Park. It was developed in the early 1900s to consist of six commercial districts with small, locally-owned boutiques and shops and Southern bungalows on short blocks and a focus. It is pedestrian friendly and lively.

Site #3: World of Wonder – Athens, GA

- Built within the SE Clarke Park
- Size: Almost 2 acres
- Known as Georgia's largest community-built playground, built by over 1500 volunteers.
- Designed in conjunction with the University of Georgia, School of Environmental Design
- Characteristics of location: Athens was officially incorporated in 1806 and chartered in 1872. Athens and Clarke counties were unified in 1990. The city was heavily tied to the University of Georgia from the beginning and continues this connection today. Athens is a vibrant college town known for its rich culture

Procedures:

After reviewing research projects conducted on child behavior, development, and play spaces by designers and child development researchers such as Roger Hart, Wendy Luttrell, Marva Capello, Claire Cooper Marcus and Robin Moore, four specific methods for data collection were chosen. These methods include: inventory, participant observations, interviews with parents and photo-interviews with children while they are using play spaces. Perspectives from both children and parents are included to ensure that adequate and useful information will be gained for design criteria accounting for all user groups.

Because of the time of year in which the study is being conducted, data collection will occur for each site at least four different days in the morning or evening when it is cooler and play spaces may be most active. The study will use a standard set of procedures and will be conducted by the primary researcher. Participants will be randomly selected. Adult involvement and child involvement will happen independently of one another unless otherwise requested by parents in order to get honest, individual points of view.

1. Inventory

   An overall inventory of each site will be conducted prior to interviews and photo interviews. The researcher will note: play equipment, ground cover, approximate number of trees, hardscape, benches/seating, trash cans, picnic tables,

landmarks, % plant material, signage, sun/shade, surrounding roads, sidewalks/paths, enclosures other park amenities, general age range, description of topography, and cultural features. An initial analysis of the inventory conducted will help determine opportunities for learning, fine motor movement, gross motor movement, social interaction, choice, dramatic play, place-making and discovery.

2. Participant observations

Participant observations in children can be challenging and difficult. Reasons for certain behaviors are not always clear. For example, a child might seem bored while in a play space, but in reality be tired or not feel well. In addition, behaviors can dramatically change quickly without a clear explanation. Despite the possibility of ambiguity, participant observations are commonly used by researchers and practitioners as a quick way to discover people-place interactions. While conducted during spontaneous play, participant observations can reveal a vast amount of information about preferences within a short period of time. (Marcus & Francis, 1997) For the purposes of this study, participant observations will be carried out through noting strictly actions related to the following:

- Intensity of physical play – Are running, jumping, swinging, etc? Are the children drawn to elements that stimulate senses?
- Discovery and exploration unrelated to play equipment – Is there a desire to get off the beaten path? Are the children manipulating parts or using the play equipment in a way other than intended?
- Socializing activities and locations – Are the spaces small or open? With whom are children socializing?

- Comfort level – Do children seem distressed, calm, confused, relaxed, happy most of the time?
- Where are children spending the majority of their time? Is there a particular element in the play space that holds attention or are children quickly moving from place to place?

3. Parent/Guardian Interviews

Interviews will be conducted with parents in a casual discussion format while in the play spaces. Interview questions were derived from preliminary conversations with parents, research showing evidence of developmental health benefits and parental bonding during free play, and similar studies on play space use. Questions will be used to lead discussions. Parents can offer important views on safety, comfort and accessibility as well as how they feel the play space benefits to their child/children. The information from interviews can reveal why they choose to bring their child/children to the play space. Parents are an important user group of play spaces. Parents/Guardians with children ages 4-9 using the play space are eligible to participate in the study. Interviews are to be kept under ten minutes. A total of 10-20 interviews will be conducted per play space. The following questions will be used to guide discussions with parents:

- How often do you visit this play space? How do you get here? How far do you travel? If you walk, do you feel it is safe? Are there crosswalks, paths or sidewalks the entire way?

- What are the elements of the play space that you feel are the most valuable to your child? How? Why? Are there areas of the play space you tend to steer your child away from? Why?
- Are there limits to this play space? What are those limitations? What is missing? Play equipment? Amenities? Nature?
- How many hours per week does your child play outside? Where? Describe these spaces.
- Describe your child's behavior while in the play space. Are they happy, quiet, social, easily aggitated? Do you notice any differenced in behavior when playing outside versus inside?
- What are the benefits of this play space to your child? Why do you choose to come to this particular space? Are there things you and your child can do together in this play space?
- Are there safety issues here? Traffic? Visibility?
- Are there any additional suggestions for improving or encouraging use of this play space?

4. Photo interviews with children

Conducting photo interviews allows for passive data collection from children. It gives them the freedom to explore and express their opinions without fear of giving the wrong answer or being put on the spot. Photography can liberate children and help the researcher respect them as the experts, gaining insights not often visible to adults. Author and researcher, Catherine Burke, states, "*dimensions and dynamics of children's relationship to place and space may be more easily described in*

imagery than in text." (Burke, 2005) Children can have a difficult time expressing how they feel verbally or in writing. Photography can open lines of communication. Additionally, while verbal interviews use questions that are derived by adults, photo interviews are completely independent of adult perceptions giving children the ability to think and act freely.

Environmental psychologist, Roger Hart has significantly influenced the use of photography through his research that explored children's perspectives of playscapes. Hart opened doors to children's worlds through allowing them to be active researchers using photography and inspired other researchers to consider children as experts. He states, "*dimensions and dynamics of children's relationship to place and space may be more easily described in imagery than in text." (Burke, 2005)* Wendy Luttrell, Associate Professor at Harvard Graduate School for Education and co-organizer of "Visible Rights" agrees. Through photography, Luttrell believes people are brought together "*around the concept of "visible rights" which builds on the recent shift in how we conceive of youth's participation in civic life — a shift from seeing children as passive and vulnerable, to recognizing them as agents with their own right." (Anderson, 2007)*

Researching children has become a complex ethical web that is pushing both researchers and children to work cooperatively and respectfully. The new perspective on children forces researchers to create innovative ways to effectively communicate. Photography has become one such avenue and an important way to understand how children interpret their world.

This study will include up to 10 photo interviews per play space with children ages 4-9. It is preferred that the interviews be completed solely by the child within the playground or beyond according to what parents are comfortable with. The photo interviews will include instructions on using the camera, but no other adult advice or feedback will be given. Photo interviews will last no longer than 10 minutes, with a total of 15 photos being taken by each child. From the photographs, the researcher will look for overall preferences and trends such as nature vs. equipment, if any particular type of equipment is preferred, and if the pictures were taken outside the designated play space or within.

Additional Research Considerations

In considering the goals of this study, the question of subjectivity arises. Researchers have preliminary opinions on issues related to their study. In order to ensure this study stays as objective as possible, the methodology detailed in this chapter will be strictly followed. Statistics, historical facts, and other published research on similar topics presented in earlier chapters will be used to analyze data in an attempt to eliminate personal opinion.

Additionally, there is the question of how to adequately gage developmental benefits when analyzing data from this study. As this thesis deals directly with design and not child development, research on child development and health will be used to evaluate play space design and their effect on children's health. Post occupancy evaluation strategies used by Claire Cooper-Marcus will help serve as a guide to assessing the effects of a play space on health and well-being.

Chapter 5

CASE STUDY RESULTS

"You can discover more about a person in an hour of play, than a year of conversation." Plato

(Strong National Museum of Play, 2007)

Case studies allow researchers to gain comprehensive information about people-place interactions using a variety of research methods. The following three play spaces in Georgia were explored using the case study format: Luther T. Holt All Children's Playground in Peachtree City, GA, World of Wonder in Athens, GA and Cunard Memorial Playground in Atlanta, GA. Information was gathered through inventory, participant observations, parent interviews, and photo interviews with children. Results of the data collected and conclusions about this information are included in this chapter. Specific interview and photo interview responses can be found in Appendix A and B.

Inventory of Play Spaces

An inventory was completed for each play space during initial visits. All elements contributing to the design were noted. Because each play space is located within an existing public park, an account of park amenities was also listed. In addition, in

order to address issues of accessibility and safety, a description of surrounding landscapes, as well as paths and/or sidewalks leading to the play space were included.

Table 1.0: ***Luther T. Holt All Children's Playground - Peachtree City, GA***

Play Equipment:	All play equipment is plastic with some metal parts. • Swings: 2 baby swings, 4 belt swings, 2 reclining swings for disabled • 1 small plastic jungle gym for toddlers - K (2 slides, xylophone, steps up, driving wheel, talking tubes, tunnel.) • 1 large jungle gym K-6 (ramps, bridges, steps, sit-and-spin, monkey bars, 4 slides, 5 platforms, ladders) • Water feature (broken) • Space shuttle rocker • Manipulation features (tic-tac-toe, car wheels, rolling balls.)
Ground Cover:	Recycled rubber mulch colored red, white, blue; bricks with inscriptions of sponsors; cement at the entrance.
Trees present:	No trees within the play space. Water oaks, sweet gum just outside fence.
% Nature	0% within the play space, however good views of the lake, ducks, trees.
Topography	At grade
Paths/Sidewalks	Walking paths leading from the parking lot to the play space and picnic area. Paths lead out of park and into surrounding neighborhoods as part of Peachtree City's complex path network.
Surrounding Landscape	Located behind the city library. In close proximity to swimming pool and Highway 54. Residential neighborhoods on 3 sides of the park. Large lake within view of the play space used for swimming and boating.
% Sun/% Shade	95% sun most of the day/5% shade

Fenced vs. Open	Chain-link fenced with two entrances
Playground Amenities	6 benches**,** Parking lot
Park Amenities	• Covered picnic area with 9 picnic tables • Lake with ducks/geese • 2 benches by lake • 7 additional picnic tables under trees, water fountain • 1 grill • 2 trash cans • Open grassy area • Woods • Public bathroom within walking distance. • Parking lot
Defining Features	• Lake • Ducks • Golf cart paths • Wheelchair accessible design.

Table 2.0: ***Cunard Memorial Playground - Atlanta, GA***

Play Equipment	• Swings: 2 baby swings, 2 belt swings • Jungle gym (3 slides, monkey bars, bridge, tunnel, tic-tac-toe, driving wheel, ladder) • Child-sized fire truck • Sand area with pails and shovels. • Kompan galaxy equipment (2 spinners, galaxy jungle gym, 2 bouncers, hammock swing, tilted merry-go-round.)
Ground Cover	Recycled rubber mulch; wood mulch; grass
Trees present	Gingkos; Oaks; Dogwoods

% Nature	60%
Topography	1st level at grade, 2nd level 5' below, rolling.
Paths/Sidewalks	Sidewalks on perimeter of the play space leading into the business district and surrounding neighborhoods; paths through park and play space that connect to sidewalks.
Surrounding Landscape	Middle school; residential neighborhood. Close to Piedmont Park.
%Sun/%Shade	40%/60%
Fenced vs. Open	Open, with heavily planted beds and topography creating boundaries
Playground Amenities	• Stone seat walls • 3 benches • 2 trash cans • 1 picnic table • folded chairs, sand area (part of volleyball court)
Park Amenities	• Water fountain • Large volleyball court with 2 nets • 1 bench • Volleyball shower • Perennial beds • Lake • Dry stream
Defining Features	• Memorial statues • Perennial beds • Sand Volleyball • Galaxy play equipment

Table 3: *World of Wonder – Athens, GA*

Play Equipment	All equipment is made from recycled plastic. Off-gases when it gets hot. Some of the equipment is beginning to sag (bridges, planks.) • Climbing wall • Fire pole • Bridges (3 types of surfaces) • Tic-tac-toe • Telephone system • Balance beam • Drums (alligator and palm) • Murals, • Firetruck – child-sized • Pirate ship • Monkey bars (2 sizes) • Steps • Castles • Tree House • Council ring • Swings (1 mommy & me, 1 tire, 4 belt) • Caves • Ladders • Separate space for ages 2-5 (sand box, swings – 2 bucket, 1 mommy-&-me, 2 rocking animals, tunnel, 2 caves, 2 enclosed areas, balance beam, slide)
Ground Cover	Wood mulch, Recycled plastic lumber.
Trees present	2 trees within the play space, several trees just outside the fence (white oak, river birch, magnolia, fringe, redbud, dogwood)
% Nature	10% inside play space (planting beds, 2 trees.)
Topography	At grade

Paths/Sidewalks	Path along Whit Davis Rd. connecting park and residential area. Sidewalk around parking area leading to bathrooms, dogpark and path.
Surrounding Landscape	Whit Davis Road, Residential neighborhood, Wooded area, Open field, Park.
%Sun/%Shade	95% sun/5% shade most of the day within play space.
Fenced vs. Open	Fenced with one opening. Fence is picket made from grey recycled lumber.
Playground Amenities	2 benches, 4 planting beds with seat walls.
Park Amenities	• Bathrooms near dog park • Water fountain outside dog parks • Dog Park with agility course • Emergency call box • Covered picnic area with 4 picnic tables. • 2 additional picnic tables just outside fence in sun. • 2 trash cans just outside fence • Community board at entrance of play space • Entrance wall with children's handprints • Bike path • Pergola • 1 Bench • Sports fields in other areas of park. • UGA Bulldog at play space entrance.
Defining Features	• Imaginative play equipment: Castle (can see it from the road) and pirate ship • UGA Bulldog

Participant Observation Results

Participant observations are used to gather quick, but informative data on user preferences and activities in a space in order to help determine its degree of functionality and success. It is a method that is straightforward, yet intimate, giving a snapshot of the way a space is working at a given time with a spontaneous group of users. For this study, observations focused on age range, intensity of and activities related to physical play, actions linked to discovery and exploration, locations where socialization occurred, activities related to socialization, perceived comfort level of users, spaces where the majority of time was spent on average, and parent behaviors. Intensity of play was determined by assigning a number from one to five, one being the least intense. The researcher attempted to conduct observations in the most unobtrusive way in order to avoid disrupting activities in the space. No users were engaged during this portion of the study. Observations took place for a minimum of 2 hours and a maximum of 4 hours each. Data collected from 2 participant observations conducted per play space were compiled and recorded below.

Luther T. Holt All Children's Playground - Peachtree City, GA

Conducted: 9am-1pm and 4pm-7pm

- *Age range*: 2-10
- *Intensity of Physical Play*: 4 - Running was the main activity up and down long ramp. Someone was always using the reclining swings. High activity on swings and sit-and-spin. Very physical.

- *Discovery and Exploration*: High use of xylophone, wheels, balls, and talking tubes. No opportunities to have contact with nature inside the play space. More opportunities for exploration in nature outside the space.
- *Socialization:* Congregation on platforms and under jungle gym. Also some children sharing baseball cards on picnic tables. Chasing games negotiated by several groups.
- *Perceived Comfort Level*: Happy, very active, hot, no crying.
- *Majority of Time Spent*: Swings, Ramps/Bridges, Sit-and-Spin.
- *Parents:* Most were able to sit on benches inside or outside the play space while children played.

Cunard Memorial Playground - Atlanta, GA

Conducted: 10am-2pm and 4pm-8pm

- *Age range*: 2-10
- *Intensity of Physical Play:* 4 - Running, Climbing, Playing tag,
- *Discovery and Exploration*: Most active in lower playground with children picking up leaves, exploring the grass and digging in the periphery of the play space in the perennial beds; exploration occurring in sand by large number of children digging with shovels, rakes, etc.
- *Socialization*: Congregating in small spaces, ie. fire truck, tunnel, around jungle gym and gathered at tilted merry-go-round and in sandbox. Less congregating on galaxy jungle gym.

- *Perceived Comfort Level:* No one crying, all happy, lots of noise around jungle gym, quiet on swings
- *Majority of Time Spent*: Swings, fire truck, jungle gym, tilted merry-go-round. Galaxy jungle gym primarily used by older children.
- *Parents:* Most parents were interacting with children at all times or had their eye on them. Some sat on benches and read books or talked on phones.

World of Wonder – Athens, GA

Conducted: 9:30am-1pm and 4pm-8pm

- *Age range*: 2-12
- *Intensity of Physical Play*: Climbing was the major activity. Children loved to climb up to top of castles, pirate ship, tree house, and other platforms.
- *Discovery and Exploration:* Children working to figure out equipment. Lots of digging in the sand box and digging in the mulch.
- *Socialization*: Always groups of children on the swings and in the pirate ship. Lots of congregating on platforms and under equipment. Games related to the pirate ship and climbing occurred.
- *Perceived Comfort Level*: All seemed very hot, even in early morning. Some became restless and wanted to go home after just a short time. Happy before this and in evening once it cooled down.
- *Majority of Time Spent*: Pirate ship, phone, swings, climbing on platforms and running across bridges, younger children in sand.

- *Parents:* Most parents were interacting with children the majority of the time. With some play groups, parents visited while children played freely.

Parent/Guardian Interview Results

Interviews with parents/guardians were conducted to find out their perspectives on what makes each play space successful. Questions were formulated based on research and discussions with parents held prior to this study; they were designed to guide a ten minute discussion with individual parents. The goal was to conduct 10-20 interviews at each play space. A total of 38 interviews were conducted. All participants were parents/guardians of a child or children using the play space. They varied in race, ethnicity, gender and age; however, most were women. Interviews were conducted by one researcher to ensure consistency and uniformity of procedures. See Appendix A for individual answers given throughout each parent/guardian interview.

Challenges:

The major challenge associated with the parent/guardian interviews was approaching a them during a time that would not disrupt parent/guardian and child bonding. Most played with their children or monitored play directly during a portion of or the entirety of their visit. While this is an important occurrence to note in the given play spaces, it also impacted the opportunities to conduct interviews.

It was also important to consider how anxious a parent/guardian seemed on the play space in order to anticipate if conducting an interview would be comfortable for them while watching their children. As the analysis of the data will show, safety is the primary concern for parents/guardians when using play spaces with children.

Significant Trends:

The following statistics reflect all responses from interviewees. Percentages account for each answer given to the questions. Because most participants gave multiple answers, the percentages given will not always equal 100%. Questions include:

1. *How often do you visit? How do you get here? How far do you travel? If you walk, is it safe? Are there crosswalks, paths, sidewalks the entire way?*
2. *What are the elements of this play space that you feel are the most valuable to your child? How? Why? Are there areas of the play space you tend to steer your child away from? Why?*
3. *Are there limits to this play space? What are those limitations? Play equipment? Amenities? Nature?*
4. *How many hours per week does your child play outside? Where? Describe these spaces?*
5. *Describe your child's behavior while in the play space. Are they happy, quiet, social, easily aggitated? Do you notice any differenced in behavior when playing outside versus inside?*
6. *What are the benefits of this play space to your child? Why do you choose to come to this particular space? Are there things you and your child can do together in this play space?*
7. *Are there safety issues here? Traffic? Visibility?*

Luther T. Holt All Children's Playground - Peachtree City, GA

Question 1:

- 50% used golf carts to get to the play space, 20% walked, and 30% drove
- Close to 50% visit the play space 1-2 times per week.
- One participant who uses a golf cart visits 1-2 times per day.
- Most spent 10 minutes or less traveling to the play space.

Question 2:

- 80% mentioned the variety of spaces for exercise and room to run.
- 40% liked that children could safely climb on jungle gyms.
- 30% enjoyed the swings
- All answers dealt primarily with gross motor skills except the 20% that mentioned socializing with other children as a valuable part of the play space.

Question 3:

- 40% cited shade as the biggest limitation.
- 60% mentioned additional equipment needs (trampoline, see-saw, equipment for older children, equipment for toddlers.)
- 20% stated that more areas to stimulate senses are needed – sand, water, etc.

Question 4:

- 90% stated that they play outside about 10-15 hours per week; the remaining participants play outside less than 10 hours per week.
- Parks and playgrounds were the primary locations mentioned for outside play; 90% cited home as a key place for spending time outside.

Question 5:

- 100% are happy while using the play space most of the time.
- 70% are very energetic or active more than normal.
- 20% become agitated when they get hot.

Question 6:

- 60% listed the fence as the main benefit of the play space.
- 50% stated views of nature (lake, pets, ducks) as a major benefit.
- 40% thought the rubber mulch was a benefit.
- 40% stated that they choose this play space based on the central location (accessible to pool, library, dog park, lake and by bike path.)
- 20% said they come to this play space because it contains no sand and children can stay clean.

Question 7:

- 50% felt that inside the fence the play space was very safe.
- 20% mentioned safety issues related to the area of cement and bricks.
- One participant stated that the fence creates the illusion of safety and that children go outside the fence a lot when parents or guardians aren't looking.
- 50% talked about the rubber mulch as increasing safety.

Additional Comments:

- All Children's is larger than most play spaces we play in.
- This play space is never too crowded.
- The community who built this play space should continue selling bricks for sponsorship.

Cunard Memorial Playground - Atlanta, GA

Question 1:

- 30% stated they visit 1-2 times a day.
- 30% mentioned coming almost everyday.
- Over 50% of users came by car; the remainder walked. All that walked felt the journey was safe.
- The average amount of travel time for either walking or driving was 10-15 minutes.

Question 2:

- 60% cited the imaginative play equipment (including the tilted merry-go-round, spinners and the fire engine) as the most valuable.
- 40% mentioned the wide variety of activities and spaces for all ages.
- 40% talked about the swings as being valuable.
- One person stated that they steer their children away from the broken equipment.

Question 3:

- 44% pointed to the lack of public bathrooms as a limitation.
- Over 20% talked about broken equipment as a limitation.

Question 4:

- 86% said they spend 10-20 hours outside per week. The remainder spent less than 10 hours per week.
- Most participants stated that they play in a variety of places. 80% revealed home as an important outside play space. Over 50% also mentioned parks and playgrounds.

Question 5:

- 80% are happy in the play space.
- Over 20% stated their children are exceptionally active and excited while in the play space.

Question 6:

- 60% said they choose this play space because it is safe.
- Over 40% stated the imaginative play equipment is the reason for visiting.
- 40% use this play space because it is close to their homes.

Question 7:

- Almost 50% said there are no safety issues.
- 2 participants mentioned the rubber mulch as a safety issue – it gets hot and attracts bugs.
- Over 10% listed visibility as a safety issue.

Additional Comments:

- The play space is a great size. It's bigger than most.
- I really like that this is a community built play space.
- The loose toys available in the sand area are great.

World of Wonder – Athens, GA

Question 1:

- Over 80% came by car. The remaining walked and felt the trip was safe.
- Almost 30% stated they visit the play space 1 time per month or less, while another 30% visit 1-3 times per week.

Question 2:

- 30% mentioned the variety of swings as a benefit.
- Over 40% stated the amount of actual space for running, climbing and discovery activities was important.
- Over 30% indicated the specific variety of equipment for all ages.
- Almost 50% talked about the imaginative equipment as the greatest benefit.

Question 3:

- 53% stated that the lack of shade was the main limitation to the play space. Some mentioned the intense sun makes the play space seasonal.
- One person mentioned rethinking age limits set for spaces.

Question 4:

- Almost 70% spend 10-15 hours outside per week. 20% spend more than 15 hours per week
- 80% indicated spending time outside at home. Almost 50% spend time in play spaces.

Question 5:

- 80% said their child/children were happy in the play space. 20% stated their child/children get overheated easily and moods sometimes change as a result.
- 30% indicated their child/children were excited and particularly curious.

Question 6:

- Almost 50% talked about safety as a major reason for visiting the play space.
- 20% stated that the play space allows for good exercise.

Question 7:

- Almost 50% said they feel very safe in the play space.
- 20% indicated visibility as a safety issue.

Additional Comments:

- My child's coordination has really advanced since coming here.
- This play space is too hot to use all summer, except in early mornings and evenings.
- We love having the bulldog at the entrance.

Photo Interview Results

Photo interviews were conducted with children ages 4-9 in order to passively find out preferences in a given play space. This type of data collection was chosen as opposed to a verbal interview in order to avoid preconceived notions a child may have about how to interact with an adult, especially one that they do not know. Interview sessions lasted from 5-15 minutes, depending on the child. They were conducted simultaneously with parent/guardian interviews in order to ensure photos represented preferences of the child only. Each participant was given a disposable camera with instructions to take photos of anything they liked. Instructions were very open-ended to investigate likes and dislikes not only within a play space, but also in the surrounding landscape. Because two play spaces chosen for the case studies lacked significant natural elements, yet existed in a park setting full of plants, trees, etc, this strategy was used to discover any tendencies towards nature. Children were told that they could stop taking photos at any time.

Challenges:

One surprising challenge was the lack of willingness by parents/guardians to allow their children to participate. While parent/guardian interviews were conducted with no objection, most did not want to involve their children. This could be for several reasons: parents/guardians were uncomfortable with their children talking to a stranger; photo interviews often required interrupting play; time was an issue and they did not want to be bothered; or parents/guardians were not confident in involving their children in a study. On several occasions, when the parents/guardians agreed to have their children participate, the children refused.

Photo interviews were chosen to enable a child to think and act freely without fear of giving the wrong answer. This type of data collection employs the child as a researcher with expert opinions. However, some participants were challenged by the freedom and had trouble breaking away from the idea of a right or wrong answer. These children came back several times to ask what they should take photos of or if they could take a picture of a certain element. Although no specific guidance was given, this desire to please may have impacted the choices they made. See Appendix B to view all the photos taken by participants for this study.

Significant Trends:

Luther T. Holt All Children's Playground - Peachtree City, GA

One female and two male children ages four, five, and eight participated in the photo interviews for this play space. A total of six declined to participate because the parent and/or child were not comfortable, would rather play, or had limited time. The play space was particularly challenging when attempting not to be intrusive. This was

the smallest play space of the three case studies and was never crowded on the four visits made to the site. Parents/guardians and children were not especially receptive to participating in the study.

Figure 5.0
Imagination, Male, Age 8

Over 50% of photos revealed preferences for climbing equipment and features that encourage manipulation. Other elements favored included slides, equipment that made sounds, such as a xylophone and talking tube, swings, and equipment that encouraged imagination such as a space shuttle and driving wheels. One child took a picture of trees existing outside of the fenced play space.

Figure 5.1
Climbing, Male, Age 5

Cunard Memorial Playground - Atlanta, GA

Figure 5.2
Nature, Male, Age 4

Six children participated in photo interviews while using the Cunard Memorial Playground. Ages ranged from four to nine, and participants consisted of two males and four females. A total number of three declined to participate primarily because they did not want to interrupt play or did not have time. Children using this play space typically stayed very active. Because this play space remained busy with children of all ages, socialization with peers was a major activity taking place. As a result, parents were often on the side watching.

Figure 5.3
Climbing, Female,Age

Photographs taken of this play space showed that 83% were drawn to equipment for climbing. Almost 70% also showed a preference for sand, imagination elements, nature and spinning apparatus. Nature photos included flowering plants, grass, mulch, shrubs and trees. Participants in this play space asked fewer questions while using the cameras as compared to case studies.

Table 5.4
Spinning, Female, Age 9

Figure 5.5
Imagination, Female, Age 7

World of Wonder – Athens, GA

A total of six children consisting of three males and three females participated in photo interviews for World of Wonder. Ages ranged from six to nine. A total of two declined to participate because of lack of time. One challenge specific to this play space was finding children that fit the required age criteria for the study. Small children, ages four and under frequented the play space during the weekdays when the majority of the observations and interviews were conducted.

Every child who took part in a photo interview photographed climbing equipment. Children also showed strong preferences for slides, swings, and imaginative elements, such as the pirate ship, fire engine and castles. Over 80% of participants indicated a fondness for art, particularly the murals and bulldog. Only one child took a photograph of nature.

Figure 5.6
Art, Female, Age 9

Figure 5.7
Imagination, Male, Age 6

The data presented in this chapter reveals a level the functionality, accessibility, parental/guardian concerns and children's perspectives for each case study. Overall, children showed preferences for climbing and parents/guardians emphasized safety and shade in all three play spaces. All of the results of the study will be considered and compiled with specific health benefits of free play to develop the design criteria outlined in Chapter 7. Part of designing a successful play space is considering user preferences. There are two user groups to satisfy when designing public play spaces – children and parents. The information in this study provides evidence of the likes and needs of each user group which will strengthen the effectiveness of the design criteria.

Chapter 6

DESIGN CRITERIA: PUBLIC PLAY SPACES FOR DEVELOPMENTAL HEALTH

"Play is the highest form of research." - Albert Einstein (Strong National Museum of Play, 2007)

As noted in Chapter 2, one significant benefit of free play in nature is the variety of experiences with which a child can be engaged. Evidence from child preferences compiled through photo interviews and participant observations revealed a high level of activity present in each play space. In order to develop design criteria for developmental health based on the data collected, specific play activities will be categorized by types of play and analyzed according to developmental benefits. The play categories will include specific social capacities with which play can occur and their specific developmental health effects. From there, design criteria will be presented consistent with the types of play desired to most impact each developmental health category.

Types of Free Play

There are many play theories that are categorized in a variety of ways. For the purpose of this thesis, categories of play used for design criteria have been derived from the developmental and play theories of Jean Piaget, M. Parten, S. Smilansky, and Brian Sutton-Smith, as well as evidence presented in contemporary research on

outdoor behavior by professionals such as Robin Moore and Roger Hart. The categories include: functional, construction, symbolic, discovery, independent, onlooker, and collaborative. All categories can occur during free play.

Functional: Functional play includes activities that require repetitive muscle movement. This type of play is physical and relies heavily on gross motor movement which assists in refining hand-to-eye and foot-to-eye body control and greater spatial awareness and body management. Functional play activities that occur outside can include: games with rules, climbing, jumping, running, rolling, throwing, hanging, swinging, and sliding.

Construction: Construction play predominantly involves manipulating loose parts in order to create a space or object. This type of play can include sensory play, as well creative and abstract thinking, imagining, planning, reasoning, compromise, hypothesizing, and problem-solving. Possible construction play activities that occur outside include: building bridges, forts, ladders, walls, huts, castles or other imaginative spaces or creatures.

Symbolic: Symbolic play is imaginative and often includes role play and/or dramatic, fantasy play. This type of play allows children to advance problem-solving skills and can provide opportunities for emotional freedom and greater sense of self. Symbolic play can include creative thinking, cooperating, and sensory stimulation and provide attention recovery. Possible symbolic play activities that occur outside include: acting out animals or superheroes and playing house.

Discovery: Discovery play is investigative and exploratory. It is often driven by questioning, hypothesizing and a general sense of wonder. Discovery play can build a greater sense of self and encourage testing, reasoning, creative thinking, negotiating, and emotional freedom. Possible dramatic play activities that occur outside include: lifting rocks, climbing trees, digging, pulling apart leaves or stems, picking flowers, following ant trails, and examining bugs.

Solitary or Independent: Solitary or independent play is child-directed and self-governed play that often occurs separate from other children or adults. During this type of play, children are able to carry out activities without regarding others around them. Independent play allows a child to develop his/her own ideas and thoughts and often involves focused attention, imagination, and problem-solving. Many children use independent play for gaining emotional freedom and relieving stress. Possible independent play activities that occur outside include: building, playing in sand, swinging, watching wildlife, sitting and climbing.

Onlooker: During onlooker play, a child is observing others around them. This type of play may occur while a child is playing parallel to others, and can cause a child to alter his/her own behaviors based on what they've seen. During this type of play a child is watching and learning from others around them. Because this may motivate them to take risks, fine and gross motor movements, as well as conceptual thinking are often advanced. Possible onlooker play activities that occur outside include: testing how high

to climb, mimicking animals, role-playing, and exploring possible things to build with sticks.

Collaborative: Collaborative play is group play. This type of play entails planning and designating roles. Each child is dependent on the other to accomplish set goals. Leadership skills, verbal skills and abilities to collaborate, compromise, negotiate, and problem-solve are tested. Through collaborative play there are opportunities for developing empathy and sense of self. Possible collaborative play activities that occur outside include: games with rules, talking, and congregating under a tree.

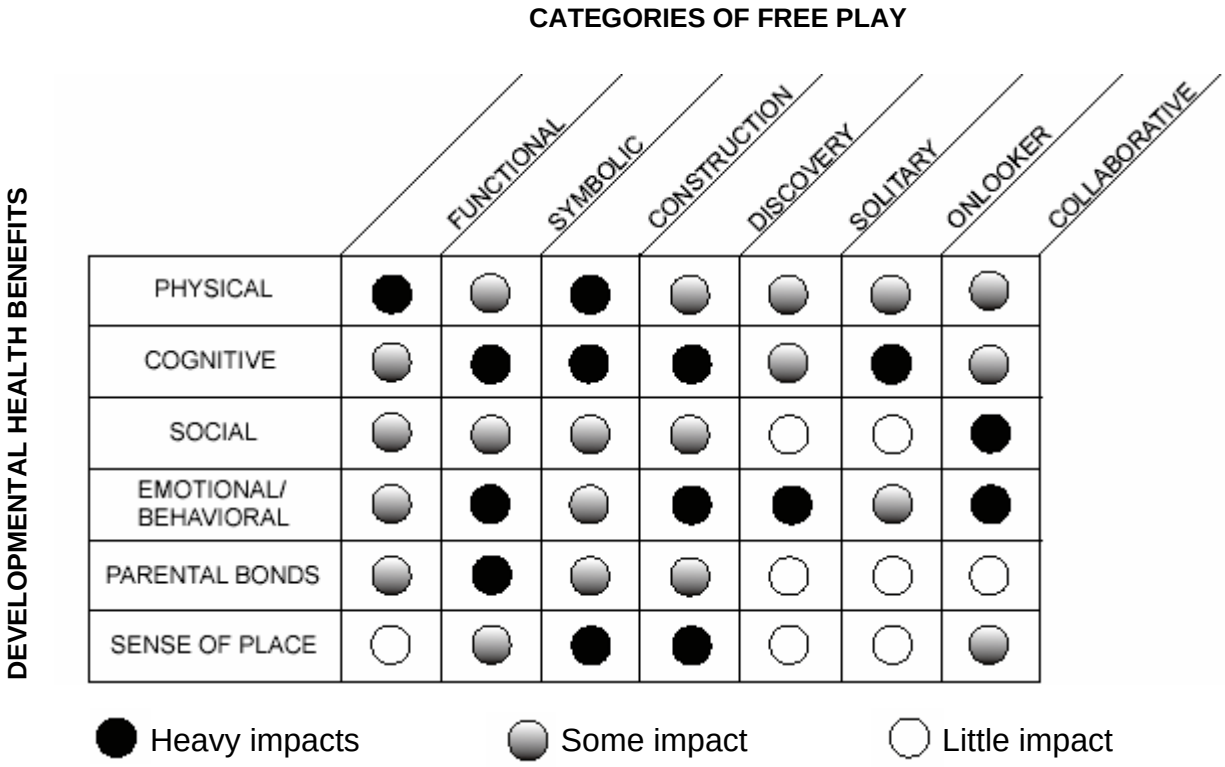
Developmental Benefits of Play Categories

The matrix shown in Table 3 overlays developmental health categories with the types of play previously described in order to determine the degree of benefit for each play category. It reveals an estimated amount of impact that a particular type of play may have on developmental health as indicated by the type of circle used. The estimates are informed by the research examined in previous chapters as well as data gathered during case studies. For example, discovery play evokes a great amount of cognitive developmental benefit, while only somewhat impacting social development. This estimate of impact is substantiated by the work of Robin Moore, as well as observations from the case studies conducted for this thesis.

All types of play have some amount of impact on a child's developmental health, as noted in the matrix. However, ranking the impact of each play category provides a starting point for design criteria. It allows for the criteria to be written in such a way as

to impart the greatest influence on play space design for developmental health. The information the matrix provides considers outside free play only. It does not include additional play behaviors or impacts that may occur during play in other environments.

Table 4.0: Developmental health and play categories:



Design criteria

The following design criteria provide suggestions for basic design elements to encourage free play in nature based on categories of healthy child development. The criteria are a culmination of the information previously provided, including observations made during case studies, research from other design practitioners and studies

specifically on children's developmental health and play. They are recommendations for designers to use when creating play spaces to promote healthy physical, cognitive, social, and emotional/behavioral development and build strong parental bonds and a sense of place or assessing the effectiveness of existing play spaces. The design criteria include elements from nature; however, effective play spaces use a mixture of man-made and natural elements.

1.0 Design for ***Physical*** development

1.1 *Variety of elements for gross motor movement*: Gross motor activities should be graduated, safe, and provide spaces for various age groups in order to allow for safe challenge.

- Stepping stones
- Trees for climbing and hanging.
- Rocks of varying sizes for climbing and jumping.
- Garden plots and/or other areas for digging.
- Climbing wall.
- Logs for balancing.
- Sculpture for climbing.
- Swing attached to a tree limb.

1.2 Varying topography: Varying topography provides opportunities for safe risks. Spaces should always allow for clear visibility.

- Hills or mounds for rolling, climbing, jumping, and running.
- Stairs for jumping or climbing.

- Wide open spaces for running, spinning, dramatic play or playing games.

1.3 *Variety of elements for fine motor movement:* Fine motor activities should improve dexterity and strength of fingers.

- Sand for digging, raking, walking through, pouring, burying and/or building. Loose sand toys provide additional fine motor challenges.
- Mud for squeezing, molding, and building.
- Area to pick flowers for grabbing.
- Nature “debris” such as rocks, sticks, leaves to provide loose parts for manipulation.
- Pond or moving water feature.
- Garden plots for digging, weed pulling, or planting small seeds.

2.0 Design for ***Cognitive*** development

2.1 *Movable parts:* Movable parts should vary in size, shape, and texture.

- Nature “debris” such as rocks, sticks, seeds, tree branches, and leaves for building, stacking or sorting.
- Rocks to lift.
- Water features.

2.2 *Undefined spaces*: Undefined spaces should not imply any certain use in order to build intrigue and allow children to decide what goes on at any given time.

- Wild places for discovery such as rock gardens, small meadows or butterfly gardens.
- Open spaces for child-driven, imaginative play and playing games.
- “Nooks” or edges with no defined purpose.

2.3 *Variety of natural elements*: Natural elements should vary in color, scent, and texture.

- Variety of vegetation including flowers, shrubs, grasses and trees.
- Wildlife such as butterflies, bees, birds, bats, and squirrels. Consider plantings that encourage wildlife. Bat houses and bird houses may also be included.
- Themed gardens such as a sensory garden, rock garden or vegetable garden.

2.4 *Multi-sensory stimuli*: Multi-sensory experiences will help reinforce learning.

- A variety of sun and shade for shadows temperature variation, and filtered light.
- Vegetation: Ornamental grasses for sound, color, texture; Flowers for color, scent, and texture, Trees for sound, color, texture, and taste (fruiting trees.)
- Artwork or murals for sound, color, and/or texture.

2.5 *Mystery:* Mysterious places should be intriguing without being scary. Spaces should allow for clear visibility by parents/guardians.

- Plant life varying in height, shape, color, texture, scent, and sound.
- Child-sized maze made with plant material.

- Curving bed lines and paths.
- Trees for filtered light.

3.0 Design for ***Social*** development

3.1 *Spaces for various types of congregation.* Spaces should always be easily accessible and allow for good visibility for parents/guardians.

- Arbor with a vine.
- Grass for picnics.
- Trees
- Raised platforms.
- Walls with murals to lean up against
- Club house
- Bamboo teepee

3.2 *Flexible, child-sized seating*: Seating should be movable and diverse.

- Logs of varying sizes and lengths
- Large rocks or boulders
- Child-sized picnic table.

3.3 *Elements that require teamwork*. Elements should vary in size, shape and texture.

- Logs or branches.
- Open areas for games.
- Swings attached to a tree.

3.4 *Defined spaces*: Defined spaces provide some level of predictability and allow children to have choices to play with children their same age or escape from high energy spaces.

- Separate play space for small children, but with visual access to the rest of the play space.
- Spaces for high activity defined by vegetation or a marked entrance.
- Spaces that imply quiet, relaxing activity differentiated by vegetation.

3.5 *Spaces to watch:* Allow for spaces in which a child can watch other children without pressure to get involved.

- Variety of seating on the edges of play spaces.
- A raised platform on the edge of a place space for a child to sit underneath or on top and watch.

4.0 Design for ***Emotional/Behavioral*** development

4.1 *Both open and intimate spaces.* Intimate spaces should allow for visibility from parents/guardians and provide a clear exit and entrance.

- Bamboo teepees
- Sunny patches of grass.
- Council rings created with shrubs or ornamental grasses.
- Stage area for imaginative play.
- Seating under a tree.
- Loose parts to create a small space just for the child.

4.2 *Undefined spaces:* Activities within undefined space are left for a child to decide at any given moment.

- Wooded areas.
- Lawn with curved edges.
- Hilly spaces for imagination, sitting, creating a stage and amphitheatre, rolling or sliding

4.3 *Spaces to play beside, but not with other children.* Spaces should allow children to comfortably be with other children without directly playing with them.

- Sand areas
- Garden plots of varying heights with accessibility from multiple sides.

4.4 *Spaces within and near nature*: Views of nature can add to the quality of a play space. The ability to touch nature increase intensifies the experience.

- Play space on the edge of wildlife areas.
- Trees which allow children to play underneath in tree roots or up in branches.
- Meadows with stepping stones for watching or wondering.

4.5 *Meditative spaces*: Meditative spaces are typically more quiet and calm than other areas of the play space and allow children to mentally escape.

- Circular paths
- Labyrinth made with bricks, stones or vegetation.
- Butterfly garden or ornamental grasses with child-sized seating.
- Small partially enclosed spaces such as forts or within tall grasses.

4.6 *Accomplishable challenges*: Graduated challenges can relieve stress and build self confidence. A wide variety of heights and moving parts can allow for safe risks.

- Steps to allow jumping from various heights.
- Hills of varying heights.
- Rocky areas for rock collecting.
- Loose parts for building.

5.0 Design for increased opportunities for ***Parental Bonding***

5.1 *Visibility* : All spaces including entrances/exits should be easily visible for parents/guardians, as well as children.

- Varied topography with levels for good visibility.
- Visual accessibility in enclosed spaces.
- Vegetation at appropriate heights and/or positioned as to not obstruct views.

5.2 *Elements for parents and children to do together.* Parents can motivate and help children to reach goals.

- Garden plots at varying heights.
- Swings, both for children and adults.
- Hills for jumping. Small children often enjoy jumping into parent's arms.
- Climbing wall where children might need adult's assistance reaching a new level.

5.3 *Seating*: Seating should be provided throughout the play space and in sun and shade.

- Benches
- Seat walls

5.4 *Fencing*: Fencing should not create the feeling of being confined.

- Planting beds to create visual barriers.
- Decorative, artistic fences
- Fences disguised with vegetation/vines.
- Clear entrances and exits to main play space and all subspaces.

5.5 *Groundcover:* Groundcovers should meet the standards set by the Handbook for Public Playground Safety.

- Mulch
- Recycled rubber with color added.
- Sand for playing and groundcover.

6.0 Design for development of ***Sense of Place***

6.1 *Movable parts*: Loose parts allow children to leave their mark.

- Rock collecting area.
- Sand
- Sticks/wood

6.2 *Cultural symbols:* Cultural symbols can build community pride and can be built or designed cooperatively by community members, including children.

They often reflect demographics and/or ethnic backgrounds and history of a place or community.

- Sculpture
- Child-made murals
- Stepping stones made by children.
- Trees
- Engraved bricks

6.3 *Native plants*: Native plants should be noninvasive and low maintenance.

- Seasonal change
- Fruit baring

6.4 *Visual contrast*: Visual contrast differentiates the play space and avoids sameness.

- Colorful entrance signs
- Equipment of varying heights
- Colored ground cover
- Vegetation for interesting sensory stimulation.

Notes:

- *Variety:* A variety of spaces should always be provided, i.e. large/small, open/closed, simple/complex in terms of sensory stimuli and defined/undefined. As mentioned in the introductory paragraph for the design criteria, a successful play space requires a mixture of man-made equipment and elements from

nature. Colorful equipment often assumes children want a high energy space; consider using a mixture of both bright and more subdued colors for equipment.

- *Accessibility*: Public play spaces should be wheelchair accessible in order to provide opportunities for everyone. See the American Disabilities Act and Play for All by Robin Moore for more information. Spaces should be safely accessible from surrounding neighborhoods by bike or walking. Paths and/or sidewalks should be available for the entire journey.
- *Shade and Sun:* A variety of sun and shade should be provided to allow for year-round use all day.
- *Scale*: Appropriate scale should be considered throughout the play space and should vary to accommodate a large age-range.
- *Overlapping activities with park*: Some spaces allow for integrating elements and weaving the needs of park and play space together. One example would be a sand volleyball area also used as a play sand area by children.
- *Amenities*: Bathrooms and water fountains should be considered depending on maintenance.
- *Community Involvement*: Involving the community, including children, in the design and building of a play space can increase a sense of place, build community relationships, and give a sense of ownership.

Chapter 7

ASSESSMENT OF DEVELOPMENTAL HEALTH BENEFITS FOR CASE STUDIES

Necessity may be the mother of invention, but play is certainly the father.

- Roger von Oech (www.creativethink.com, 2007)

Using the design criteria outlined in Chapter 6, data collected during the case studies, as well as evaluation techniques outlined by Claire Cooper Marcus in her book People Places, the case studies were re-evalutated as to their level of effectiveness for promoting healthy child development. Each category of development is assessed below, and includes a discussion of strengths as well as suggested features that would increase the value of the play space.

Luther T. Holt All Children's Playground - Peachtree City, GA

Physical Development:

Successful Features: Elements are present for gross motor development, including swings, slides, monkey bars, sit-and-spin and ladders. A variety of sizes and types of swings are available. Children have plenty of space to run above ground level, over ramps and bridges.

Suggested Features: Provide natural elements for gross and fine motor development such as trees, sand, and/or garden plots.

Include loose parts for creative manipulation and sensory stimulation such as sticks, rocks, logs, mulch and/or a water source. Consider creating grass-covered mounds for rolling, watching and jumping.

Cognitive Development:

Successful Features: Some equipment for multi-sensory stimulation is present, such as a xylophone, talking tubes, and colorful equipment and groundcover. Car wheels and space shuttle allow for imaginative play.

Suggested Features: Include some undefined spaces for dramatic, imaginative play. Provide natural elements such as plant material within the play space for greater multi-sensory stimulation. Create mystery and wonder through offering sun and shade. Supply loose parts for manipulation. Encourage wildlife with a butterfly garden.

Emotional/*Behavioral*:

Successful Features: Views of the lake are present throughout the play space. Platforms and raised equipment allow children to watch others or find a quiet space underneath. Swings give children a way to play side-by-side, but not together.

Suggested Features: Offer a wider variety of intriguing open and closed spaces. Bring nature inside the fence. Vary the heights of

platforms or provide rocks at different heights for graduated challenges and accomplishable goals. Supply loose parts.

Social:

Successful Features: Platforms allow children to congregate underneath and on top. Picnic tables provide space to gather, but are outside the fence. Talking tubes require teamwork. There is space to run and negotiate games.

Suggested Features: Include a wider variety of gathering spaces and include flexible seating that can be moved using teamwork. Spaces should vary in how open or closed they are, as well as in height. Provide more sensory stimulation using nature within the fence. Provide child-sized, movable seating or grassy areas for seating on the edges of the play space to allow children to watch others.

Parental Bonding:

Successful Features: Good visibility throughout the play space. Fencing with clearly marked entrances and exits are present. Some seating is available within the play space as well as outside the fence. Reclining swings allow parents and children to swing together.

Suggested Features: Include semi-enclosed spaces that are visibly accessible for parents. Provide vegetation that is sized correctly as to not block views. Disguise the fence with vegetation or

vines. Add more options for activities that parents and children can do together.

Sense of Place:

Successful Features: Engraved bricks with names of community members are present. The very colorful equipment and ground cover as well as the accessible design differentiate this play space. The lake and ducks provide a point of reference.

Suggested Features: Offer loose parts to allow children to create their own imaginative play space. Include sculpture to help differentiate the space. Use native plants throughout the play space.

Other:

Successful Features: Bathrooms and drinking fountains are present and clean. The play space is accessible via a path system. Groundcover is colorful, recycled rubber mulch. Plenty of park amenities surround the play space such as grills, picnic tables, trash cans and benches. Adequate parking is available. The play space is in close proximity to a pool and library.

Suggested Features: Provide shade to allow the play space to be used any time and season. Provide spaces that will create a wider variety of experiences. Overlap park and play space activities.

Create a wider variety of scale to allow the play space to accommodate older children.

Cunard Memorial Playground - Atlanta, GA

Physical Development:

Successful Features: A variety of equipment is available for gross motor movement including slides, monkey bars, ladders, a climbing wall, bouncers, and spinners. The play space works with existing topography offering different levels for jumping and running downhill or uphill. Sand and movable parts are present for fine motor development.

Suggested Features: Provide more natural elements for safe challenges, ie logs for balancing.

Cognitive Development:

Successful Features: Undefined areas are present around the edge of the play space. Imaginative equipment is available and requires investigation and problem-solving. Plenty of trees and other colorful plant life surround the play space and attract wildlife. Nature “debris” is present for manipulating. Bed lines and paths are curved and flowing. The sand area with loose shovels and rakes provides opportunities for fine motor development as well as digging and discovering. An abundance of sun, shade and filtered light are present.

Suggested Features: Include a water feature for sensory stimulation. Provide plant life for sound and movement. Offer larger loose parts for building such as bamboo.

Emotional/*Behavioral*:

Successful Features: Tunnels are enclosed and intimate, but visually accessible through holes in the sides. The sand area provides a safe opportunity for a child to play alone and beside others. Spaces such as small grassy patches are present on the edges of the play space and are undefined. Graduated equipment such as a climbing wall, hills and stairs offers safe challenges.

Suggested Features: Include meditative spaces, such as a labyrinth. Provide a stage area for imaginative play. Supply large loose parts for children to create their own small spaces.

Social:

Successful Features: A variety of space is available for playing games. The sand area allows for side-by-side play. Small berms surrounding the play space and small patches of grass on the edges of the play space provide seating for children to watch. Children can easily play beside or within nature. The tilted merry-go-round and swings can require teamwork. The fire truck and tunnels are small spaces for congregating and imaginative play.

Suggested Features: Include a club house or similar semi-enclosed space. Provide a variety of child-sized, flexible seating.

Parental Bonding:

Successful Features: Benches and seat walls exist in the sun and shade. A climbing wall, swings and monkey bars are elements that often require parental assistance. Good visibility throughout small spaces and within equipment. Clear boundaries are provided by planting beds. Recycled rubber mulch is present as a safe ground cover.

Suggested Features: Offer more options for children and adults to do together such as planting beds. Provide more seating throughout.

Sense of Place:

Successful Features: Memorial statues and the fire truck act as defining features. Some native plants are used throughout. Nature "debris" is present for manipulation.

Suggested Features: Clearly define play space entrance. Include child-made art within the play space.

Other:

Successful Features: The play space is safely and easily accessible by paths and sidewalks to the surrounding neighborhood and business district. Play equipment is provided for a wide variety of ages and levels. The play space is very well

integrated with the park. The sand volleyball court is shared.

Suggested Features: Evaluate maintenance issues. Fix play equipment and water fountains. Provide public bathrooms if possible. Add elements for wheelchair bound children to use such as a raised sand area or accessible swings.

World of Wonder – Athens, GA

Physical Development:

Successful Features: An abundance of opportunities to climb are present including different types of bridges, ladders, fire poles, and steps. Balance beams, monkey bars, a climbing wall, rocking animals and several types are swings are present to encourage additional gross motor movement. A sand area exists for fine motor movement. Platforms and bridges vary in height for graduated, safe challenge.

Suggested Features: Use natural features for challenges such as logs for balancing or stepping stones. Vary topography to provide hills and curved lines. Offer elements for fine motor movement for older children. Provide larger movable parts for building such as bamboo.

Cognitive Development:

Successful Features: The complex design provides mystery and wonder. Senses are stimulated by colorful murals and equipment that makes sound, such as the alligator and palm drums. Mulched areas provide opportunities for manipulating including digging and building.

Suggested Features: Provide more undefined space. Add vegetation and natural areas that can be explored within the fence. Use themed planting beds such as sensory gardens or rock gardens. Build an area for wildlife.

Emotional/*Behavioral*:

Successful Features: Small enclosed spaces are present at varying levels. The sand area and swings allow children to play side-by-side, and independently. Views of nature exist throughout the play space. Platforms, bridges, and stairs of varying heights give children a chance to take safe risks and accomplish goals.

Suggested Features: Provide large, loose parts to allow children to create their own imaginative spaces. Include a meditative space such as a labyrinth or circular path. Offer more undefined spaces.

Social:

Successful Features: Space for small children is defined and separated from active areas for older children, but still allows views into other spaces. Small spaces and enclosed imaginative equipment such as the fire truck, tree house, and pirate ship provide a place to congregate. This play space provokes imaginative game-playing with the castles, pirate ship, fire engine and varying heights of platforms. The telephone feature and tire swing require teamwork. Raised platforms allow for children to congregate above and beneath. Seat walls provide seating for watching.

Suggested Features: Offer a variety of seating that can be moved using teamwork. Use a small grassy patch for a place to congregate. Provide features that will allow children to congregate within nature such as within tall decorative grasses or on a small grassy patch.

Parental Bonding:

Successful Features: The space is fenced with one entrance/exit. Mommy-and-me swings provide an activity that children and adults to do together. Seat walls are provided throughout. Climbing walls, a fire pole and the tire swing often require parental assistance. An emergency call box is just outside the space.

Suggested Features: Disguise the fence with vegetation or replace it with a decorative, artistic enclosure. Vary heights of equipment or manipulate topography in such a way as to create better visibility. Provide more seating in sun and shade.

Sense of Place:

Successful Features: The entrance wall is covered with tiles made by children, reminding users that this was community built. Native planting beds and trees surround the play space. Colorful murals with children are scattered throughout the play space. A UGA bulldog marks the entrance and is a defining, cultural feature.

Suggested Features: Include more loose parts to allow children to collect "treasures" and manipulate the play space.

Other:

Successful Features: Park amenities are abundant. Bathrooms, drinking fountains, a dog park, trash cans, parking, and a bike path are all easily accessible. Covered picnic tables offer a shady place to sit outside the play space.

Suggested Features: Provide shade with trees and plant material throughout the play space. Include a wider variety of open versus closed spaces. Consider accessible play features for wheelchair-bound children.

Chapter 8

Conclusion

"I sincerely believe that for the child, and for the parent seeking to guide him, it is not half so important to know as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow. The years of early childhood are the time to prepare the soil."

(Rachel Carson, A Sense of Wonder)

Defining the Gap

Although children are resilient, adaptable and resourceful, child development experts contend that healthy child development depends on effective environments that provide elements to nurture the whole child. The latest health statistics show an overall decline in children's health, making it clear that the way we are shape our environment is now more important than ever. Public space design matters to children, who have a biological need to play. Evidence points to free play in nature as a valuable way to cultivate and nourish healthy, complete children. For this reason, it is essential to consider play spaces in public design.

What is the design gap between children's developmental health and public play space design? After looking at current research on children's health and development, examining historical perspectives of play and play spaces, and conducting case studies, it is apparent that understanding the developmental needs of children is where the gap exists. Discovering what elements affect and encourage movement to support those needs is critical for designing effective public play space. Overall, recognizing children as a critical user group through understanding child developmental health is necessary to close the gap.

As the case studies exhibited, designing public play spaces is multifaceted and necessitates accounting for a range of ages, abilities, ethnicities, ideas, and fears. Public play space design is about more than equipment. It not only encompasses the areas within which play occurs but also connects children to their communities and nature. Understanding the needs of this user group requires collaboration between designers, children, parents, community members and child development professionals.

Recognizing a landscape architect's role in this societal issue is important. As Robin Moore states, "*The purpose of design is to ensure that the necessary stimuli are ever-present in the child's environment to set the learning process in motion through play." (Moore & Cosco, 2006)* Through advocating for play space in public and community design projects, landscape architects can not only build momentum for the importance of play spaces in nature for healthy development, but can also empower clients and communities. They can push societal expectations of public play space design. Overall, through closing the gap, landscape architects can improve children's developmental health and design grounds to grow.

Challenges

Studying children and public design is a complicated task. Many factors play into the success or failure of a given space. Values, preconceived notions, expectations, fears, parenting styles, developmental levels, the gender of the children, and only-children versus those with siblings are among some of the factors that could have affected this study. The locations of the case studies chosen for this thesis existed in three separate cities in Georgia. They varied not only in geography, but also in terms of socioeconomic status, diversity, and average age. The degree to which all of these variables impacted the information participants gave is unknown. One example of a possible effect occurs in the feedback collected during parent/guardian interviews. Data showed that the lack of a fence surrounding the Cunard Memorial Playground in urban Atlanta was not a safety issue for users; however the fence surrounding the All Children's Playground in suburban Peachtree City was a very important element to users who believed it significantly increased safety. This begins to reveal potential differences between urban, suburban and rural dwellers.

In addition, the degree of willingness to participate in the study varied from site to site. Users of the World of Wonder play space, located in the college town of Athens, GA, were for far more receptive and willing to participate in the study, while users of All Children's Playground were more skeptical. The hesitation or unwillingness to participate by any user group was an unexpected, but interesting challenge. It is difficult to pinpoint the reasons this occurred. Some speculations are "stranger danger" or societal fears, parenting styles and/or time.

Finally, it was a challenge during this process to collect adequate amounts of data for three play spaces in a very limited amount of time. Looking at one play space may have permitted a more in depth study of the user groups and been adequate in providing information for design criteria. Additionally, although one goal of the study was to collect a random sample of users for each space, it may have been appropriate to conduct this research through an organized program, such as a summer camp which would have provided some consistency. This would, however, change the emphasis of the study to primarily what children think, allowing for a larger photo interview sample.

Future Research

Currently there is a new movement to reintroduce and reconnect children to nature and free play. However, there is still a lack of data on children and the affects of outdoor space on developmental health. This necessitates further investigation by all professions involved. Because of the complexity of this issue and the specific user group, there are many directions in which further research go, either building on or using this study. The following are a list of suggested paths that can be taken.

1. Investigate effective ways for landscape architects and child development experts to work together in design. Look at other potential partnerships that would strengthen play space design. Highlight case studies where this type of partnership has occurred.
2. Conduct a more in depth study on the affects of outdoor space on a specific developmental health category. There is especially a need to look at behavioral health effects. Are there ways to design therapeutic gardens for ADHD, autism,

or other behavioral/emotional disorders? Collaborate with a play therapist to consider how a child's environment affects behavior and how therapists can use outdoor space to evaluate children.

3. Examining if and/or how parental and community fears/concerns are shaping the way we design play spaces.
4. What are user expectations of children's play space? Should they expect more out of our public play spaces? Investigate how landscape architects can effectively push boundaries of our fear and safety based society.
5. Collaborate! Evaluate the design criteria with a child development professional and make additions and edits. Use the new criteria to evaluate other spaces.
6. How much does geography and/or culture play a role in effective play space design? Can the criteria be used anywhere? Use the criteria to assess play spaces nationally or internationally. What multicultural considerations need to be made when designing play spaces?

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Appendix A

PARENT/GUARDIAN INTERVIEW RESULTS

Question Set 1:

How often do you visit? How do you get here? How far do you travel?

If you walk, is it safe? Are there crosswalks, paths, sidewalks the entire way?

	All Children's	Cunard Memorial	World of Wonder
1	Not often. We travel by car about 10 miles.	1-2 times per week. We come by car less than 10 miles. Not walkable from where we live.	Mostly use this play space 2-3 or more times per week. Came by car.
2	About 1 time per week. Golf cart. There is a path the entire way.	Walked. It's very safe. Crosswalks and sidewalks. Visit a couple times per week.	Come here 2-3 times per week by car.
3	Not often. 1 time every 1 or 2 weeks. Sometimes car, sometimes golf cart.	Walked. Felt very safe. Use this play space 2-3 times per week for a couple hours. There are sidewalks and crosswalks.	We visit a few times per week. We walk. There is a sidewalk the entire way from our house to the play space. Very safe.
4	About 1 day per week. We come by car.	Drove. Visiting relatives from out of state. First time to the play space.	Once per month or less. Come by car. Travel about 15 minutes.
5	Walk. Visit a 1-2 times per week. Very safe. We use the golf cart path.	Drove. Under 5 miles. Use this play space about 3 times per week.	First time to visit. Don't use this play space because it's far from home (over 20 minutes.) Met friends here today. Came by car.
6	Come by car. Just moved here and discovered this play space while going to the library. Convenient.	Drove. Use this play space every once in a while – 1-2 times per month. Not as close as other play spaces to our house. About 5-7	Don't visit very often. Come by car. Takes over 10 minutes to get here.

	Easy to get to. Off the main street. Will visit often.	miles away with lots of traffic.	
7	Come by golf cart – 10 minute ride. Very safe. Paths the entire way. Come at least 1 time maybe 2 times per day.	Walk. Come to play space almost everyday. Very safe walk. Sidewalks the entire way.	Visit once a month. Drove. Live about 10 minutes away.
8	Walk sometimes – 15 minutes, but drove today to have air conditioning. Walk very safe. Use the path. Come to the play space 3-4 times per week.	Walk, 10 minutes. Come 4-5 times per week. Always walk. Very safe walk. Sidewalks the entire way.	Drove. Don't visit too often – one time per month.
9	Came by golf cart – about 15 minutes. Visit this play space at least 3-4 times per week. Very safe ride on path.	Drive 10 minutes. Come to playground maybe once a week.	Walk. Use the sidewalks and bike path. About a 15 to 20 minute walk. Very safe and peaceful. Try to come every day.
10	Came by golf cart – less than 10 minute ride on safe path. Come 1 time per month. Used to come 2 times per week before we put jungle gym in yard at home.	Drive. Visit every other week to 1-2 times/week.	Drive. Visit about 2 times per week or more. Not very close to our house, but we like this play space.
11		Drive, 10 minutes. Come to play space almost everyday.	First time to visit. Drove, 10 minutes or less.
12		Drive, 15 minutes even though there are closer play spaces/parks to home. Come to this play space 4-5 times per week or more.	Drove. Live far away – about a 20 minute drive or more. Don't come as often as we'd like. Maybe 1 time every other week.
13		Walk. Very safe. Come to this play space 1-2 times per week.	Drove. Visit a few times per month. About a 5-10 minute drive.

14		Drove from Coweta County. Have visited 3-4 times.	
15		Drive. Don't' come often because play at home most of the time.	

Question Set 2:

What are the elements of this play space that you feel are the most valuable to your child? How? Why? Are there areas of the play space you tend to steer your child away from? Why?

	All Children's	Cunard Memorial	World of Wonder
1	Used to love the water sprinkler, but it's broken. Don't steer away from anything within the fence.	There is something for everyone (all ages) at this play space. Lots of imaginative equipment. Like that it has 2 levels – upper and lower with different styles of equipment on both.	Love the section for small children. Lots of variety.
2	Like the play equipment. Provides a wide variety of things to do.	Love the fire truck and sand. Lots of different kinds of equipment. Love the swings.	Encourages lots of imagination and dramatic play. Love the section for small children that is separate from spaces for older children.
3	Lots of things to climb and go under. Can safely play chase. Lots of exercise.	This play space is very creative. Keeps children's attention. Can be very active. Love the volleyball court/sand for kids to play in.	Lots to do. Love the swings for adults to be able to swing with babies. Mommy-and-me swings? Love that there is one entrance in and out.
4	We love the swings and the view of the lake. Lots of movement.	There's shade! Very unusual equipment that is interesting to kids. Like the rock wall and recycled rubber mulch. Like the	Pirate ship is our favorite. All the equipment to encourage imagination. Great for that. Don't steer them away from

		rocking animals.	anything.
5	Play a lot on the larger jungle gym. Not too high. Lots of space to run. Great views of the lake.	Play equipment keeps kids thinking – having to figure out how to use it. Kids love playing with leaves from trees. We love the shade!	Lots of space to play. Offers a wide variety.
6	Equipment not too high. Can climb on jungle gym and it's all connected so can run continuously. Less risk of injury. Like the sit-and-spin.	Like the shade and recycled rubber mulch. Love the swings for babies and big kids.	Pirate ship and tire swing are great. They can run and climb while using their imagination. Can't think of anything I don't like them to play with.
7	Always full of other children to play with. Lots of different games to play. Love to climb.	Lots of space to run. Fire truck and swings are the favorite. Steer them away from broken equipment.	Allows for a lot of activity. Love the tire swings to spin on, love climbing, tree house, fire truck, pirate ship, and sand box. Allows for a lot of imaginative play. Don't steer them away from anything.
8	Room to run. Don't steer them away from anything. Free to play anywhere. Lots of children. Loves to socialize.	Love the variety of equipment. Spend a lot of time on swings and in sand. Love the toys in the sand area. Lots of other children to play with. Good for socializing.	Like that this is a complex play space with lots of different things to do. Sometimes overwhelming. Don't discourage from using any of the equipment.
9	Like the swings, sit-and-spin, talking tubes. A great place to run. Love the swings.	Lots of different equipment for imagination. Love the fire truck and tilted merry-go-round. Don't discourage them from anything.	Lots of variety. Opportunities to improve motor skills. Lots of equipment for imagination. Lots of space to run.
10	Areas to climb, swings, and monkey bars great.	Lots of area to run safely. Always other children to	Love the sandbox and slides. Lots of space to

	Don't steer them away from anything.	play with. Love the swings and slides. Wide variety of play equipment.	run and explore.
11		Equipment is a good height for children. Monkey bars not too tall. Lots of variety. Loves the monkey bars.	Opportunities for discovery. Complex play space keeps them busy and active. Love the variety of swings.
12		Fire truck is the favorite – lots of imaginative play. Lots of children to socialize with.	Opportunities to explore. We especially love the fire truck and the car wheels. Great for imagination.
13		Love the swings. Interesting equipment.	Lots of things to discover and do. Great for socializing. We love the sand and swings most. Especially the tire swing. Like the separate area for small children. Great for exercise
14		Love the fire truck, plants and shade. Very pretty, rolling landscape. Lots to see and do.	
15		Climbing apparatus is great. All at a good height/size for children. Love the sand. Like coming to play space in park as opposed to school or church. Lots of variety.	

Question Set 3:

Are there limits to this play space? What are those limitations? Play equipment?

Amenities? Nature?

	All Children's	Cunard Memorial	World of Wonder
1	Need monkey bars, trampolines, tubes to encourage movement.	Public bathrooms would be great.	Picnic tables with an awning. More shade!
2	Can't think of anything.	More vehicles like the fire truck. It's a big hit. More benches in the lower area. Only one bench for parents to sit while kids play. Add more baby swings. Three is not enough.	More shade!
3	Need more equipment for older children.	Shade over slides and remainder of swings. Fix broken equipment. Maintenance is an issue.	Would like to see a hand sanitation station.
4	Needs to be more things to stimulate senses such as sand and other water features. Need more shade! Very hot!	Public bathrooms and a water fountain would be helpful.	It's almost a seasonal play space because there is not enough shade.
5	Should have double fence – like dog park at entrance/exit. Too hot. Need more shade.	Put all play equipment on one level. There should be public bathrooms.	More shade.
6	Need at least one higher slide for older children (7 and up.) Need more shade, but leaf debris might be an issue.	Public bathrooms and fix existing broken equipment. Bouncy animals have been broken for months.	More shade!
7	See-saw would be great.	Broken equipment, more shade in upper play space.	Would like to see more things to spin on, like a merry-go-round. Would love a sprinkler, see-saw and more poles. Also, for it's size, this play space should have another larger slide.
8	More benches in all areas of play space. Very hot. Need more shade. Unusable at certain times of day. Need a working water feature. Maintenance	More places to sit.	Too hot! Can only use this play space in morning or evening. Would be great to use in afternoon. Not enough benches inside play space.

	issues.		
9	Maintenance issues – broken swings. More things for toddlers.	Would be great if it were fenced with just one entrance/exit.	Re-think age limitations. More 2 year-olds can and do use big kid area.
10	No limitations.	Need a water feature. More swings. Bathrooms would be great, but maintenance might be an issue.	More for smaller children to do.
11		No limitations specifically with equipment, but maintenance is an issue.	Needs to be bigger. More shade. Bigger area for small children.
12		Taller slides and swings. Recycled rubber mulch is great, but get very hot. May look at different groundcover.	Water! A water fountain or sink close-by and a water feature. Loose toys in the area for small children. Wooden blocks.
13		Things that spin around are unsafe. Lots of children fall off.	A larger, more complex area for small children. Seems like an after thought in the design.
14		A fence would possibly be great here.	
15		No limitations.	

Question Set 4:

How many hours per week does your child play outside? Where? Describe these spaces?

	All Children's	Cunard Memorial	World of Wonder
1	Play at home in yard mostly. Play outside more when it's not so hot.	Play outside about 10 hours per week in a variety of places. Playgrounds, yard, other parks, pool, hiking, etc.	Play outside a couple of hours per day at home usually, but also at park.
2	About 5 hours per day. She's in a lot of camps and has a great yard at home. Loves to be outside.	Play outside 2 or more hours per day in the park or at home.	Play outside a couple of hours per day at home, friends yard or at park.
3	Play a lot outside in yard	Play outside at least 2 hours	Come here for a couple

	or in friend's yard or in daycare at least 1-2 hours per day.	per day at a playground, home, or friend's house.	of hours every other day. Also play in yard a little each day.
4	We play outside a lot. Mostly in yards, camps or other playgrounds. Spend a lot of time at the pool in the summer.	Play outside a few hours per day. Play in yard mostly, but also in parks.	Play outside at least 2 hours per day. Ride bikes at home, play at pool, go to play spaces.
5	Play outside a little each day if possible. Play at home most of the time.	Play outside 10-12 hours per day. Play at parks and playgrounds about half the time and also at home.	Play outside almost everyday (about 2 days) at other play spaces or home.
6	Play outside about an hour each day or more. Play at home or in play space.	Play outside 10-12 hours per day. Play a lot in other parks and playgrounds.	Play outside a little everyday. Spend time at home, the pool, or at friend's house.
7	Play outside every morning and evening, most of the time at this play space. Love to play outside.	Play outside almost everyday at least a few hours. Play at playgrounds and at home.	Play outside a little everyday. Spend most of our time playing at home. Have spent a lot of time recently playing at the pool.
8	The amount of outside time varies. Sometimes can't make it outside. Sometime outside at playgrounds or home each day.	Play outside almost everyday. Play at playgrounds, friend's house or at home.	Play outside a lot. As much as possible each day. Spend a lot of time in yard at home.
9	Play outside about an hour per day. Play at home, school or play space.	Spend some time outside each day. Mostly at home or to this play space.	Play outside several hours per day. Visit the play space every day at least once, sometime more.
10	Play outside a little each day primarily at home on our jungle gym.	Play outside everyday. Come to play space almost everyday. Also play at home and go to the pool.	Go for a walk in early morning and play outside in afternoon/evening mostly at home or Lake Heric.
11		Outside as much as possible – at least 2 hours	Play mostly at home at least 2 hours per day.

		per day. Come to play space everyday unless weather doesn't allow.	
12		Outside more than 10 hours per week. Come to playground most of the time and also play at home. Spend time at the pool in the summer.	Play outside about 3 hours per day at other parks or at home.
13		Outside everyday. Come to play space 1-2 times per week, but mostly play at home.	Play outside 1-2 hours per day at home or play space.
14		Outside some time everyday, but child doesn't like playing outside. Try and come to parks most often.	
15		Outside everyday morning and afternoon if possible. Play at home most of the time, but also like to play in parks.	

Question Set 5:

Describe your child's behavior while in the play space. Are they happy, quiet, social, easily aggitated? Do you notice any differenced in behavior when playing outside versus inside?

	All Children's	Cunard Memorial	World of Wonder
1	They love it here. They are very active, happy.	Happy	Very happy, but hot.
2	Happy and active.	Happy, excited, love the equipment here	Interested, curious, happy.
3	Happy and energetic	Happy	Loves the swings! Very happy.

4	She is very happy, but hot. Can't stay too long in the sun.	Happy, curious, and sometimes nervous when bigger kids are there	Happy.
5	Happy and excited.	Happy	Very happy.
6	Excited and happy most of the time, but gets agitated when too hot. Can't get out of sun.	Happy	Very interested and excited. Like to discover and wonder around everywhere.
7	Excited to play with other children. Intrigued.	Very active.	Excited when children find out we're coming here. Very active, but hot!
8	Happy and energetic. Loves to socialize.	Loves this playground. Gets so excited to come. Very happy.	Happy, relaxed and curious.
9	Very active. Happy. Love this play space.	Happy, active.	Happy, but hot and sweaty.
10	Happy and active.	Happy, active, very curious. Always digging in sand.	Loves this play space. Happy and always having fun.
11		Love to be outside. Always excited and very active when in the play space.	Loves this play space. Very exited when we come here. Moves from one thing to the next quickly.
12		Always happy, especially when there are lots of children around. Very active.	Happy when we come here. Very curious.
13		Very happy. Relaxed.	Very excited to play with other children. Happy and wild.
14		Not very happy initially, but likes it once outside. Only child, so playing with others is a struggle.	

15		Very happy, active, excited, comfortable.	

Question Set 6:

What are the benefits of this play space to your child? Why do you choose to come to this particular space? Are there things you and your child can do together in this play space?

	All Children's	Cunard Memorial	World of Wonder
1	We like that it is fenced off. Only one entrance so it is easy to keep track of children. There are great views of nature – ducks, lakes.	No safety issues, a variety of play equipment, close to house	Safe and fun.
2	Love that the play equipment is not too tall and the play area is fenced in.	Close to house, fun,	Lots of variety for child. Very safe.
3	Love the view of the lake. Love that it is enclosed. I can sit in the picnic area outside the fence and watch child play inside the fence.	Offers variety. Different from other play spaces. Encourages imagination. Safe.	Close to home. Can walk. We love to swing together.
4	Love the view of the lake. Love that it is fenced in. Good visibility to be able to read a book and keep track of child.	Love the imaginative equipment. Very safe and lots of different things to do.	Visit this play space because child can play independently and be safe or play with other children.
5	Centrally located. Love the groundcover. Close to the library. Great views.	Lots of things to figure out and discover. Lots of shade. Love the rubber mulch. Safe.	Love to come here because it's quiet and not too crowded.
6	Swimming pool nearby. Love the recycled mulch. Location – lots of options	Lots of shade, great variety of equipment.	Lots of opportunities to get great exercise and use imagination.

	nearby. Easy to get to by car.		
7	Love the dogs, lake and ducks. Love the groundcover. Lots of games to play. No sand, so can stay clean.	Come for the fire truck primarily, but love that it is in the shade and very safe.	Lots of things to do and very safe. Can get great exercise here.
8	Easy walk from home. Love the groundcover. Like that it's fenced in with just 2 entrances.	Close to home so we can walk. At least a few other children are here at all times. Very safe.	Come here because it's different from other play spaces. Very complex.
9	No sand groundcover, so child can stay clean. Bought a brick with child's name on it. Can easily get here.	Like the recycled mulch and equipment for imaginative play.	Love that we can walk. This play space is one of the main reasons we moved into a neighborhood close-by. Since we've come here, child's coordination has improved through the variety equipment and watching other children.
10	Lots of variety here. Like that it is fenced.	There are always other children to play with. Good shade. Lots of different things to do. Love the sand. Naturally contained instead of having to fence in the space.	Very safe and clean. Big, so child can get good exercise.
11		Love the monkey bars. Equipment creative and the right size. Open space that is safe.	Very clean. Would highly recommend to anyone. Fenced-in so very safe. Love the swing for adults!
12		Come for the fire truck and to play with other children. Always a good crowd. Love the sand.	Lots of opportunities to explore, more so than other play spaces.
13		Close to home. Safe surface and shaded swings.	Opportunities to socialize. Very safe. Love that it's

			fenced in. Easy to please all children. Love the separate space for small children.
14		Lots of colorful plants and plenty of shade. Love the fire truck. Rolling landscape with 2 levels is great and more interesting.	
15		Climbing apparatus is at a good height. Feels very safe. Lots of variety.	

Question Set 7:

Are there safety issues here? Traffic? Visibility?

	All Children's	Cunard Memorial	World of Wonder
1	If they are outside the fence the lake is a safety issue. Within the fence it is very safe.	No safety issues.	Once outside the play area for small children, visibility can be an issue. Lots of small spaces. But only one entrance/exit so no issues with child leaving, just possible falling, etc.
2	No cement in play space.	Very safe.	Set back from the road. One entrance. Fenced off. Very safe.
3	Shouldn't use cement or brick in play space.	Very safe.	It feels very safe. Fenced off. Easy to manage child.
4	Very safe.	Big kids (teenagers) come over and can be dangerous. Worry about strangers, but feel fairly safe here. Could be further from the street. Sand could be a health hazard.	No safety issues. Sometime can't see child, but fenced in with one entrance/exit so you can be sure they're in there.
5	Very hot. Groundcover increases safety. Would	Feel fairly safe. Visibility sometimes an issue with the	No safety issues.

	like double fence at entrance/exit.	2 levels.	
6	Like the fence with just 2 entrances/exits.	Would rather have everything on one level for better visibility. Other than that, very safe.	No safety issues.
7	Railing on jungle gym too narrow. Legs get stuck through. Don't need fence. Creates the illusion of safety. Children climb and open fence anyway.	Broken equipment.	Recycled lumber sometimes sharp on edges.
8	Very safe.	Very safe.	No safety issues except for the sun.
9	Broken swings, but no other safety issues.	Never feel unsafe.	No safety issues. When she gets bigger that might change. Can seem like child is lost in the space because it is so complex. But it's fenced and very safe.
10	Feels very safe inside the fence. Outside the fence lake and pets can be a hazard.	Rubber mulch gets hot and areas in shade are full of bugs. Tree branches need checked. The usual trash issue that happens in urban settings.	Very safe.
11		Maintenance issues. Broken equipment.	Very safe. Love that it's fenced in.
12		Rubber surface gets very hot. No major safety concerns.	No safety issues, but sink to wash hands would be nice.
13		No safety issues. Great visibility.	Very safe.
14		Concrete planting bed close to climbing wall. Could be	

		fenced off. Worry about health issues related to the sand (cats.)	
15		Well-designed. Not isolated, but not too close to the street. Great visibility. Exit and entrance disguised with plantings and trees.	

Additional Comments?

	All Children's	Cunard Memorial	World of Wonder
1	We love the recycled mulch groundcover.	Love that it's community built.	No additional comments.
2	Very centrally located.	No.	Love this play space.
3	No	No.	Very hot. Too hot for the summer except in the mornings and evenings, but still a great play space.
4	No	No.	Too bad the play space is almost seasonal. Have a hard time using it in the summer.
5	No.	No.	Very quiet and peaceful play space.
6	Location makes this play space. Easy to get here. We'll be back.	No.	No.
7	Love the dogs, ducks and lakes.	Love the size of the play space. Bigger than most.	Love the bulldog.
8	Play space is bigger than most we play in. Never too crowded.	Love that there are toys available in the sand area.	Hot! But fun!
9	Should continue selling bricks.	No.	My child has really advanced with gross motor skills since we've

			come here. Has learned a lot.
10	No.	No.	Great space!
11		Space is great.	Would highly recommend.
12		Might be busy because of the number of stay at home parents living in the neighborhood.	No.
13		Always feels clean here.	Children love it.
14		Will continue driving from Coweta County as often as possible.	
15		Very easy play space to be. Will keep coming until we move.	

Appendix B

PHOTO INTERVIEW RESULTS

Luther T. Holt All Children's Playground - Peachtree City, GA:

FEMALE, AGE 4

Climbing:




Sliding:


Sound:

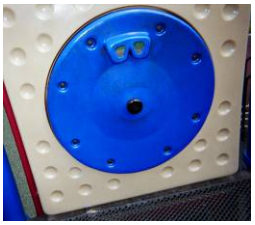

Nature:

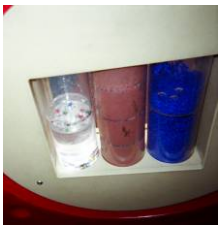
Swinging:

MALE, AGE 5

Climbing:

Manipulation:





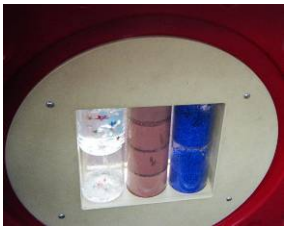
Imagination:

MALE, AGE 8

Climbing:


Sound:


Manipulation:


Imagination:

Swinging:


Sliding:


Cunard Memorial Playground - Atlanta, GA:

MALE, AGE 4

Sand:



Imagination:


Climbing:


Nature:

FEMALE, AGE 6

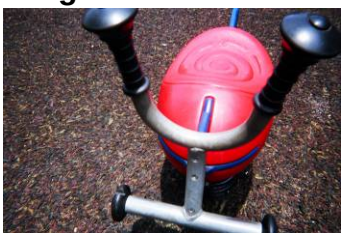
Climbing:




Sliding:



Imagination:



Spinning:

Sand:


Nature:


MALE, AGE 6

Sliding:



Spinning:



Climbing:



Swinging:

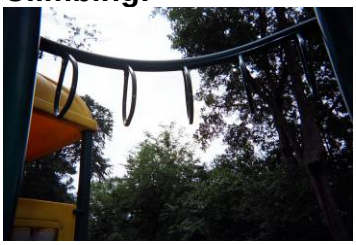

Manipulation:


Nature:


FEMALE, AGE 7

Sand:


Climbing:




Swinging:

Spinning:


FEMALE, AGE 7

Climbing:




Spinning:


Imagination:


Nature:


Swinging:

FEMALE, AGE 9

Climbing:

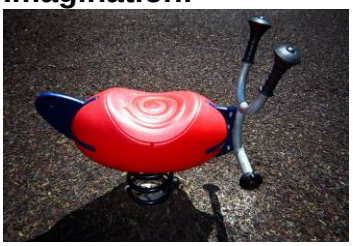



Sliding:

Spinning:



Imagination:




Sand:

World of Wonder – Athens, GA:

MALE, AGE 6

Swinging:


Climbing:






Imagination:

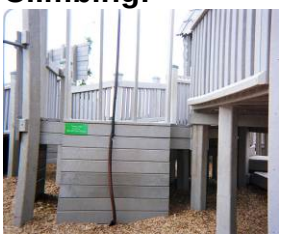


Sliding:

Sand:

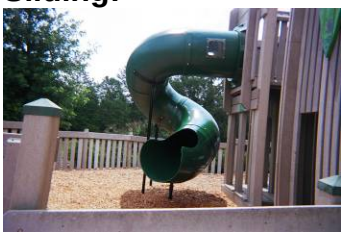
MALE, AGE 6

Climbing:




Art:

Sliding:



Swinging:

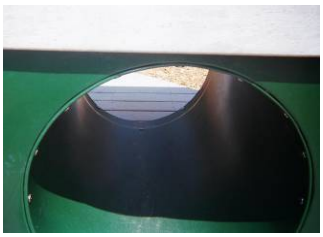
Sound:


FEMALE, AGE 7

Climbing:







Swinging:



Imagination:



Sliding:

FEMALE, AGE 9

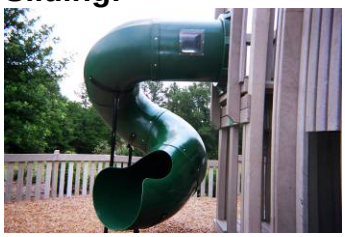
Climbing:






Swinging:


Sliding:



Nature:


Art:



Imagination:


Sand:

FEMALE, AGE 9

Art:





Climbing:




Sound:

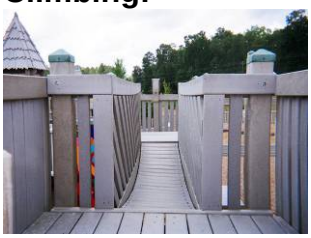
Swinging:


Imagination:



MALE, AGE 8

Climbing:

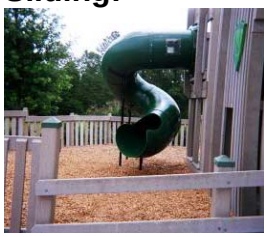


Art:




Sand:

Sliding:



Imagination:

Appendix C

PARENT PERMISSION FORMS

I _____ agree to take part and to allow my child _____ to take part in a research study titled **Grounds To Grow - Public Play Space Assessment** which is being conducted by Gretchen Gigley, School of Environmental Design, Landscape Architecture, University of Georgia, 404-218-0501 under the direction of Professor Marguerite Koepke, Landscape Architecture, School of Environmental Design, University of Georgia, 706-542-4711. My and my child's participation is voluntary; I and my child can refuse to participate or stop taking part at any time without giving any reason, and without penalty. I can ask to have information related to me and my child returned to me, removed from the research records, or destroyed.

The purpose of this study is to:

- Evaluate effectiveness of the design of play spaces.
- Gain perspectives of parents and children using play spaces in order to develop design criteria for landscape architects.
- Obtain information about perceived health benefits of play to children.

If I volunteer for this study I will be asked to do the following:

- Participate in an interview/discussion with the researcher about my experiences with my child using the play space which will take 10-20 minutes.

And my child will be asked to do the following:

- Take photos of the favorite elements of the play space which will take 10-20 minutes.

The researcher will not disclose individually identifiable information about me or my child without my permission unless required by law. No discomforts or stresses are expected. No risks are expected. All information is given voluntarily and can be used for the purpose of this thesis which will be covered by copyright laws; permission is given to release any information collected through the interview and photos taken by my child. Although I will receive no direct benefit from this research, however, will indirectly benefit from the knowledge about play space related to design obtained from the discussion I understand the procedures described above.

The investigator will answer any further questions about the research, now or during the course of the project.
My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____	_____	_____
Name of Researcher	**Signature**	**Date**

Telephone:_____

Email: _____

_____	_____	_____
Name of Parent or Guardian	**Signature**	**Date**

_____	_____	_____
Name of Participant	**Signature**	**Date**

PLEASE SIGN BOTH COPIES AND RETURN TO RESEARCHER.

Additional questions regarding your rights as a research participant or in the event of a research related injury should be addressed to The IRB Chairperson, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address: IRB@uga.edu

Child Assent Script

I want to ask if you would be willing to help me with a research project about what kids like about playgrounds. I want to know what you really think about this playground. Would you be willing to take some pictures of your favorite things on this playground using this disposable camera? You can take up to 10 pictures of anything on this playground. If you have any questions at any time you can ask. There is no wrong or right answer; you can take pictures of anything on the playground. I want to know what you think. You can also decide to stop at any time.

If you decide to help me with this research project, any questions or comments you have will be kept just between you and me. I may not be able to keep this promise if you tell me that you or another child is being hurt in some way, or if a judge asks me for some information. If that were happening, I would tell someone to help keep you or the other child safe.

Do you have any questions? Would you be willing to do the project with me?