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Landscapes to Learnscapes: Exploring Schoolyard-based Education

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Landscapes To Learnscapes:
Exploring Schoolyard-Based Education

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In partial fulfillment of a Bachelor of Arts Degree in Environmental Analysis and Society

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Readers: Professors Paul Faulstich, Nancy Neiman Auerbach and Susan Phillips
"The time is late for simple answers and divine guidance, and ideological confrontation has just about run its course. Little can be gained by throwing sand in the gears of industrialized society, even less by perpetuating the belief that we can solve any problem created by earlier spasms of human ingenuity. The need now is for a great deal more knowledge of the biological dimensions of our problem, civility in the face of common need."

- E. O. Wilson (Wilson 1984, 122)

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Table of Contents

CHAPTER ONE: INTRODUCTION..............................................................1

CHAPTER TWO: The Changing Nation: Children, Nature, and Education... 6
The Third Frontier.................................................................................. 6
  Where Have All The Children Gone?................................................. 6
  Nature Deficit Disorder....................................................................... 13
  America's Changing Relationship With Nature................................17
American Public Schools....................................................................... 20
  A Nation At Risk- No Child Left Behind........................................20
  Standardizing Schools.......................................................................24
  Changing Expectations on Schools...................................................29

CHAPTER THREE: Ecoliteracy & Learning..............................................36
What is Schoolyard-Based Education?..................................................36
Environmentalist Objectives................................................................41
Developmental Objectives....................................................................44
Academic Objectives............................................................................49

CHAPTER FOUR: Evolution of Schoolyard-Based Education................ 59
History of American Schoolyard-Based Education............................59
  Early History......................................................................................59
  Changing Views on Nature In Education..........................................60
  Centralization of A School System...................................................62
  The Rise of Alternative Education....................................................64
  Segue To Modern Schoolyard-Based Education..............................66
Present Day Resurgence of Schoolyard-Based Education....................66
  Edible Schoolyard.............................................................................67
  National Craze of Nutrition..............................................................69
  Beyond Gardens ..............................................................................70
Critique of Modern Schoolyard-Based Education...............................72
  Issues of Access..............................................................................72
  Is Nutritional-Based Learning Addressing The Real Problems?........74

CHAPTER FIVE: A Case Study of The Claremont Unified School District. 76
The Socio-Historical Context of Claremont.........................................77
The Public Elementary School System of Claremont..........................81
Methodology.........................................................................................87
Oakmont Elementary............................................................................89
Vista Del Valle Elementary................................................................96
Sycamore Elementary.........................................................................103
Further Findings.................................................................................107

CHAPTER SIX: Conclusions..................................................................110
APPENDIX............................................................................................114
BIBLIOGRAPHY......................................................................................120
1

Introduction

This thesis is written with our intention of it being a resource to teachers, parents, and students who are looking to make a positive impact on the educational experience of children in America. We use this thesis as a space in which to illustrate the knowledge we have been privileged to accrue during our time at Pitzer College. We do this with the hope of making information that is particularly salient in today's America accessible to the public. It is directed toward those who have noticed or experienced the symptoms of our struggling school system and our increasing isolation from nature, and wish to instigate change.

We arrived at Landscapes to Learnscapes after two years of working together on various outdoor education projects in schools throughout Claremont, CA. First introduced to teaching in the course “Theory and Practice in Environmental Education,” we were thrown into planning and executing an outdoor environmental science class for fifth graders. For the next two years we explored education through teaching at several elementary school garden clubs and classes, a food justice course for high school students, preschool garden classes in the Bay Area, a job teaching on a farm in the east, and an independent study focusing on school gardens in Los Angeles County.

We both share a passion for gardening, a delight in children, and a desire to forward the sustainability movement, so naturally the school garden campaign was very appealing. Through our studies in environmental justice, food justice, and education, we came to
realize that the school garden movement, though wonderful and effective in many ways, was limited in its scope. The movement leaves a lot to be desired in terms of discourse and breadth, being restricted mainly to health and nutrition, and by access to resources. Essentially, the school garden mania has eclipsed a broader discussion on education and the environment, and the silence is sorely felt. We found that schoolyard-based education (SYE) was the intersection of several social issues that we found especially intriguing, and subject to the kind of open-ended and extensive discourse to which we are drawn.

We came to SYE, also known as “Learncapes,” in our attempt to answer the questions we learned to ask during our time at Pitzer College: How can American society move toward a more just future, departing from our current post-industrial, socially and economically polarized status? How will our generation respond to climate change and environmental degradation? What social infrastructures can be engaged in propelling us towards this desired future? And most importantly, what will our role be in engaging those infrastructures? We concluded that the education system, as the failing “great equalizer” of society, would be the locus of our intentions. Additionally, we determined that nature education would be our response to the current rise in psychological disorders in children and in environmental issues.

In this thesis we illustrate that integrated, utilitarian schoolyard-based education is a viable solution both to what has been called “nature-deficit disorder” and to a multitude of problems within the public school system. We also critique the popular rhetoric of schoolyard-based education as focused too heavily on nutrition and health, and as exclusive of other pertinent subjects, such as general mastery of the standards.
Despite the fact that much has been written about SYE in academic publications and popular media, schools have yet to fully embrace anything more than colorful, but inadequate, school gardens. Although most teachers and administrators acknowledge that integrated schoolyard-based education increases test scores and creates a more conducive learning environment for all children, most schools are still not utilizing it. There are a few reasons for this phenomenon, including variable weather, the contested objectivity of outdoor education, and the difficulty with student discipline out-of-doors. However, we argue that these problems are either negligible or solvable, and that the advantages of SYE make it worth the effort. In this thesis we argue that given the large body of empirical evidence supporting the benefits of schoolyard-based education, Learnscapes should be as much a part of a standard public education as worksheets and homework.

Although theses are rarely co-authored, it seemed natural for us to work together on this project. With so much shared experience and similar perspective, we felt that producing a co-authored work would allow us to delve deeper into these issues in hopes of furthering the academic discourse on schoolyard-based education, an overlooked subject we both are deeply passionate about.

We chose to focus on elementary school education due to the particular applicability of SYE to lower stages of development and education. Additionally, public elementary schools are under immense pressure to perform well under national and state mandates, and are desperate for successful reform to suit all students. We present a solution in the form of SYE that will be beneficial to all students and schools.

In Chapter Two, *The Changing Nation: Children, Nature, and Education*, we begin by exploring the changing patterns in children’s free time and the coinciding rise in childhood
mental disorders, as well as America’s relationship with nature over time. We then look at the trajectory of American education reforms, focusing on No Child Left Behind and questioning the assumptions it is based upon. These two topics are related in that there is one solution that works to combat the negative trends illustrated in both: the formal integration of schoolyard-based education into the public school system.

In Chapter Three, *Ecoliteracy and Learning*, we explore the concept of schoolyard-based education by analyzing a large body of literature on the subject. We found that environmental, academic, and child development objectives were the most common themes in related scholarly rhetoric, and use these categories for further discussion. We argue that the teaching profession and the public school system as a whole needs to be reexamined, and that integrating learnscapes into American education can be a vehicle for that change.

In Chapter Four, *Evolution of Schoolyard-Based Education*, we examine how the practice of learning with and in the outdoors has been facilitated by teachers throughout the lifespan of the American public school system. When we discuss the contemporary situation, we describe the prevalence of school gardens and nutrition-based nature learning in the media and in popular rhetoric. Finally, we critique this narrow nutritional focus and argue that the original intent of SYE -- the integration of natural intelligence into all subjects -- is being overlooked.

In Chapter Five, *A Case Study of The Claremont Unified School District*, we use Claremont, California, as a representative microcosm of how schoolyard-based education fits into the larger educational system. Using interviews with students, teachers, administrators, and community members, we ultimately show that SYE is being
successfully used by a handful of teachers in Claremont. However, in order to make it fully accessible, the relationship between SYE and state standards needs to be reexamined.

In the conclusion, we discuss the themes discovered in the case study and their relationship to the theories discussed in Chapters 2-4. We go on to explore the implications of the results of the case study for the future of the American Education system. Specifically, we argue that schoolyard-based education is a logistically viable option as a nationalized teaching strategy, and a logical solution to the nature-deficit disorder epidemic.
The Changing Nation: Children, Nature, and Education

As the collective American subconscious is drawn towards cities, technology, and intellectual excellence, it is shedding its nature-bound heritage. This change has gone relatively un-scrutinized, to the detriment of the nation’s youth. Children in the United States today are the first generation of a new breed of Americans: they are growing up alienated from the earth, caught in the middle of education-reform chaos, and facing a confluence of environmental problems that they will be barely equipped to handle as adults. If today’s youths are to mature into healthy, capable adults who can manage the future of the country and the global climate, the two parallel issues of loss of relationship with nature and the failure of the public school system need to be examined. In this chapter we will discuss these two problems before describing a possible solution in chapter three.

THE THIRD FRONTIER

Where have all the children gone?

Sarah crouches on a rock in the middle of a stream in the woods behind her house. Strands of luminescent green algae waver under the surface; Sarah plucks a handful of strands from the icy water to feel the slimy texture before dropping them back with a splash and watching them be swept downstream until out of sight.

This scene is one that is not unfamiliar to American history, but becomes more remote by the day. Sadly, the child-in-nature is a creature approaching extinction. At this moment in American history, nature is often perceived as a quaint, far-away place illustrated in literature or used to market camping gear, or as a dangerous place we ought
not to go, or as simply a waste of time. Nature, as a whole, is our most fundamental resource, and yet we are so disconnected from the environmental sources of our material comforts that, in the words of Wendell Berry:

Most of us cannot imagine the wheat beyond the bread, or the farmer beyond the wheat, or the farm beyond the farmer, or the history beyond the farm. Most people cannot imagine the forest and the forest economy that produced their houses and furniture and paper; or the landscapes, the streams and the weather that fill their pitchers and bathtubs and swimming pools with water. Most people appear to assume that when they have paid their money for these things they have entirely met their obligations.¹

The concept of “nature” is a contentious one, and is defined in a great variety of ways. In this thesis, when discussing the concept of “nature,” we are referring to basic exposure to natural elements, for example: open air, natural light, exposure to weather (wind, temperature, humidity level etc.) the sounds, and usually sight, of flora, fauna and weather. We will discuss the concept of nature more critically in our case study, through our interview analysis with elementary school students in Claremont.

Every generation of Americans, to date, has born unique burdens: war, economic depression, disaster, poor leadership, and terrorism. The albatross today’s youth will shoulder when their time comes, however, is different in nature. The coming generations will have to cope with, and on some level resolve, the impending dissolution of the ecological fabric of the planet. And worse, this staggering obligation is delivered to them, almost exclusively, by previous generations of Americans.

In our age of globalization, children will come of age confronted with, as Laurie Lane-Zucker, executive director of the Orion Society, puts it, "flashily marketed

homogeneity, congruent with a loss of local cultural identity, traditions, and history. They will be encouraged to employ unsustainable land use practices and consumption patterns, exacerbating environmental degradation even further. Worse still, the nation is doing little to prepare them for these challenges. The schools in which today’s youth are spending roughly 1260 hours a year are teaching students to be blind to the complex workings of the earth and to be ignorant to their native place. Ecological literacy, once essential knowledge for survival, is becoming a thing of the past.

The same schools, embroiled in a milieu of militant executive demands on the public school system, are struggling to teach children literacy in any shape or form. Public school has long been heralded as the “great equalizer” of American society, intended to promote social justice by providing a level playing field for every child. It is our duty to provide America’s youth with schools that impart them with the basic ability to navigate the world successfully as democratic, critically thinking, intelligent human beings, not just business-savvy individuals. The school system should be responsible for not just “educating” students but endowing them with the capacity to build strong communities, steward the earth, and pursue freedom and happiness. Currently, public schools are not achieving these goals. A shift toward the schools we need is possible, but it will take a rethinking of the function of the school system and the position of the child in society in order to achieve it.

If Sarah is a typical child of 50 years ago, then what does modern-day Sarah look like? She reclines on a couch, feet up, head on the armrest. A pile of homework rests on her lap, a TV flickers in the background, and one headphone ear-bud dangles from her ear. This change in scenario is explained by the results of a study conducted by Rhonda L. Clements, David W. Orr, *Earth in Mind: On Education, Environment, and the Human Prospect.* (REV. Island Press, 2004), 1.
professor at Hofstra University in New York. Clements surveyed 830 mothers across the U.S. regarding their outdoor play as children, compared with that of their children. Clements found that while 70 percent of mothers reported playing outside every day as children, only 31 percent of their children do the same. The study also revealed that when these women played outside as kids, 56 percent stayed outside for three or more hours, compared with only 22 percent of their children. Sandra Hofferth, professor of family sciences at the University of Maryland, further explores this exodus of children from nature. According to her 1997-2003 study, "children's free play and discretionary time in a typical week declined a total of 9 hours over a 25-year period." She also found that there was a 50 percent decline in the percentage of children ages 9-12 who spent time doing outdoor activities such as hiking, walking, fishing, playing on the beach, or gardening between 1997 and 2003 (Hofferth 2003). Clearly, children are engaging in outdoor leisure activities less frequently and for shorter periods of time, but why?

Hofferth found that four events occurring between 1997 and 2003 had major impacts on the quality and quantity of children's free time. The first event was a “revival of conservative values during the 1990s linked with both Democratic and Republican administrations.” This increase in conservatism was reflected in a surge in attendance of religious services and activities, such as youth groups, leading to more time indoors. The second event was the legislative addition to the welfare platform in 1997 of temporary assistance programs and facilitated pathways to independence for low-income mothers.

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4 Ibid.
6 Ibid.
7 Ibid.
These measures increased the number of mothers in the workforce, causing children to spend more time in daycare, which further limited discretionary time.\(^8\) The third event was the passage of the No Child Left Behind Act, which raised the bar for student achievement and set up a series of punitive measures for schools that failed to reach those benchmarks. The Act dramatically increased student’s time spent on schoolwork outside of school.\(^9\) The fourth was the September 11, 2001, terrorist attacks in New York City.\(^10\) This contributed greatly to what noted author, journalist and Co-Founder and Chairman Emeritus of the Children & Nature Network Richard Louv calls the “Bogeyman Syndrome,”\(^11\) which describes the growing panic among parents regarding the safety of their children. The prevalence of this syndrome in modern America contributes to the trend of the indoor-childhood as children were and are prevented from playing outside in order to ease their parents’ fear that some harm will come to them by doing so, either by way of “stranger danger” or natural causes.

In addition to these events, the proliferation of media and technology increasingly available to children has created a displacement effect on time spent outdoors. In a separate study, Hofferth analyzed this displacement effect and found that, “computer use does not crowd out positive learning-related activities, whereas both television viewing and video game playing do.”\(^12\) These studies imply that, in light of a myriad of relatively recent changes in American society, we have simply lost track of our relationship with nature.

\(^8\) Ibid.
\(^9\) Ibid.
\(^10\) Hofferth, *Changes in American Children’s Time*, n. pag.
\(^12\) Hofferth, *Changes in American Children’s Time*, n. pag.
The concept of wilderness has always been an intrinsic part of American identity, from the rough-and-tumble cowboy to the religious romanticism of Muir and Frost, but communing with nature has never taken so much effort as it does today. As more and more Americans migrate to ever-expanding areas of urban, peri-urban and suburban sprawl\textsuperscript{13} explicated in figure 1\textsuperscript{14}, below, wilderness is losing its place in the public eye. The experience of nature is no longer a given, as it was for generations past: it is an event.

Figure 1.
Fortunately, voices are already sounding off on this growing problem, though mainly in academic circles. In 2008, Richard Louv published his seminal book *Last Child in the Woods*. His work wove together a series of trends the United States has been experiencing, from a decline in the national prevalence of nature to a rise in child mental-health disorders, to the unsustainability of the American quotidian way. In *Last Child in the Woods*, Louv blows the whistle on these patterns that before then had seemingly gone un-scrutinized. Since then, a profusion of work analyzing Louv’s “nature-deficit disorder” theory has endorsed his claims and brought these ideas into the media.

In the process of doing research for his 1990 book *Childhood’s Future*, Louv interviewed nearly 3,000 children and parents in urban, suburban, and rural areas on the new realities of family life. He discovered that for many children, "playing in Nature seemed so ... unproductive. Off-limits. Alien. Cute. Dangerous. Televised." One 4th grade boy in San Diego said: "I like to play inside 'cause that's where all the electrical outlets are;" other statements included: "My parents don't feel safe if I go too deep into the woods" and "computers are more important than nature, because computers are where the jobs are." These comments fall in line with the conclusions drawn by Hofferth, and implied by population charts. The recent injections of fear and pressure to succeed academically are drawing children inside, while larger societal forces are pushing nature further and further out. Parents’ desired goals of safety and intelligence are hardly criticizable, but it is important to consider the consequences of such cultural trends.

A lack of experience with nature during childhood has recently been correlated with a variety of mental health issues. James Sallis, the program director of the Active Living

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Research Program for the Robert Wood Johnson Foundation, asserts that "indoor, sedentary childhood is linked to mental-health problems ... based on previous studies we can definitely say that the best predictor of preschool children's physical activity is simply being outdoors." Immersion in the natural world is an important building block in healthy human development, and has several functions. The tactile qualities of the infinitely complex ecological systems at work in nature are sensory bliss for the developing mind. Nature provides refuge and solace, risk, endless fodder for creative play, questions to be asked and answered, lessons to be learned; nature is the greatest teacher/friend one can ask for. Nature is the foundation of all life, the backdrop against which our own lives fall into order. Nature is humanity's context, and without a relationship with nature, we can easily lose our roots and become lost.

**Nature-Deficit Disorder**

In Last Child in the Woods, Richard Louv coined the term "Nature-Deficit Disorder" as a way to describe the impact felt by those of us who are slow in adapting to our new suburban environment. On an individual level, Nature-Deficit Disorder illustrates “the human cost of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses.” These costs can be quantified to an extent by examining the barrage of studies conducted in the last decade that document the explosive rise in the rates of diagnosis of and medication for various mental disorders, particularly in children. In 2003 Thomas Delate et. al. published a study revealing that the rate at which American children are prescribed antidepressants almost doubled in 5 years; the most dramatic increase was in children between the ages of 3-5 --

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an increase of 66 percent. In 2004, a review of prescription data for 300,000 children revealed that, for the first time in history, national spending on medications for childhood behavior problems surpassed that spent in any other drug category, including antibiotics. In 2008, antipsychotic drugs out-sold every other prescription variety in the country.

Today, nearly 8 million children in the U.S. are diagnosed with mental disorders, one of the most prominent being Attention Deficit Hyperactivity Disorder (ADHD). The disorder generally develops by age 7 and is diagnosed between the ages of 8 and 10. Children with the syndrome are restless and have trouble paying attention, listening, following directions, and focusing on tasks; they may also experience antisocial and aggressive feelings, and academic failure. Of course, theories in response to these alarming trends abound, and the answer is neither simple nor singular.

There are several hypothetical explanations for this rise in prescription medication. Julie Guthman, author of “Weighing In,” suggests that a large portion of this issue is due to our toxic, polluted environment. She believes that the profusion of mysterious chemicals we encounter in our air, earth, water, etc. inhibit healthy psychological development. Others suggest that we were simply under-medicated before the rise in treatment, and the growing sophistication of neurological medicine is to thank for the rise in diagnoses. Still others believe that the rise in pharmaceutical prescriptions is driven by the economic interests of the industry itself. Experts such as Richard Louv and David Sobel, authors of

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21 Louv, Last Child in the Woods, 100.
“Ecophobia,” “Place-Based Education,” and a number of other books, suggest that the modern societal loss of its traditional relationship with nature, combined with the sudden arrival of the technology age, is a root cause.

This last theory is supported by studies showing that nature can be an effective therapy for ADHD, potentially even working as an effective replacement for medication. In fact, “some researchers now recommend that parents and educators make available more nature experiences to children with ADHD.”\(^\text{23}\) The role of nature as an essential element of a healthy community has been rigorously documented as well. “Long-standing studies show a relationship between the absence, or inaccessibility, of parks and open space with high crime rates, depression, and other urban maladies.”\(^\text{24}\) That this spike in mental disorders coincides with a decrease in time spent in or near nature, we believe, indicates a significant correlation between childhood nature experience and mental development. While all of the aforementioned hypotheses probably play a role in this medication boom, the nature-deficit theory is of particular interest to us, as it remains relatively unexamined, and the discussion of nature-deficit disorder in this context holds great potential to produce positive societal change.

Michael Gurian agrees, based on anecdotal evidence, that getting kids to spend more time in the outdoors can help with disorders like ADHD.\(^\text{25}\) But more recent research is starting to help prove the validity of nature therapy. The biophilia theory is the basis for much of this school of thought. In his book, *Biophilia*, E.O. Wilson, American biologist, researcher, theorist, naturalist and author, describes the concept eloquently: “That to

\(^{23}\) Louv, *Last Child in the Woods*, 100.
\(^{24}\) Louv, *Last Child in the Woods*, 36.
explore and affiliate with life is a deep and complicated process in mental development. To an extent still undervalued in philosophy and religion, our existence depends on this propensity, our spirit is woven from it, hope rises on its currents.” Unfortunately, in popular opinion, nature therapy is considered to be exceedingly progressive. Until the nation recognizes its folly in forgetting nature, we believe the numbers of children with mental disorders will only continue to rise. Children’s lives need to be reintegrated into nature, for as people move further and further from their ecological role, the more psychological and environmental damage is inflicted.

Richard Louv describes the transition that has taken place from a childhood in the woods to a childhood indoors as a symptom of the arrival of the “third frontier.” The third frontier concept refers to a succession of frontiers, the first characterized by the existence of unknown, wild territories and the struggle to dominate untamed land. This frontier closed when the limits of the depth and breadth of the American wilderness was found, announced by Frederick Jackson Turner in 1893. The second frontier encapsulated family-farm America. In this frontier, nature was romanticized and celebrated in its new pleasantly domesticated form; children built forts in the woods and played imagination games in the yard. This frontier was laid to rest as Americans chose to leave their hard-won land and move, mind, body, and spirit, into the urban jungle. This shift was marked by the 1993 announcement by the U.S. Government that it would drop the long-standing annual survey of farm residents that year, due to the fact that the U.S. farming population had dropped to just 1.9 percent of households in 1990.

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America’s changing relationship with nature

Louv’s third frontier is characterized by five trends: "a severance of the public and private mind from our food’s origins; a disappearing line between machines, humans and other animals; an increasingly intellectual understanding of our relationship with other animals; the invasion of our cities by wild animals; the rise of a new kind of suburban form" - evident in most developed countries.\(^\text{28}\)

The first trend is relatively self-explanatory: that with which we nourish ourselves comes from a brightly lit grocery store, and if we have an inkling that perhaps our food originated somewhere else before it arrived on the sterile shelf, we likely don’t have much of an idea about where.

The second refers to the continuing advances in technology and bioengineering that take biological absolutes and turn them into biological maybes (i.e., genetically engineered corn, growing a human ear on a mouse’s back, human livers cultivated in pigs, etc.) This may not necessarily be a negative thing, in fact in many ways this advance past natural boundaries can be considered beneficial to the human-nature balance, but as human beings grow to accept the idea that the natural world is subject to the wanton whims of the human race it certainly provides for a very different perspective on the natural world, and life itself, than the one developed by previous generations.

The relationship between humans and technology is also more integrated than our grandparents ever could have imagined. Every year we rely more and more on the internet to answer our questions, gadgets to remember our schedules and keep us entertained, and

\(^{28}\) Louv, Last Child in the Woods, 18.
even prosthetic technology to rebuild our bodies when we break. The line between people, animals, and technology is increasingly obfuscated.

The third characterization of the coming frontier can be explicated by the changing way in which we think about animals. We might know every factoid about our favorite animal, from its geographical location to its digestive preferences, but on an intuitive, personal level, we know nothing: the relationship is non-existent.

The fourth element of the new frontier can be illustrated by the rebounding of wild animal populations in and around residential areas, signifying that a characteristic of the second frontier - forcing wild animals out of the human realm in the process of settlement - has been rendered obsolete.

The fifth and final trend - the new suburban form - consists of “dense donuts of development” typified by “interchangeable shopping malls, faux nature design, rigid control by community covenants and associations,”29 which are hardly conducive to creative, natural play.

The third frontier concept is helpful in looking at post-modern America’s relationship with nature as it compares to that of early and industrial America. Louv’s analysis eloquently illustrates the new intellectual and emotional distance from nature which physical distance from nature has brought about. He successfully captures the essence of the new American experience with nature in a way that is stirring and original. This successful and condensed analogy is important in attempting to understand the cultural shift we are in the midst of experiencing. It is always more difficult to perceive change as it is occurring than in retrospect, when the shift has been completed. Louv’s

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29 Louv, Last Child in the Woods, 25.
awareness of this phenomenon and ability to convey his ideas to a broad and diverse audience is the reason we chose to draw on his analogy.

At this point in time we are at an intersection, and in moving forward, careful consideration of direction is in order. As the Earth’s populations rush toward the urban landscape, it is essential that we rethink the way we imagine and fabricate cities and city life.

David Orr, professor of environmental studies and politics at Oberlin College, imagines a paradigm shift in “design intelligence.” Essentially, he is calling on businesses, urban engineers, and civilians to begin to reformulate society on a “higher order of heroism” that takes charity, wildness, and the rights of children into account. Orr asserts the obvious: a sane civilization “would have more parks and fewer shopping malls; more small farms and fewer agribusinesses; more prosperous small towns and smaller cities; more solar connectors and fewer strip mines... more celebration and less hurry.” Orr doesn’t believe that he is asking for a miracle, he simply asks us to take a look around and realize that the society we have created is founded upon false hopes and assumptions. “We have tried Utopia and can no longer afford it.” He rallies for a movement of “hundreds of young people equipped with the vision, moral stamina, and intellectual depth necessary to rebuild neighborhoods, towns, and communities around the planet,” and comments that “they will need to be students of their places and competent to become, in [famed ecologist] Wes Jackson’s words, ‘native to their places.’” He laments that “The kind of education

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31 Ibid.
32 Ibid.
33 Ibid.
presently available will not help them much.” In order to prepare its students to build a sustainable future for the country, the American public school system requires an overhaul, for in it’s current state, it is struggling to teach even the most basic skills.

**AMERICAN PUBLIC SCHOOLS**

*A nation at risk - No Child Left Behind*

American public schools are performing poorly. This is not new information: in 1983 the watershed paper, *A Nation At Risk* announced that for the first time in our history, the educational attainment of the nation’s youth would not surpass, and not even approach, that of the previous generation. The main problem at that time was that more students than ever before were passing through the halls of educational institutions: the education system simply had not adapted to accommodate the growing numbers. Of course this rise in student population indicated beneficial things to the country, as it meant that the average U.S. citizen was more educated at that time than the average citizen of a few decades before. Nevertheless, this posed a problem for educational institutions, as the result was that graduates of educational institutions were less academically successful than those before them. Essentially, while the overall level of education of U.S. citizens rose, the level of achievement of the higher performing bracket of the student population dropped. Of course, this knowledge shocked the nation and the U.S. government began implementing a series of educational reform initiatives.

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34 Orr, *Earth in Mind*, 151.
36 United States, *A Nation at Risk*, 12.
The grandfather of all modern educational reforms in the U.S. is the 1965 Elementary & Secondary Education Act (ESEA) conceived under President Johnson as part of his "War on Poverty." The ESEA allowed for government-funded public education for the first time. In 1989, George H.W. Bush pushed reform along with his proposal for “America 2000,” which consisted of a series of achievement goals for public school students, with the grand intention of leading the world in math and science. However, the initiative died on the vine due to a battle over federal versus state control of education. President Clinton picked up the reins on “America 2000,” revamping the initiative and pushing it through as “The Goals 2000: Educate America Act” in 1994, mainly as a grant program to support development of state standards by putting two billion dollars toward standards-based reform. In 2001, the second Bush administration, encouraged by broad bipartisan support, gave the ESEA a makeover: the Act was renamed “No Child Left Behind” (NCLB) and endowed with a variety of strict new stipulations, including the demand that all students be proficient in math and reading by 2014.

No Child Left Behind catalyzed immediate success for American schools. In the first few years of the program’s installment, the national average in fourth grade math scores rose by 12 points, which correlates to about one year of learning. NCLB also achieved its goal of pulling minority students up in score rankings. The average scale scores for black fourth graders increased by 18 points, and by 17 points for Hispanic fourth graders. Scores for eighth graders rose impressively as well, though less dramatically. Unfortunately,

39 Ibid.
these remarkable increases in student achievement did not extend to literacy skills, which are the foundation of learning, nor did they retain their momentum. The immediate gains for were short-lived.\textsuperscript{40}

No Child Left Behind revolved around the theory that the school system’s lack of effort and attention on needy children was the root cause of the educational achievement gap that was ‘leaving children behind’ -- particularly children from poor or minority families. Therefore, the intention of NCLB was to create incentives that would prompt schools to focus their efforts more equitably.\textsuperscript{41} E.D. Hirsch, Jr., professor emeritus of education and humanities at the University of Virginia and well known for his writings about cultural literacy, prompts us to “Note that this theory assumes that the education world actually knows how to improve reading scores for all groups.”\textsuperscript{42} We can now see, given schools’ difficulty with meeting the new regulations, that this assumption is faulty.

The new system measures the achievement and progress of schools using Academic Yearly Progress (AYP) scoring. AYP scoring is based on AYP targets, which are set by the state.\textsuperscript{43} Test scores must increase by a predetermined amount every year in order to meet the deadline of 100 percent proficiency by 2014. Average scores of the general student body, as well as average scores of all significant "subgroups," such as African-American and/or Latino student populations, are calculated and used to measure improvement against the AYP targets.\textsuperscript{44} Failure to meet AYP results in cascading punitive measures

\textsuperscript{40} Schneider, The Accountability Plateau, 15.
\textsuperscript{42} Ibid.
\textsuperscript{44} Ibid.
every year until the 6th consecutive year, when the school is shut down.\textsuperscript{45} The rating system labeled so many schools “low performing” that it rendered the judgment utterly meaningless: roughly 30 percent of elementary school and 50 percent of middle school, low-income student subgroups failed to make their 2008 annual targets.\textsuperscript{46}

According to analyst Mark Schneider of the Thomas B. Fordham Institute, NCLB’s early success was due simply to a positive "shock to the system," but was not a long-term solution. As NCLB runs out of steam, leaving states to ponder their flat-lining success rates, analysts are searching for the next “shock”.\textsuperscript{47}

If nothing else, the crash and burn of NCLB has provided an opportunity for rebirth. Judging by the staggering failure of schools to meet the demands of NCLB, it is appropriate to call into question these assumptions the Act was founded upon:

1) Fill-in-the-bubble exams are the best way to evaluate learning;

2) Teachers know how to close the achievement gap, they just haven’t been trying; and

3) Teachers have the resources they need in order to bring every student to math and English proficiency, they are only lacking in motivation.

Furthermore, the foundational elements of popular education rhetoric need to be reexamined as well. We believe that it is time to rethink the way we assess students, teachers, and schools, to reevaluate popular pedagogy and teacher training: essentially, to reconstruct what public school is. We will discuss this further in following sections.

\textsuperscript{45} Schneider. \textit{The Accountability Plateau}, 5.
\textsuperscript{46} Cronin, \textit{The Accountability Illusion}, 14.
\textsuperscript{47} Schneider. \textit{The Accountability Plateau}, 3.
Standardizing schools

A richer understanding of standardized learning must be demonstrated in schools if we are to provide all students with the kind of education they need and deserve. The standards-based model must not extend only to tests and content standards, but also to forms of content delivery and quality and quantity of resources as well.

Currently, academic content standards are the foundation of the education system. They explicate everything that students are expected to know by the end of their schooling. There are standards for every subject in every grade; assessment of mastery of these standards is what, theoretically, assures the state that students are learning, and that teachers are indeed teaching. Each state’s Department of Education creates their own set of content standards. However, the way we think about standards needs serious reconsideration.

Figure 2.49

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Investigation and Experimentation

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
   a. Differentiate observation from inference (interpretation) and know scientists’ explanations come partly from what they observe and partly from how they interpret their observations.
   b. Measure and estimate the weight, length, or volume of objects.
   c. Formulate and justify predictions based on cause-and-effect relationships.
   d. Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.
   e. Construct and interpret graphs from measurements.
   f. Follow a set of written instructions for a scientific investigation.

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48 Example of California academic content standard for 5th grade science, figure two
Generally speaking, content standards are oriented towards the “bucket filler” education model in which the student’s mind is the ‘bucket’ and the teacher’s job is to fill it with information. A very recently instituted exception to this disposition is the nationally mandated Common Core Standards. In 2010, the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO) created the country’s first set of common educational standards, called the Common Core State Standards Initiative, to be integrated in 2014. The new core standards focus more on assessing critical thinking and problem solving, constituting a great step forward for standards-based learning.

Over all, standards-based education is a shift in the right direction in terms of assuring that every student receives an education that is unbiased and equal to that of his/her peers nationwide; however, many teachers feel that imposed standards strangle their agency in the classroom. For example, one K-1 teacher who has taught for over 25 years and now works at Oakmont Outdoor Elementary, Claremont, CA, says that NCLB “has made a huge impact on what has to become a priority in the classroom -- it’s all about passing the tests.”\(^{50}\) She laments that she no longer has much time to teach environmental education, which is an area of passion and expertise for her.\(^{51}\) Teachers are either on the periphery of standards development or not included at all. Teachers, by virtue of years and years of experience and shared knowledge, know better than anyone what instruction,
assessment, and educational standards should look like. State standards need renovation in the hands of teachers.

Vermont can provide a great role model for states looking to improve their content standards. Vermont uses an extremely teacher-centered process in the development of its standards, including teachers at every step and offering every teacher the opportunity to review drafts of the standards. In doing this, teachers are supported and empowered, and students are provided content that is truly digestible and relevant.

Not only are content standards a necessary element in an equitable education system, standardized mechanisms that schools must employ to help ensure absorption of content are also imperative. The National Science Education Standards, published in 1996, provide an excellent example of standards for delivery. For example, standard D states: “The K-12 science program must give students access to appropriate and sufficient resources, including quality teachers, time, materials and equipment, adequate and safe space, and the community.” Theoretically, such standards provide teachers with the grounds on which to demand that sufficient equipment, materials, time, and tools be made available to enable them to provide appropriate instruction. In regards to ensuring quality teachers, A.H. Seed, professor of education at the University of Miami and author of Redirecting the Teaching Profession, recommends that:

...teachers become responsible for ensuring that all students have high-quality teachers in all their classes. Teachers need to take responsibility for eliminating from their ranks those who became teachers only to have long

52 Allen H Seed, “Redirecting the Teaching Profession in the Wake of a Nation at Risk and NCLB.” Phi Delta Kappan 89, no. 8 (April 2008), 3.
54 Seed, Redirecting the Teaching Profession, 3.
summer vacations. Taking action on this recommendation alone would yield significant benefits for the profession.55

The public school system has the bizarre burden upon it of not being able to fire ineffective employees. The Teacher’s Union, among the strongest unions in the country, stipulates that once a teacher earns tenure, they can remain teaching regardless of their effectiveness as educators. According to Eddie Partida, a professor of education at the Claremont Graduate University in Claremont, CA, tenure itself isn’t the crux of the issue, “…it is how [tenure] has been used by K-12 schools that is flawed.”56 Partida, an elementary school teacher himself, explains further:

In most districts teachers get automatic tenure after their second or third year. To compound the problem, the evaluation process is a joke, or at least it was when I was in the classroom. You might get an administrator come into your classroom and watch you do a lesson. They would check off some boxes and every teacher, no matter how good or bad, essentially received the same evaluation. These observations were done to meet a contractual requirement for some kind of evaluation rather than serving as a process to help struggling teachers improve.57

Not only are students too often subjected to poor teaching, but today’s standardized tests generally fail to appropriately measure learning, so that even students who are learning may not receive test scores that reflect their abilities. This is particularly disadvantageous when, as it is today, schools’ funding and right to function are based upon these test scores. Today’s tests fail to assess critical thinking and problem solving skills, and they fail to account for various learning/teaching styles. Partida argues that “we need to prepare students for a complex interconnected world where knowing the answer is not as valuable as knowing the right question to ask. This type of education is much different

55 Seed, Redirecting the Teaching Profession, 4.
56 Eddie Partida, Interview with Authors, March 2012.
57 Ibid.
than the drill and kill factories that have become so common in K-12 schools.” In essence, students’ diversity of abilities and needs are unaccounted for in testing. This argument is based on the well-known “Multiple Intelligences” hypothesis, created originally by Howard Gardner, which we will elaborate on in the following chapter. In order to really be considered as a true measure of school success, assessments should be more frequent, more varied, and not rest solely on the student’s ability to memorize and repeat information.

In response to this and other difficulties schools face in ensuring quality education for students, Seed suggests that schools and school districts design their own individual accountability systems, with the help of experts, and then have them examined and authorized by a board of community stakeholders. Seed argues that it is necessary to utilize a variety of measures, including student, teacher and parent surveys, student test scores and classroom observations in order to provide the community with a truly comprehensive illustration of its adequacy.

Such individual accountability systems could then be used as a framework for teachers and schools to work from in demanding the requisite resources to accomplish their goals. The National Education Association argues that: “Standardized tests should be used to guide instruction by helping identify gaps in learning and groups of students who need the most help. But test scores alone should never be used to punish students, teachers, or schools by cutting funding, closing schools, or firing teachers.”

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58 Partida, Interview with Authors, March 2012.
59 Seed, Redirecting the Teaching Profession, 4.
60 Seed, Redirecting the Teaching Profession, 3.
We agree heartily with these statements. In redesigning assessments, we must remind ourselves first that the goal is to evaluate and improve schools, teachers, and student learning, not to threaten schools into year-long test preparation. The standardization of the education system has been a critical advancement in education reform, but the onus of standardization cannot be placed entirely on students’ testing abilities.

*Changing Expectations on Schools*

As illustrated in the previous discussion surrounding No Child Left Behind and Common Core standards, expectations regarding achievement on schools, teachers, and students are growing. Public schools, which have long been heralded as “the great equalizer” of American society, are suddenly being called on to accomplish this task immediately -- a noble task, but one that schools haven’t fully learned yet how to perform. Schools are being pushed to a higher caliber than ever before, with little to no support. In placing these demands on schools without also providing support or forums for discussion on how to meet these demands, the United States government has exhibited extreme carelessness. By setting the bar too high too quickly, and enforcing that bar with strict punishments, the government has set public schools up to fail. It is time for a national discussion about what exactly public school education means to 21st century America.

Today’s America calls for citizens capable of a profound understanding of the complex systems at work in this age of technology, globalization and environmental change. The National Commission on Excellence in Education, which published *A Nation at Risk*, stated that the establishment of a “learning society” (rather than a test-well society) should be the goal of educational reform. Members of this sort of society would need to be
furnished with an educational system capable of stretching students’ minds to full capacity and providing a foundation for lifelong learning, and with the flexibility to continue to adapt and grow as the world itself changes.\textsuperscript{61} This means incorporating more student-centered, constructive, creative pedagogy, employing more diverse curricular activities and assessments that accurately represent diversity in learning styles, and utilizing measures of learning other than memorization, for example, critical thinking, problem solving, and creativity. While reform initiatives thus far have attempted to reach these goals, an appropriate strategy has yet to be established. In seeking examples of countries exhibiting signs of successful educational reform for inspiration, much of the world has turned to Finland and its stunning triumphs in the field.

Finland’s educational model has been extremely successful, drawing international acclaim after scoring exceedingly well on the international PISA (Program for International Student Assessment) test. One of the most essential differences between their educational system and ours is their focus on educational equity, while the U.S. focuses on individual success, according to Pasi Sahlberg. Sahlberg is a Finnish analyst and coauthor of the 2011 special report “Strong Performers and Successful Reforms: Lessons from PISA for the United States,” written for and requested by American Education Secretary Arne Duncan. Sahlberg asserts that at the epicenter of American school reform is the performance of individual students and teachers. On the other hand, education is seen by Finns as a “public effort serving a public service.”\textsuperscript{62} Therefore, Finnish education reform aims to ensure the most equitable educational system for all of its participants. This dichotomy gets at the root

\textsuperscript{61} United States, \textit{A Nation at Risk}, 14.

of why Americans have fixated on standardized testing, while the Finns obsess over each school's ability to "cope with individual differences and social inequality."  

And indeed, according to The Organisation for Economic Co-operation and Development (OECD), of its 100+ member countries, the highest-performing education systems are those that emphasize a combination of quality and equity. Equity in education means that "personal or social circumstances such as gender, ethnic origin or family background, are not obstacles to achieving educational potential." NCLB does attempt to root out the causes of inequity, but instead of addressing how schools should achieve equitable practices, it focuses mainly on punishing those that aren’t.

Finland’s approach to ensuring equity of education stands apart from the U.S. approach in three distinct ways: funding, welfare teams, and the right to a free education. First, in Finnish schools, funding is allocated based on a formula that ensures equal distribution of resources among students, regardless of location or socioeconomic status of the community. Second, welfare teams are mandatory in every school in order to monitor and care for student happiness, with the goal of mitigating the disparities in academic achievement created by disparities in the physical and emotional status of students. Finally, Finnish citizens have access to free public education from preschool through university. Finland’s strategy for assuring quality of education rests largely on the cultivation of strong, highly professional teachers and autonomous schools. In Finland, school autonomy means that schools usually create their own curriculum and the teacher is the main agent in monitoring students’ academic achievement. Furthermore, “teachers in Finland are highly professional and are more able to assess their students’ understanding and progress. This allows them to tailor their teaching to the needs of each individual student.”

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63 Sahlberg, *What the U.S. can’t learn from Finland*, 1.
65 Sahlberg, *What the U.S. can’t learn from Finland*, 1.
regarded professionals — akin to medical doctors and lawyers” and teacher training is far more rigorous than in the U.S.66 These measures foster good education by promoting a sense of trust and confidence within schools and among teachers.

Andrew Churchill, professor of education policy at the University of Massachusetts/Amherst, acknowledges that we cannot rely totally on Finland as a role model due to the vast differences between the two country’s populations. Finland’s population is far more homogenous than that of the U.S., so American schools must do a lot more to accommodate our differences in culture and socioeconomic status between students.67 However, Churchill argues that some aspects of Finland’s educational culture can definitely be considered aspirational goals for American schools.68

He identifies early childhood education, an orientation towards exciting and engaging curriculum vs. “drill and kill” test prep, and a higher value placed on the teaching profession as the top three items on his wish-list for American education. Early childhood (meaning pre-K) education would help even the playing field, he says: “if everyone knows how to read early and knows their numbers early, I think a lot of the later problems would dissipate. The problem we run into now is that you get high school kids who can’t read and it’s very hard to teach them anything if they can’t read.”69 He explains that “drill and kill” test preparation is inherently boring, so kids tend to disengage, and that by holding teachers to such a low standard, (as drill-and-kill testing takes little pedagogical skill of

66 Sahlberg, What the U.S. can’t learn from Finland, 1.
67 Andy Churchill, Interview with Authors, March 2012.
68 Ibid.
69 Ibid.
nuance) we just aren’t cultivating the best teachers.\textsuperscript{70} Furthermore, he believes that schoolyard-based education is compatible with these goals.\textsuperscript{71}

Based on theory, research, personal experience, and the example set by other, more educationally successful countries like Finland, we argue that shifting the educational paradigm to one that integrates a wider variety of learning styles and assessments is of vital importance. Furthermore, we assert that the government should have a central role in instigating this change, which we will discuss further in Chapter Five.

Despite the many facets of the education debate, the fact that the government has already sponsored The Common Core Standard initiative, described earlier, shows that the government is ready for and open to real, foundational education reform. Chester Finn, of the Thomas B. Fordham Foundation and Institute, posits that “this could be a time of acceleration… not retrenchment.”\textsuperscript{72}

Such reform would include reinventing the teaching profession to involve more deeply self-critical metacognition within the profession itself\textsuperscript{73,74}. We, along with Paul Hart, professor of education at University of Regina, Canada, and a prolific writer on the subjects of environmental and schoolyard-based education, believe that integration of schoolyard-based education as a pedagogical strategy into teacher training can be a vehicle for this change.\textsuperscript{75} The multisensory nature of outdoor education makes learnscapes great learning

\textsuperscript{70} Churchill, Andy, Interview with Authors, March 2012.
\textsuperscript{71} Ibid.
\textsuperscript{72} Chester E. Finn, Jr. An Open Letter to President-Elect Obama, Secretary-Designate Duncan and the 111th Congress. Thomas B. Fordham Foundation & Institute. 1701 K Street NW Suite 1000, Washington, DC 20006. Tel: 202-223-5452; Fax: 202-223-9226; e-mail: backtalk@edexcellence.net; Web site: http://www.edexcellence.net/foundation/publication/index.cfm, December 2008.
\textsuperscript{73} Seed, Redirecting the Teaching Profession, 588.
\textsuperscript{74} Paul Hart, “No Longer a ‘Little Added Frill’: The Transformative Potential of Environmental Education for Educational Change.” Teacher Education Quarterly 37, no. 4 (2010), 160-161.
\textsuperscript{75} Ibid.
environments for children. SYE makes learning exciting and engaging and furthermore, creates a therapeutic atmosphere for teachers and students alike, thus promoting welfare in the school. Integration of schoolyard-based education in this way would require a re-evaluation of teacher education, which could then provide room for further discourse within the teaching profession. We expand on these ideas in Chapter Three.

American children’s lives have changed drastically from the simpler childhood shared by the majority of past generations of Americans. Today's children are under an exorbitant pressure to succeed in schools that don’t provide them with the necessary foundations for success. And yet we expect them to solve the world’s problems, to employ wisdom and self-confidence as our future diplomats, and to cope with and mitigate climate crises as future politicians, scientists, and citizens. We simply are not training them for these incredible tasks. Children today are being overmedicated as their developing minds attempt to adapt to both a lack of multisensory stimuli and a disconnectedness from the rich abundance of the natural world, while simultaneously being bombarded with technological distractions. When viewed in the light of these trends, it’s no wonder that rates of behavioral medication prescriptions for children are skyrocketing.

Outdoor education is a key to treating both the maladies of the educational system and the nature-deficit disorder epidemic. Schoolyard-based education is arguably the most accessible form of outdoor education, and has the added benefit of instilling a sense of place, so that all aspects of the child -- 5 senses, 8 intelligences, and our shared cultural heritage, as well as the simple joy of childhood -- can be engaged simultaneously. Schoolyard-based education should become a permanent part of state academic standards
and assessments nationwide, and the pedagogy of SYE should be taught in teacher education institutions.
WHAT IS SCHOOLYARD-BASED EDUCATION?

There are a variety of academic arguments for the use of schoolyard-based education as a formalized pedagogy in public school education. In this chapter, we will explore these arguments and the themes that tie them together. Before exploring these arguments it is imperative to understand the background of SYE.

Schoolyard-based education is a teaching method, rather than a content area. The idea behind it is simple: use the schoolyard and surrounding natural areas (vacant lots, nearby parks, etc.,) as outdoor classrooms, also known as “Learnscapes.” As we will show in this chapter, SYE is an effective strategy for integrating nature into childhood and is an impressively successful pedagogical strategy; therefore, SYE is one solution to rectify both nature-deficit disorder and the schools’ reform struggle.

Use of SYE has been correlated in many studies to enhanced learning and, based on the regenerative effects of nature on the mind, discussed further in this chapter, we believe it can provide the foundation for the profound relationship with nature we promote. The end result, we argue, of elementary school experiences involving SYE are happier, healthier adults with greater affinity for community engagement and environmental stewardship. In order to begin to engage with a learnscape-based pedagogy, a shift in the way we view education and educators is called for. This shift will be explicated in the following chapter.

Modern-day SYE is intrinsically linked to the environmental education movement, as the majority of SYE projects are largely realized due to the work of environmentalists.
Additionally, although we argue that schoolyard-based education and environmental education are not necessarily overlapping, much of SYE is considered “environmental.” Because of this, it is important to provide some background on the environmental education movement before delving into the academic conversation surrounding schoolyard-based education.

The genesis of environmental education lies in the 18th century, with Jean-Jacques Rousseau as the first known activist for nature education. In the 1920s and ‘30s, “Conservation Education” as a field of study was born out of necessity, a result of the Dust Bowl and the Great Depression. Environmental Education (EE) as we know it today is a product of Nature Education and Conservation Education combined, having been processed through the Industrial Revolution, World Wars I and II, the back-to-the-land movement of the ‘60s and the contemporaneous Vietnam War, and Rachel Carson’s watershed work, *Silent Spring*. In 1970, President Nixon passed the National Environmental Education Act (NEEA) to integrate EE into primary and secondary schools. One year later, the non-profit National Association for Environmental Education was established to facilitate and improve execution of the NEEA.

Since the NEEA was formulated, three major international conferences have established an international framework to support and enhance environmental education. On June 5-16 of 1972, the United Nations Conference on the Human Environment convened in Stockholm, Sweden. The resulting declaration outlined 26 principles; Number 19 states that

Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by
individuals, enterprises and communities in protecting and improving the environment in its full human dimension.\textsuperscript{76}

The second conference, the 1975 International Environmental Workshop, sponsored by UNESCO, resulted in the Belgrade Charter. This declaration further defines the goal of EE as a strategy: “...to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions to current problems, and the prevention of new ones.”\textsuperscript{77} The declaration also established a set of “guiding principles,” the first of which is: “Environmental education should consider the environment in its totality – natural and man-made, ecological, political, economic, technological, social, legislative, cultural and esthetic.”\textsuperscript{78} Finally, the 1977 Intergovernmental Conference on Environmental Education in Tbilisi, Georgia, further defined and accentuated the growing need, even urgency, for EE.\textsuperscript{79} The resultant declaration established the role of government in EE: that national government should be responsible for funding and aid for EE.\textsuperscript{80}

Since the establishment of these frameworks, many steps have been made toward making environmental education a pervasive part of American society. For example, the Education and Environment Initiative (2003) is a California initiative that provides standards-based environmental curricula to all California public schools. Some scholars, such as Michael Sanera, author of Facts, Not Fear, argue that environmental education is

\textsuperscript{78} The Belgrade Charter, 4.
\textsuperscript{79} “The Intergovernmental Conference on Environmental Education Tbilisi Declaration”, October 14, 1977, 1.
\textsuperscript{80} The Tbilisi Declaration, 1.
too subjective and intrinsically loaded with liberal values to be taught in schools. They are not alone in holding this view. In 1997, the New York Times published an article entitled *Critics Rise Up Against Environmental Education* that stated:

A backlash is developing among people who say the environmental education movement is based on flawed information, biased presentations and misguided objectives. At worst, they contend, impressionable children are being browbeaten into an irrational rejection of consumption, economic growth and free market capitalism.\(^{81}\)

The EE movement does indeed have flaws, and it does indeed tend towards the dramatic, but we believe this is simply a matter of awkwardness of transition. The infrastructure isn’t quite fully established yet to support teachers in EE endeavors. In response to the contention of the objectivity of EE, Hart argues that: “Education is always ideological and thus subject to the self interests of the people who share power in society and may share certain values.”\(^{82}\) Essentially, any subject considered “normal” within the current educational paradigm is only considered so because of its alignment under the umbrella of the cultural paradigm.

Hart asserts that EE can be a tool in shifting the dominant educational and cultural paradigms towards a more critical orientation in regards to choices about the environment; that EE should be integrated into public school education in order to be in a position to ask questions such as “Who took this decision? According to what criteria? What are the immediate ends in mind? Have the long-term consequences been calculated? In short, he

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\(^{82}\) Hart, *No Longer a “Little Added Frill”*, 4.
(or she) must know what choices have been made and what value system determined them."\textsuperscript{83}

Hart extends this critical environmental orientation as a necessary foundation for responsible citizenship, positing that “An environmental education should prepare citizens for active participation in dealing with social/environmental issues, not only within their own communities but also across national and international boundaries. Thus, it is argued, environmental education has a role in educational programs.”\textsuperscript{84} Furthermore, in alignment with David Orr’s lamentation, noted in Chapter One, Hart regrets that “… [today’s] schools are not preparing students for their democratic responsibility as citizens.”\textsuperscript{85} In this paper we are discussing just one branch of EE, schoolyard-based education, which is also referred to as learnscap... learning and/or using the environment as an integrating context (EIC). The key differentiating point of SYE from EE is that the former doesn’t have to be related to factual knowledge about the environment but involves direct contact with nature in the schoolyard, while EE is not necessarily place-based in any way.

Although we believe that environmental education is absolutely critical, we assert that schoolyard-based education is an appropriate way to lay the foundation for a more complex, factual, ecologically based education. As a starting point for ecological literacy, SYE is the most practical, achievable, and accessible branch of place-based education, involves little or no input of material resources, and is extremely appropriate for children in certain phases of mental development. Other than its affordability, the place-based characteristic of SYE is one of its most desirable qualities: it contextualizes learning,

\textsuperscript{83} Hart, \textit{No Longer a “Little Added Frill”}, 4.
\textsuperscript{84} Ibid.
\textsuperscript{85} Ibid.
celebrates place, and stimulates a relationship with the local environment. Arguments for a pedagogical shift towards SYE can be placed in three general categories: they can be based on environmental objectives, human or developmental objectives, and/or academic objectives.

**Environmentalist Objectives**

One of the main arguments for schoolyard-based education is that it promotes in children the capacity and desire to protect and care for the environment, which is a much needed characteristic considering today’s rapidly changing global climate. There is no “silver bullet” for environmental issues, as they are too deep and complex for singular solutions. The most powerful way to combat environmental conundrums is by furthering our body of knowledge and creating awareness of preventative measures through education. At the core of environmental stewardship, argue David Sobel, Richard Louv and Rachel Carson, is a sense of wonder: a profound, wide-eyed fascination with life. According to these authors, a sense of wonder begins with intense moments of discovery, beauty, enigma, or even fear, and leads to a love of nature and an inquisitive intellect; it is an essential part of healthy development.

Dr. Stephen R. Kellert, professor emeritus of social ecology and senior research scholar at the Yale University School of Forestry and Environmental Studies, proposes that: “The emotional power of nature to inspire and instruct depends on sentiments ranging from pleasure and satisfaction to vulnerability, foreboding, and a feeling of danger. If not overwhelming, all of these positive as well as negative emotions contribute to maturation
and development.”86 Sobel says that the key to instigating this sense of wonder, from the educator’s perspective, is essentially to attempt to instill a sense of love for nature. When asked how this might be possible, he responded: “Doing place-based education can lead you to a sense of connectedness and affection and I think out of those experiences loving your place can emerge....I’m not sure you can teach it, but create opportunities for it to happen.”87 This relationship with nature can then extend to a broader, more complex and critical relationship with the environment in later years. Sobel posits that: “By cultivating children’s relationships with animals that lurk in the near recesses of their minds and forests, we can develop a taxonomy of relationships that will prepare them to gradually empathize with the animals in [distant ecosystems].”88 This empathy can then work as the foundation for environmental stewardship.

Keith Skamp, adjunct professor of education at Southern Cross University in Australia, specializes in science and environmental/sustainability education. He performed a study of several Learnscapes in Australia in 2002 and found a number of quantifiable benefits, from enhanced student learning to a positive change in students’ perceptions of their school. He did note that environmental activism was not a direct byproduct of simple environmental education -- environmental behaviors must be directly taught -- but that empowerment in a relationship with nature, self-esteem, and environmental beliefs and

87 David Sobel, Interview with Authors, March 2013.
values were benefits of environmental education and all contributing factors towards environmental behavior and active citizenship.\(^\text{89}\)

We agree that schoolyard-based education does not constitute the entirety of what students need in order to become environmentally responsible citizens; we do, however, argue that SYE is both a starting place for this outcome and a potential vehicle for the lessons required to teach students the form of a sustainable lifestyle. Eventually, the appreciation of local landscape cultivated by SYE extends to landscapes within walking distance and beyond. B. Lewis describes an inspiring scenario in which a group of 6th grade kids realizes that an old barrel yard three blocks from their school, a site of frequent play, is a hazardous waste site. They decide to take action to instigate a cleanup, despite being told that they were unlikely to accomplish anything. Their work resulted in 50,000 barrels of waste being cleaned up; they lobbied legislators, wrote legislation, and saw the passage of a Utah state law that set up a fund for hazardous waste site cleanup -- all within two years (Lewis 1989). Through this project students gained a great deal of knowledge and important experience. They practiced writing skills, learned about government, accomplished a great feat for the community, and most importantly, learned that it is possible to make a difference.

This illustrates the point that Atelia Melaville, Amy Berg and Martin Blank, authors of “Community-Based Learning: Engaging Students for Success and Citizenship” make, namely that “In a difficult world, community-based learning encourages young people to take hopeful action.”\(^\text{90}\) When schoolyard-based education is implemented in a social-


action-oriented way it can be extremely empowering. Social action can take place within the school, in the form of campus cleanups, environmental campaigns, or even, as in the case of City-as-School, a charter school in New York City, a full-blown schoolyard revolution. City-as-School’s Project Grow turned a concrete schoolyard into a lush green learnscape used to teach a plethora of courses, from courtyard and greenhouse design, to compost and compost marketing, and from horticultural therapy to hydroponics to video production to business math.91 Allowing students to take this sort of initiative in their education is intended to cultivate resourcefulness, ingenuity, creativity, and self-confidence. Melaville, Berg and Blank argue that: “through action, [students] recognize their ability to control their own lives -- as students, workers, family members, and citizens”92. These qualities, when combined with a sturdy relationship with nature (a combination that is cultivated in SYE) are the building blocks of environmental and sustainable behavior.

**Developmental Objectives**

Improved well-being & healthy physical, emotional, and psychological development are a few of the more anthropocentric reasons for implementing SYE as a national pedagogical strategy. Wilson’s biophilia theory,93 though not embraced by all biologists, is supported by a relatively large body of research that illustrates how strongly and positively people react to elevated landscapes, scattered stands of trees, winding trails, water, meadows, and open, grassy landscapes.94

Simply being in the presence of nature has been shown to have positive psychological effects, from stress reduction to attention restoration. In 2003,

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93As mentioned earlier in this chapter.
94 Louv, *Last Child in the Woods*, 43.
environmental psychologist Nancy Wells, of the College of Human Ecology at Cornell University, published a study on stress levels and attention faculties in urban vs. natural settings. Wells collected data on 337 rural children by asking parents to rate their children’s levels of psychological stress, and asking children to rate their own self-worth, then mapped the data against location in relation to natural areas. The study revealed that nearby nature can serve as a buffer between children and everyday stress: “Specifically, the impact of life stress was lower among children with high levels of nearby nature than among those with little nearby nature.”

Another study, published in 2001 by Terry Hartig, associate professor of applied psychology at the Institute for Housing and Urban Research at Uppsala University in Sweden, compared psychophysiological stress recovery and directed attention restoration in natural vs. urban settings. Results were quantified using measures of blood pressure, self-reported emotion, and attention capacity through testing. Subjects were initially split into two groups. The first group proceeded directly to a nature preserve to walk for 40 minutes. The other group was asked to first perform an “attentionally demanding task.” In both groups, some participants were asked to sit in a room with a view of nature, while the rest sat in a viewless room before walking.

In both groups a more rapid decline in blood pressure was noted in the room with a view. Later, subjects walking in nature exhibited stronger signs of stress reduction than subjects walking in urban areas. Performance on an attentional test improved slightly from the pretest to the midpoint of the walk in the nature reserve, while it declined in the urban setting. This performance gap persisted after the walk. Positive affect decreased and anger

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increased in the urban setting by the end of the walk; the opposite pattern emerged in the nature reserve.96

Similarly, Rachel and Stephen Kaplan -- psychologists celebrated for their theories on attention and attention restoration -- published a paper for the American Psychological Society in 1993 that revealed that office workers "with a window view of trees, bushes, or large lawns experienced significantly less frustration and more work enthusiasm than employees without such views."97 The study surveyed over 1200 private and public employees. The results provided the important insight that people do not need to live in nature in order to benefit from it: simply being in the presence of nature has positive effects on mood, stress levels, and attentional endurance.

In addition to the knowledge that being near nature can have profound positive effects on well-being, we know that exposure to nature is an essential part of child development. In Building for Life: Designing and Understanding the Human-Nature Connection, author Stephen Kellert summarizes the six stages of normal childhood intellectual development as follows:

- **Stage one: Knowledge.** The first stage emphasizes the child’s emerging capacities to understand basic facts and terms and then apply this knowledge to presenting ideas, rendering broad classifications, and expressing a rudimentary understanding of causal relationships.
- **Stage two: Comprehension.** The second stage involves the child’s developing capacity to interpret and paraphrase information and ideas and then extrapolate these understandings to other situations.
- **Stage three: Application.** The third stage stresses the child’s maturing capacity to apply knowledge in generating ideas, concepts, and even principles applied to a wide range of situations.

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97 Louv, Last Child in the Woods, 104.
• **Stage four: Analysis.** The fourth stage involves the child's evolving ability to examine and then break down knowledge into constituent parts and then use this understanding to elucidate underlying relationships.

• **Stage five: Synthesis.** The converse of analysis (stage four), the fifth stage emphasizes the child's ability to integrate and collate knowledge from discrete parts, organize it into structured wholes, and then use this knowledge to identify and understand relationships.

• **Stage six: Evaluation.** The final stage in cognitive development involves the child's ability to form judgments about the functional significance of parts of patterned and structured wholes based on carefully examining evidence, impacts, and outcomes.  

Time spent in the natural world greatly facilitates the progression of stage 1, as it affords vast quantities of highly stimulating and engaging opportunities to identify and order basic information and ideas. Stage two of cognitive maturation, Comprehension, is also heavily influenced by contact with natural settings. In the comprehension stage children are working on translating, extrapolating, and interpreting facts and ideas in order to validate and aggregate information gleaned through observation and experience. In this instance as well, we can point to nature as the perfect stage for this phase of development, because of the endless number of complex scenarios constantly interacting with each other in nature.  

Kellert provides us with the example of a North American child, who “learns to comprehend that snow falls at certain temperatures and rain at others; that trees grow in soil and not in water or through asphalt; that ducks and geese inhabit wet rather than dry or upland places” and goes on to argue that: “indeed, no other aspect of a child’s life offers this degree of consistent but varied chances for critical thinking and problem solving

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100 Ibid.
- a steady diet for the mind as well as the body.” When spending time in nature, children are constantly engaging with a dynamic matrix of various biological processes, which helps to strengthen the mind throughout all stages of development. The importance of these experiences can be verified anecdotally, as shown in the propensity in adults to cite experiences in nature as some of the most formative in their memories.

Psychologist Rachel Sebba, after completing a study that included a wide range of age, gender, and other demographic groups from urban and nonurban settings, reported that 96.5 percent of all participants identified the outdoors as being “of critical emotional significance during their childhood.” Furthermore, the “natural settings” recalled were not extraordinary wilderness experiences, they were just simple places like a local park or a backyard.

These testimonies are not altogether surprising when considering that children essentially live through their senses. Learning to use the five senses is of primary importance in lower elementary school, precisely because at this stage, children are just beginning to make sense of the world, and sensory experiences are the link connecting the child's inner life to the rest of the world. The natural world is an indispensable source of sensory stimulation. Outdoor spaces, explored and defined as a young child, will become spaces of emotional refuge.

The incredibly complex spontaneity and infinite number of experiences to be had in nature make it the perfect place for the developing mind to explore and grow. Therefore, it makes sense that a relationship with such a dynamic force should be encouraged and

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102 Ibid.
103 Ibid.
104 Kellert, Building for Life, 71.
105 Louv, Last Child in the Woods, 66.
facilitated in school, where children spend much of their time. If children need nature for
development of the senses, then experience in nature is also part of an essential foundation
for learning.

**Academic Objectives**

There is a wide variety of ways in which schoolyard-based pedagogies
improve learning. Outdoor, place-based learning stimulates and engages a variety
of learning styles (many of which are neglected in the typical classroom), which is
particularly important in elementary school. The outdoors has proven to be an
incredible learning environment: natural light and an abundance of oxygen
improve focus, and all five senses can be stimulated and taken advantage of by
teachers to keep the students’ minds engaged and improve absorption of material.
Using the outdoors as a classroom also provides the added benefit of
contextualization and concomitant increased relevancy of subject material.
Furthermore, nature’s restorative qualities enhance attentional endurance and
relieve stress, so that learning is less demanding for students as well as teachers.

In 1983, Howard Gardner, professor of education at Harvard University, developed
his now-well-known theory of multiple intelligences. The theory postulates that there are
eight types of learning: linguistic, math-logic, spatial, bodily-kinesthetic, musical,
interpersonal, intrapersonal, and naturalist, which Gardner added to the list several years
after the theory was originally developed.106 The theory has generally been accepted as an
important part of standard pedagogy, so most American teachers are aware of the
importance of appealing to multiple intelligences, and do so through music, art, games,

group work, etc. However, the concept of the naturalist intelligence has been generally overlooked, perhaps because it was added to the list a few years after the theory was originally published, or perhaps because it is more complicated to incorporate into curriculum, or perhaps because of the political contentiousness surrounding environmentalism.

Children with strong naturalist intelligence tend to exhibit these characteristics, as described by Leslie Owen Wilson, professor of educational psychology and theories of learning at the University of Wisconsin’s School of Education:

- Have keen sensory skills, including sight, sound, smell, taste, and touch.
- Readily use heightened sensory skills to notice and categorize things from the natural world.
- Like to be outside, or like outdoor activities like gardening, nature walks, or field trips geared toward observing nature or natural phenomena.
- Easily notice patterns from their surroundings—likes, differences, similarities, anomalies.
- Are interested in and care about animals or plants.
- Notice things in the environment others often miss.
- Create, keep, or have collections, scrapbooks, logs, or journals about natural objects—these may include written observations, drawings, pictures and photographs, or specimens.
- Are very interested, from an early age, in television shows, videos, books, or objects from or about nature, science, or animals.
- Show heightened awareness of and concern for the environment and/or for endangered species.
- Easily learn characteristics, names, categorizations, and data about objects or species found in the natural world.¹⁰⁷

Natural intelligence should be celebrated and fostered, and should indeed be cultivated in children who tend toward other learning styles in the same way that other intelligences are, in an effort to provide a well-rounded, holistic education. Natural intelligence is the foundation for ecoliteracy, or the ability to comprehend natural systems.

¹⁰⁷ Louv, Last Child in the Woods, 73-74.
in all their complexity, as well as the interplay between natural and human-made worlds. Schoolyard-based education encourages naturalist intelligence by engaging students in activities that excite the interests of nature-intelligent students, and perhaps introducing these interests to those who aren’t already so inclined. For example, cataloguing observations, keeping nature journals, exploring territories, and learning about local wildlife are all activities that would particularly appeal to children with naturalist intelligence. By being kept inside the classroom all day, students are unable to meet their full educational potential, and in doing so, the school system is failing in their duty to provide an equitable education to all students.

SYE, however, isn’t just beneficial for students oriented to naturalist education, the schoolyard is an appropriate classroom for every student. The positive effects of simple immersion in natural light and fresh air have been abundantly documented. One study, performed in the Capistrano Unified School District in Orange County, California, documented the learning rates of students in various schools as well as in various rooms within those school buildings, to investigate the effects of natural light on learning. The study concluded that: “Overall, the classrooms with the most amount of day lighting had a 20 percent faster learning rate in math and a 26 percent faster learning rate in reading during one school year when compared to classrooms with the least amount of day lighting.”¹⁰⁸

Essentially, being outdoors makes students more alert and engaged, while at the same time, allowing students to learn for longer intervals. This idea was explored in 1890

by psychologist and philosopher William James, who reported two types of attention: directed or voluntary attention and involuntary attention or fascination. Inspired by James’ research, the Kaplans began a study for the U.S. government in which they investigated the restorative effects of nature on the participants of an outdoor adventure program. The trips lasted for up to two weeks; the study lasted 9 years. During the treks and/or afterwards, program participants described experiencing a sense of peace and mental clarity. They also observed that they gained more restorative feelings just from being out in nature, compared with the physically challenging activities, such as rock climbing, that are the main attractions of the program. Further research by the Kaplans revealed that too much directed attention leads to "directed-attention fatigue (DAF) . . . characterized by impulsive behavior, agitation, irritation, and inability to concentrate.” The DAF phenomenon begins when “the neural inhibitory mechanisms become fatigued by blocking competing stimuli.”109 Essentially, the brain is tired by blocking out all stimuli besides the desired focal point. Stephen Kaplan concluded: "If you can find an environment where the attention is automatic, you allow directed attention to rest. And that means an environment that is strong on fascination."110 According to the Kaplans, nature may be the most effective source of such restorative relief.111 Using the outdoors as a classroom provides a backdrop of such restorative relief to students enduring a long, stressful school day. In this way, students can avoid DAF and maintain focus longer.

In addition, the atmosphere inside the classroom itself has been criticized for its negative impacts on children’s self-confidence. Kate, a first-grade teacher, reflected: “The

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110 Ibid.
111 Ibid.
children are not confident with their own desires and thoughts; instead they think about what others expect from them.”

Essentially, children strive to understand and meet the perceived expectations of their teachers and peers. However, Kate noticed that this phenomenon takes place only inside the classroom. Outdoors, students exhibited less restraint in their individual thoughts and feelings. “... it is understandable that some teachers find the classroom to be a closed space that imposes control on children. This notion underscores the importance of outdoor environments and outdoor learning, which has recently received moderate academic attention.”

The results of recent studies exploring the efficacy of outdoor education paint a picture that is hard to ignore. Students participating in outdoor programs exhibit gains in self confidence, problem solving, motivation to learn, and classroom behavior, as well as a 27 percent increase in measured mastery of science concepts, improvements in cooperation, and conflict resolution skills. Students participating specifically in learnscape programs have been shown to be more physically active, more aware of nutrition, more civil to one another, and more creative. They show improvements in social studies, science, language arts, math, development in problem solving, critical thinking, decision-making skills, enthusiasm, engagement in learning, test scores, and GPA. These students also required fewer disciplinary measures and exhibited

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113 Hyvonen, *Play in the School Context?*, 73.

114 Effects of Outdoor Education Programs for Children in California. (American Institutes for Research, 2005), vi.


117 David Sobel, *Place-Based Education: Connecting Classrooms & Communities*. (The Orion Society, 2004), 25.
changed perceptions of their school, in part because of the improved appearance of the school. Based on the remarkable impacts of SYE on learning and on people’s lives, we believe that integrating SYE into a dynamic plan for national environmental education is crucial.

Until recently, little attention has been paid to Learnscapes. SYE has garnered support in academic circles, but is still not extremely popular among modern American teachers. The current movement toward environmental education is in its adolescence, but if education practice is to follow the same trajectory as education theory, we believe that maturation of the EE movement will give rise to a growth in popularity of SYE. The maturation process will have to entail the ironing out of some kinks within the EE movement before it can be more widely adopted and evolve to include a pervasive SYE practice.

Educators themselves have largely been acting as independent agents in terms of integrating EE into their syllabi, as there is very little national infrastructure for EE. This poses a few problems for the EE movement at large, as, for example, the information being taught is frequently age-inappropriate, and teachers who don’t specialize in environmental studies may not be adequately informed about ecology. We believe that the next step in education reform should be to formalize the process for integrating environmental education into the public school system.

David Sobel illustrates a series of developmental phases that correspond to the child’s awareness of place. Between the ages of four and seven, the child’s mental map is focused on the home and surrounding area: for that child, these places essentially

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118 Skamp, Learnscapes, science and technology teachers and the curriculum, 2.
constitute their physical world. Between the ages of eight and 11, the central focus is the "explorable landscape," places within adventuring distance: local meadows, vacant lots, or forests that can be reached on foot, bicycle, skates, or whatever means of transportation the child has. During the adolescent ages of 12 to 15, social areas such as parks and malls are the locus of the growing child’s world. Sobel argues that instead of tearing them away from these places via curriculum design, we should encourage them to engage more deeply. Early childhood curriculum should focus on building empathy with the natural world, middle childhood curriculum on exploration, and adolescence on social interaction/social change/community engagement.

Focusing curriculum in this way doesn't have to interfere with teaching standards to mastery, but can be thought of as a series of interdisciplinary themes. Thus, education can be tailored to suit the emotional and developmental needs of children, without sacrificing academic objectives.

Without looking at environmental education through this lens of developmental appropriateness, we risk the danger of actually cutting children off from a relationship with the environment. In our frenzy to make kids aware of climate change, pollution, species extinction, etc., we may be causing them to shut down emotionally to these issues. In the same way that a victim of abuse might shut down towards other people, children can emotionally shut off to the environment when it is equated with human failure and

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119 Sobel, Beyond Ecophobia, 26.
120 Ibid.
121 Sobel, Beyond Ecophobia, 26.
apocalypse. Sobel argues that climatic catastrophe should never be a classroom topic until fourth grade at the earliest.122

To illustrate, the German education ministry, in an effort to nationalize education for sustainability, implemented an earth-conscientious curriculum. The goal was to create “empowered global citizens” by raising awareness within elementary school student populations about environmental crises and the manner in which students could participate in finding solutions. Follow-up studies conducted a few years later demonstrated that exactly the opposite was occurring. "Education officials found that students felt hopeless and disempowered. The problems were seemingly so widespread and beyond their control that the students tended to turn away from, rather than face up to, participating in local attempts at problem solving."123 Beginning in sixth grade, environmental action projects that serve the community are great service learning opportunities that can leave students feeling empowered, socially fulfilled, and more environmentally conscientious. The small-scale, place-based nature of these projects prevents the dissociative effect experienced by students who learn about the environment through a more abstract and catastrophe-focused lens.124 Of course, such a curricular revolution would require a new kind of teacher, and a new kind of teacher training as well. In order to provide students with the educators who can deliver this sort of deeply nuanced and involved, place-based, outdoor, sustainable education, a broad infrastructure of support is first necessary, a point that is emphasized in our case study. A restructuring of the teaching profession and education is imperative.

122 Ibid.
123 Sobel, Beyond Ecophobia, 9.
124 Sobel, Beyond Ecophobia, 27.
Americans need to ask more of our teachers as a whole. That is not to imply that our teachers don’t work hard, most teachers go far above and beyond what is required of them, but every student, not just most, deserves to have these teachers. Teacher education should be training future teachers to question the fundamental elements of their pedagogies, and to employ creative and ingenious lessons that address not just facts, but ways of thinking. We must begin to reevaluate the “normal” pathways to common goals like high grades and good citizenship. And we must begin to reassess the student as a subject, because as long as we view our students as simply future members of the workforce, as NCLB does, they will never create the societal change our country so badly needs.

Of course, teachers are not the only element of education that needs readjustment. As we have argued earlier, the uppermost echelons of the education system need changing, too. The government must provide more hands-off support to schools, and must focus on ensuring equality in educational experiences. Standards and assessments must be reformulated to create an educational infrastructure capable of producing students with the capacity to learn independently, think critically, solve problems creatively, and care for one another and the environment.

There appears to be broad consensus that these changes must occur, and furthermore, that SYE can be a fundamental part of this change. The proof and the theory is there, yet for the most part, it remains trapped in lofty academic circles. Hart laments this situation, positing that “no matter how brilliant the rhetoric of fields such as environmental education/education for sustainable development ... that advocate changed theory and praxis, arguments about practice will never be resolved at the level of practice.”125 As long

125 Hart, No Longer an “Little Added Frill”, 162.
as the direction of educational discourse remains in the hands of scholars alone, a
paradigmatic shift will never occur on the classroom level. Teachers, the individuals who
understand the inner workings of a classroom better than anyone else, need a stronger
voice in education discourse.
4

Evolution of Schoolyard-Based Education

HISTORY OF AMERICAN SCHOOLYARD-BASED EDUCATION

Despite the novelty, schoolyard-based education is not a new concept. Schoolyard-based education of today differs from that of the past in how closely it was integrated into school curriculum. Today, a majority of SYE is implemented to supplement an in-classroom lesson. However, historically, SYE was smoothly integrated as an essential piece of student learning. This shift occurred as part of a shift towards a more centralized public school institution as waves of urbanization and industrialization swept the country.

Early Integration of Schoolyard-Based Education

In the first century of America’s existence, schoolyard-based education was an inherent part of student learning. Although public schools have been an institution in America since the time of British rule, the system was extraordinarily decentralized. Inconsistent resources, locations, pupils, and curriculum marked the early days of education in the United States. Teachers had minimal training, and were left to their own devices; without many resources they were forced to be creative in lesson planning. According to the US census, in 1800, 93.9 percent of Americans lived in rural areas, and in 1850, 84.6 percent lived in rural areas. The ubiquity of nature made it a natural, and essential, teaching tool. However, it is imperative to note that in using natural surroundings as a resource, teachers in the 1800’s were not prescribing to modern pedagogical values of

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environmental and schoolyard-based education, instead in 19th century schools the outdoors was almost strictly a utilitarian space.

**Changing Views of Nature in Education**

Around the time of the Civil War, this organic integration of SYE would be challenged as views of wilderness evolved, and as growing populations of students made necessary a more centralized and organized public school system. Urbanization proceeded more rapidly between 1820 and 1860 than in any other period of American history. While the total population grew about 33 percent per decade, the number of people in places of 2,500 or more increased three times as fast. As the effects of this sudden population explosion became apparent in the dwindling of the country’s wilderness, American scholars and intellectuals developed various schools of thought to rationalize civilization’s relationship with nature.

The mechanized separation of humans from nature marked this period of industrialization. What was once done painstakingly by hand, now took a fraction of the time with new technology. Farmers could now operate a single tractor in place of many men. While not negative, these discoveries aggravated the biblical belief of human’s domination over nature. Instead of daily life necessitating a relationship with nature, with the introduction of machinery a person could put aside working with the land and leave it for the machines. Thus, early in American history, a trend can be seen towards objectification of, rather than identification with nature.

With a shrinking connection between Americans and their land while the rates of urbanization dramatically increased, the Naturalist school of thought grew into a popular

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sub-movement. Its popularity suggests that, despite growing cities, for many the allure of America still lay in the vast expanses of open land and undiscovered species and wonderments. After the Civil War, the public embraced writings of naturalist writers such as Emerson, Thoreau, and Muir, as the population continued to grow and exploded into the Wild West. Author Sally G. Kohlstedt comments that in this period American identity was linked to nature, suggesting the country was “nature’s nation” and that it had produced a culture of “nature addicts.” Environmental education theorists Carter and Simmons remark eloquently: “From Emerson’s *Nature* (1836), to Thoreau’s *Walden* (1854), to George Perkins Marsh’s *Man and Nature* (1864) one can trace the developing concerns regarding human interaction with nature expressed by the political and social commentators of a young and... a still seemingly limitless USA.” Conservationists like John Muir preached an Arcadian ecology; intellectualizing the idea that human civilization was an inextricable part of nature’s balance. Preservationists, like Thoreau and Emerson, romanticized nature, equating the outdoors with a pristine and holy church, which human should not use in utilitarian practice. Through this popularization of philosophizing the relationship between civilization and nature, the outdoors became a subject of study in academia.

These young but formidable theories on humanity’s relationship with nature trickled down into elementary education. As people migrated to the growing cities, small rural schools were gradually diminishing. Thus leaving children’s relationship with nature

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to be dictated in the classroom by thinkers of the industrial, conservation and preservation
movements.

Louis Agassiz, a prominent Harvard naturalist at the time of the Civil War, was one
of those responsible for introducing nature study into education. Although his methods
were intended for university, his “intelligent study of Natural History”\textsuperscript{132} was used in
primary schools. Agassiz encouraged students to “study nature, not books.”\textsuperscript{133} Influenced
by naturalist values, Agassiz’s kinesthetic integration of nature in the classroom became
quite well known in the later part of the 19\textsuperscript{th} century. This resurgence of hands-on learning
was short lived and saw a slow and steady decline at the beginning of the 20\textsuperscript{th} century.

\textit{Centralization of a School System}

Utilitarian naturalist teaching largely ended with school reforms beginning in the
1890s through the 1930’s. In the Progressive Era, the afore mentioned population boom of
the mid 19\textsuperscript{th} century meant that small, locally run school houses were no longer sufficient.
As the American population congregated in cities, it was intellectual abilities and skilled
trade that needed to be taught in schools, rather than supplemental knowledge to the rural
farming lifestyle. With more demands on the education system, creating standard lessons
for teachers took some of the pressure off the system, and insured that children across the
country would be receiving a standard, satisfactory education. Increasing standardized
teaching and more prescribed school institution took control of schools from the local level
to the state. While the good intentions of this shift of control were genuine, not everyone
was happy being told what to learn and teach. Quoting an Oregon schoolman from 1926, it

is “as if educated citizens can’t be trusted to control their own schools.”134 The new school system bred bureaucracy.

Despite harsher regulations on curriculum, there were attempts by educators within the system to recreate the old teaching connection with nature-a modern precursor to schoolyard-based education. Evangeline Whitney, the New York City District Superintendent in charge of playgrounds and recreation in the first decade of the 20th century, encouraged schools to implement school gardens. “Her annual reports reveal that most schools buildings in the boroughs had a nature room dedicated to ‘growing plants, boxes for seed sowing, caged birds, aquariums, and as many specimens of the field and water life as the teachers could produce,’ even encouraging roof top gardens.”135 The New York City School District went so far as to restructure curriculum, in 1902, to provide, “a correlation of the pupil’s course of study with the world in which he lives; his spiritual and natural environment.”136 However, the idea did not catch on nationally because creating lessons to fit the new curriculum proved to be time consuming and difficult, especially for older teachers with established lesson plans.

While schools in cities struggled to make the natural environment a part of students’ sphere of understanding, the rural areas of America were having a similar battle. Liberty Hyde Bailey, a horticulturist and education reformer, grew up in Michigan as it turned from wild to urban landscape before his eyes. Later in life, Bailey argued that natural science education could highlight qualities of rural life for young children, who, like himself, had not appreciated the natural environment, in order to reacquaint American youth with

135 Kohlstedt, Teaching Children Science: Hands-On Nature Study in North America, 1890-1930, 63
136 Kohlstedt, Teaching Children Science: Hands-On Nature Study in North America, 1890-1930, 62
nature.\textsuperscript{137} For the duration of the progressive era, education reformers found ways to recreate schoolyard-based education, but it was never fully integrated into the new centralized public school system.

By the early 1940’s, America was recovering from the Great Depression and launching into the next World War. The next major change in schoolyard-based education came during World War II in the form of victory gardens. In a state of total war, the U.S. Army implored all citizens to help feed soldiers by growing produce in their yards, community gardens, and schools, and sending their yield to the army. A plea in 1944 from the American Biology Teacher publication asks teachers to establish school gardens:

“Gardening is fun. It is a practical way of teaching many fundamental scientific lessons. Gardening for food is essentially patriotic these days, too. So there is every reason why victory gardening should be of interest to teachers, and especially to science teachers.”\textsuperscript{138} This plea represented a shift from the schoolyard as purely a play space to being utilized for a larger cause. It was the first nation-wide stance for schoolyard-based education, even if the motivation was military, not educational enhancement. In the years after the war, school gardens lost their military support, but kept a low profile in schools around the country. By the 1960s schoolyard-based education received another wave of attention through the prevalence of alternative teaching.

\textit{The Rise of Alternative Education}

During this period in American history, many off-the-beaten-track educational theories and methods gained notoriety. The Montessori schooling theory regained

\textsuperscript{137} Kohlstedt, \textit{Teaching Children Science: Hands-On Nature Study in North America, 1890-1930}, 85.

popularity in America starting in 1960. Maria Montessori (1870-1952) preached an independent form of learning in which the child discovers things for his/her self. An integral component of Montessori’s elementary work is known as, “going out,” in which student’s self-direct explorations of resources outside the classroom.  

In addition to the Montessori movement, alternative schools were sprouting up around the country. The Fayerweather Street School in Boston, for instance, was established in 1967 with the purpose of reexamining the value of a small, family oriented school. Since it’s formation, the Fayerweather Street School has used non-traditional teaching methods that attempt to cater to all children’s learning styles; including the use of outdoor education.

The motivation for the natural and outdoors elements of these alternative educational projects was partially the increase of environmental awareness. The theories of Emerson, Thoreau, and Muir had expanded to permeate all levels of American society. Educational historians, Robert L. Carter and Bora Simmons, state, “As environmentalism gained in popularity coming to fruition as the modern environmentalism movement in the 1960s.”

Although environmental education was starting to be recognized by larger bodies of government, (Nixon’s 1970 National Environmental Education Act, and the 1972 United Nations Conference on the Human Environment) education in environmental matters, for

141 Carter and Simmons. “The History and Philosophy of Environmental Education,”
the younger generation, was also called for.\textsuperscript{142} Schoolyard-based education was still not recognized, nor given government backing as a viable educational practice. It was during this recognition of environmental education and the alternative education movement that schoolyard-based education came to be placed under the umbrella of environmental education. It was no longer seen as a means of general education but as a tributary of environmental education.

\textit{Segue To Modern Schoolyard-based Education}

The more free-form schoolyard-based education of the 1970s was snuffed out with a string of educational reforms coming from the Presidents of 1980s through the early 2000’s. As mentioned in Chapter Two, the No Child Left Behind act and stricter standardized testing, limited the creativity of teachers. Furthermore, in the new state standards and national mandates, environmental concerns and schoolyard-based education were completely ignored. In state standards and assessments, as talked about in Chapter Two, Math and English Language Arts became the center of attention leaving other programs to fend for themselves. Schoolyard-based education seemed to have lost its momentum.

\textbf{PRESENT DAY RESURGENCE OF SCHOOLYARD-BASED EDUCATION}

In the last decade and a half, schoolyard-based education (SYE) has been on the steady rise, gaining popular attention and making a strong resurgence. Although still labeled an alternative movement, schoolyard-based education is the new trend in education and now maintains a place front and center in the media. However, the new face

\textsuperscript{142} Ibid.
of schoolyard-based education is vastly different from the integrated learning of the early public school system.

As the school system centralized and America’s relationship to nature drifted away from the romantic vision of the early naturalists towards popular schoolyard-based education, education shifted from an integrated teaching approach towards a paradigm in which SYE is an accessory lesson, reserved for special occasions. The style of SYE popular in the rural days of the nation has been largely put aside in favor of the more glamorous appeal of school gardens and fat-busting physical education.

**Edible Schoolyard**

School gardens have become almost sensationalized by the popular support of respected media giants like Alice Waters, Jamie Oliver, and Michelle Obama. Because of the presence and acceptance of school gardens and physical education in popular media rather than a more curriculum integrated learning approach, schoolyard-based education implementation has followed in the direction of non-integration and forgotten its simple origins of a bygone era.

Heralding the school garden movement is Alice Waters; chef, author, and revolutionary educator. In 1995, Waters helped start an “edible schoolyard” at the Martin Luther King Jr. Middle School, in Berkeley, California. Unlike other local school garden programs in the liberal corners of the US of the time, the edible schoolyard was well documented and fronted by a seemingly unstoppable celebrity chef, Waters.

Waters’ objective is to connect children to the land through nutrition, to reevaluate and transform their access and relationship to food. ESY aims to involve students in the experience of growing, harvesting, preparing, and sharing food as a means of fostering knowledge of food and food systems, improving students’ food choices, and connecting students to the land, the environment, and their community... If this program is integrated into
schools, the curriculum could transform the health and values of every child in America.143

Through a media take-over, Waters’ goal of spreading the Edible Schoolyard project is being realized.

A study from the Center for Ecoliteracy done on the Berkeley edible schoolyard found that students who participated in the program had significant academic and social advances. The study found participating students had “significantly greater” gains in overall GPAs, especially in science and math, had greater gains in understanding natural cycles than the control groups, had gains in overall ecological literacy, significantly improved psychosocial adjustment, and increased the participating student’s sense of place and understanding of sustainable agriculture.144

What started in Berkeley spread over the next decade and a half to become a national movement. With an abundance of media attention, qualitative and quantitative studies, and publications by Waters, like her popular 2008, Edible Schoolyard, the edible schoolyard franchise has become a source of inspiration and validation for school garden programs everywhere. The spread of edible schoolyard programs is evident in the map from the organization’s website, which boasts a presence in over 2,000 locations -- with 1,953 outdoor “garden classrooms.” This is quite an accomplishment. Partially due to Waters’ efforts, by 2002, 2,000 of [California’s] 9,000 schools had a garden, and by 2008 that number had risen to 3,849, and it continues to grow.145 In June 2004, national legislation was signed into law as part of the Child Nutrition Bill that—if appropriated for

funding—could help cover the initial costs of school gardens in conjunction with nutrition education.

Figure 3.146

National Nutritional Craze

As Waters’ edible schoolyards splashed across the country, the coinciding educational ideals have ridden the tide. Waters’ work is based heavily on the idea of improving nutrition in schools. An idea that has taken root in the American psyche and blossomed into a myriad of books, articles, TV shows, and programs addressing the nutritional hazards of America’s public schools.

The school food revolution gained enough notoriety to sweep up the first lady, Michelle Obama. In Spring 2009, Obama turned the south lawn of the meticulous White

House landscape into an educational vegetable garden. The purpose, Obama said in an interview with The New York Times, is “to educate children about healthful, locally grown fruit and vegetables at a time when obesity and diabetes have become a national concern.” She continued, “My hope is that through children, they will begin to educate their families and that will, in turn, begin to educate our communities.” Obama initiated the educational aspect of the project by inviting a local fifth grade class to help with the garden. This was a particularly momentous gesture given Obama’s sweetheart status in the media. There had not been a White House garden since Eleanor Roosevelt’s victory garden during the Second World War, suggesting the patriotic resurgence of gardens in the name of health education rather than military campaigns.

**Beyond Gardens**

Obama has ushered in another popularized form of schoolyard-based education: physical education (P.E.). P.E., a long tenured program in American public schools, is getting a face-lift as the public grapples with astonishing American childhood obesity rates. In 2010, more than one-third of children and adolescents were overweight or obese. The percentage of children aged 6–11 years in the United States who were obese increased from 7 percent in 1980 to nearly 18 percent in 2010. Similarly, the percentage of adolescents aged 12–19 years who were obese increased from 5 percent to 18 percent over the same period.

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149 Ibid.
But the most prevalent campaign to end childhood obesity is Michelle Obama’s “Let’s Move!” program. “Let’s Move!” calls for an increase in physical education inside and outside of school, as well as healthy eating habits, including combating junk food. In an interview with The Nation in 2012, the First Lady, “hit talking points that would make any children’s health expert happy. She urged the manufacturers of products like Doritos, Froot Loops and SpaghettiOs to make them healthier, to cooperate with the government on new food labels, and to get serious about reining in junk food marketed to kids.” Obama even got pop superstar, Beyonce, to sing and dance about the benefits of staying healthy.

Obama, Waters, and others have transformed schoolyard-based education in the eyes of the general public from a far-left alternative to a feasible mainstream movement. Furthermore, they have introduced the rhetoric of healthy living, nature education, and concern for a holistic education into the popular rhetoric.

Thus far, the popular reforms taking place in schoolyard-based education have been concentrated in nutritionally based garden electives and obesity-challenging gym classes. While addressing important issues and packing political power, neither of these educational programs more than minimally addresses the foundations of schoolyard-based education- education’s relationship with the environment, ecoliteracy, and enhanced student learning. Additionally, while these programs have been successful, they lack the backup from government and teaching standards that would validate schoolyard-based education in all schools.

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CRITIQUE OF MODERN SCHOOLYARD-BASED EDUCATION

Even as certain forms of schoolyard-based education have gained popular approval, it does not yet have full support from the education world. As outdoor and environmental teaching resources exponentially expand, one is left to wonder, why are they not being used? Furthermore, what are these programs accomplishing? In this section, we critique the implications and effectiveness of the nutritionally based learning model that has come to symbolize SYE.

Issues of Access

While garden programs are successful in teaching a majority of students the benefits of healthy food, an important portion of children are being left out of the success. Understanding what is being taught and to whom is essential to assess if the nutritional SYE model is working. Although many schools in wealthier communities are implementing school gardens, the popular rhetoric deals largely in an almost manifest destiny notion of setting up gardens for poor, ethnic neighborhoods. Even the honorable Edible Schoolyard program was started when a prominent white woman, Alice Waters, was “quoted in a local newspaper, claiming that the school she passed every day looked like no one cared about it.”\textsuperscript{151} Giving no consideration to the available resources and time, or lack thereof. Although there are strong arguments to be made that all schools can have a garden, the agents behind the formation of these gardens must be considered. In many inner city and low-income communities, it is an outside group, one with access to more resources that

proposes the installation of schoolyard infrastructure. Although the best intentions usually motivate outsiders to promote school gardens, these intentions often serve to push the ideas and values of mainstream, white America onto the garden curriculum.

Given that a large number of the garden programs originate from the Edible Schoolyard and like organizations, much of the garden curriculum across the country is identical. School gardens are not locally based phenomena. They simply take the American ideal of “organic” and homogenize the “local” culture. School garden teaching resources are rarely community based. Additionally, the heterogeneous group of students is not taken into consideration. To many groups of students, the reverence for organic vegetables is less accessible.

Gardening does not have the same connotations for all groups of people. As author and food justice critic Julie Guthman states, “The meanings of ‘organic’ and ‘natural’ are of course contested and now highly evolved in light of significant public and private activity in regulating these terms. Nevertheless, as terms used to describe a less modern state of affairs, they are necessarily not entirely innocent of race.”152 For some Mexican-American families, sinking your hands in the soil brings forth the idea of migrant farming, a slave-like form of labor that many immigrants from south of the border spend their lives in. To the children of these farm workers, planting beets is not empowering, but reminiscent of the power held over their parents.153

Beyond the inherent problems imbedded in the nutritional discourse, the nutritional focus may not be getting to the root of the problem.

152 Julie Guthman, Bringing Good Food To Others: Investigating The Subjects of Alternative Food Practice.” Cultural Geographies 15, no.4 (October1, 2008), 438.
Is Nutritional-based Learning Addressing The Real Problems?

Although good nutrition for all children should be a national priority, America needs to be honest with itself; under the injustices of the industrial food system—food deserts and high priced produce--teaching a child to identify the nutritional value in a carrot is not going to make that carrot any more available to the child’s family. In focusing solely on nutrition, we are not getting to the root of the problem.

To use nutritional education to combat the epidemic of unhealthy children without a relationship to nature, one must accept these presumptions: that there is only one way to be healthy, and that all children have equal access to nutritional food. Accepting these “truths” disassociates the health pandemic from the systematic racism, classism, and the economic disparities of this country that are infiltrating the industrial food system to cause general unavailability of healthy food to low-income and nonwhite communities. Julie Guthman voices this concern in an article questioning the obesity rhetoric:

I have read countless undergraduate papers at my university that begin with the premise that the global food system is anomic, and that “if people only knew where their food came from,” food provisioning would somehow evolve to be more ecological, humane, and just. Many of my students have strong convictions that they should and can teach people how and what to eat, as if you could “change the world one meal at a time” without attention to policy.\(^\text{154}\)

The type of thinking that Guthman describes permeates the nutritionally focused SYE curriculum. In contrast, a more integrated SYE approach that focuses on teaching utilizing nature as a tool, is instead based on all children developing their own relationship with

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nature-- whatever that may mean to each child. In this model, the focus can be the individual development of values surrounding nature and healthy global living, rather than having the aforementioned whitened values pushed onto the child. By utilizing SYE as a teaching tool, not as a lifestyle ideal, SYE can be tailored to fit unique communities.
A Case Study of The Claremont Unified School District

To further investigate the utilization of schoolyard-based education, we gathered data for a case study of Claremont, California. A case study was needed to understand how an infrastructure of schoolyard-based education programs and practices are actually enacted in a community and to comprehend why, despite academic consensus and encouragement, SYE is not being utilized to its full potential.

We do not suggest that Claremont is the "typical" community, or that is represents all forms of schoolyard-based education. Claremont does, however, represent the typical struggle a community faces in school system reform and implementing new curriculum. We observe how a regular school system copes with changing values in education theory and the pressures of trying to make a difference in children’s lives while complying with all mandated regulations.

Our theory was that schoolyard-based education could improve the state of the public education system in the United States by promoting more creativity in teachers’ curricular planning while facilitating student mastery of state standards. It could improve education by providing a learning space that is more conducive to engagement with and absorption of educational material by students. This would potentially lead to a more sustainable and socially just future for the country.

We have seen this played out in idealistic programs and education initiatives across the country, but we were always unable to decipher exactly how these programs worked within the framework of the larger school system. The question became: how might a
creative and intentional shift in the public education system to incorporate schoolyard-based education look and function? By observing the shifting educational patterns of Claremont, we hoped to have a fuller understanding from which to evaluate that shift.

THE SOCIO-HISTORICAL CONTEXT OF CLAREMONT

The socio-historical context of Claremont, California is central to understanding the figurative and physical role that the school system plays in this community. In order to appreciate how schoolyard-based education fits into Claremont, one must first be familiar with the city: its geography, tensions, formation and industry itself. Claremont is a unique community, precisely because it is built of many communities. Today, according to the 2010 census, Claremont’s population is 70 percent White and 19.8 percent Latino. On the outskirts of Los Angeles County, dissected by a rail line, Claremont is home to the wealthy, the poor, a large Hispanic population, professors, college students, and a thriving school system.

Claremont began as just one community of about 30 town sites laid out in the region, all expectantly waiting to be filled with happy pioneers following the expansion of the railroads in the late 1880s. This real estate expansion stopped short, however, as the country wobbled in an out of recessions, and Claremont would have been just another California ghost-town if the local land company had not decided to transfer its Hotel Claremont, along with 260 vacant lots, to the recently-established Pomona College in

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Pomona College’s founding fathers envisioned a college in the style of famous colleges of the Northeast, and the growing Claremont community cultivated that heritage as well. The creation and expansion of the Claremont colleges coincided with a rapid swelling of the local citrus industry, facilitated by the Santa Fe and now the Union Pacific Railroads.\textsuperscript{158}

For most of Claremont’s history, Mexicans and Mexican-Americans provided the majority of labor for the citrus industry. Mexican labor also contributed significantly to the early construction of the Claremont Colleges. By 1920, two Mexican-American neighborhoods had emerged in Claremont; one in the area of El Barrio Park and the other near the packinghouses west of Indian Hill Boulevard and north of the railroad.\textsuperscript{159}

The city remained a thriving agricultural power, exporting citrus throughout the country, until WWII. By the end of the war neighboring Ontario’s labor force had bloated from 15,000 to 20,000 and the demand for residential neighborhoods literally flattened much of the citrus industry in the area, turning Claremont from a citrus city to a residential one.\textsuperscript{160} In 1954 the San Bernadino (I-10) Freeway drastically increased accessibility to the Colleges. Claremont has grown from a glimmer of a settlement, covering just 3.5 square miles, to now cover more than 12 square miles and contain a population of almost 34,000 residents.\textsuperscript{161} The early influences of the Spanish, who founded the Santa Fe Trail, Boston-style college culture, and the citrus industry, are still noticeable in the Claremont of today.

\begin{flushleft}
\textsuperscript{157} Ibid.
\textsuperscript{158} Ibid.
\end{flushleft}
“There are lush remnants of citrus and oak groves and a physical character reminiscent of Claremont’s Spanish heritage and college-town influence. This diversity, sense of scale, and continuity singles it out as a unique community in Southern California.”

Claremont’s community demographics are thrown into sharp relief when viewed against the backdrop of the region that cradles it. While Claremont continued to fill out the fantasy of its forefathers as a wealthy, highly educated city with east-coast elite influences, its neighbors were experiencing quite a different fate. After WWII, nearby Ontario’s economy remained dominated by manufacturing, and was deeply afflicted by the exportation of the American manufacturing industry to Asia in the 70s and 80s. The 1990s brought about another economic boom. The number of jobs in Ontario grew by 83 percent, employee payrolls doubled to two billion, and the rest of the Inland Empire was experiencing similar growth. By now, that boom cycle has long since climaxed into bust. In 2009 the Institute for Research on Labor and Employment announced in their report “Economic Crisis in the Logistics Industry: Financial Insecurity for Warehouse Workers in the Inland Empire” that Riverside and San Bernardino counties (together comprising the bulk of the Inland Empire) were leaders among the nation’s largest metropolitan areas in unemployment, had reached a regional unemployment rate of 10.1 percent in December of 2008, and exhibited the third highest percentage of foreclosed housing units amongst large metropolitan areas.

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It is easy to see in Claremont’s demographics how successful its founders were in establishing a northeastern cultural enclave. The bulk of adult Claremont citizens are professionals, with the number one employer being the Claremont Colleges. 9.3 percent of adults have a PhD, and 29.9 percent have Masters’ degrees, and the average household income is $105,759, with a median household income of $78,376. All of this is astounding when compared to the statistics of the rest of the Inland Empire, in which the median household income is $62,973, unemployment is 10.1 percent and the foreclosure rate is 8.02 percent.\textsuperscript{165} It is also interesting to note that Claremont is 75.2 percent white.\textsuperscript{166} However, these statistics can be misleading because not all of Claremont is rich, white, and educated.

The original two Mexican-American neighborhoods have grown to encompass much of southern Claremont, as this Mexican-American population grew into a vibrant Latino enclave. Interestingly, this population has stayed relatively segregated. The white population is concentrated in the central village and the high-priced real estate in the foothills, whereas areas with more than a 22 percent Latino\textsuperscript{167} population are located south of the railway, as shown in figure 1. The Claremont Unified School District demographics demonstrate this separation, as one school in the village has a 19 percent Latino enrollment, and a school south of the tracks has a 65 percent Latino enrollment.\textsuperscript{168} Additionally, the median household income is significantly higher in the

\textsuperscript{167}The school district uses the term “Latino” and the U.S. census uses “Hispanic.” While these two groups have significant socio-historical backgrounds we will use them as synonymous for the sake of simplicity.
northern, less Latino portions of Claremont. This correlation can also be seen in figure 1.
Perhaps, then, the tagline for Claremont, “the city of trees and PhDs” applies to only the elite few.

THE PUBLIC ELEMENTARY SCHOOL SYSTEM IN CLAREMONT

The Claremont Unified School District (CUSD) mirrors the intersecting racial and socio-economic divides of the city. These divides greatly affect the way schoolyard-based education unfolds. Claremont boasts 8 elementary schools, an intermediate school, a high school, and one continuation high school.

Despite Claremont having a population that is three-quarters white, white children represent just 39 percent of the students in the CUSD. Conversely, 37 percent of the students are Hispanic.169 In addition to a large ethnic population, the CUSD also has a sizable population of English language learners. 5.4 percent of students in the district are English language learners, with just over half of those citing Spanish as their first language.170 These statistics are not evenly distributed throughout the CUSD. Like the economic and ethnic segregation of Claremont residents, schools in south Claremont draw students from areas with higher Latino populations, as shown in figures 4 and 5. Additionally, the parents of students at schools in southern Claremont have a disproportionately lower median income, and lower rate of college degrees. 83 percent of parents at a school in the Village area of Claremont have college level degrees or higher.

169 Ibid.
170 Ibid.
Conversely, only 34 percent of parents at a school in southern Claremont have college level degrees or higher.\textsuperscript{171}

\textbf{Figure 4.} \textsuperscript{172}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{median_income.png}
\caption{Median Household Income, Percent Hispanic & API Scores}
\end{figure}

\begin{footnotesize}
\textsuperscript{171} Ibid.
\textsuperscript{172} Data taken from the U.S. Census and complied into GIS mapping by Emily Palena
\end{footnotesize}
Furthermore, as shown by figure 4, the school located in the area of Claremont with a population of more than 22 percent Latino and with the lowest median household income has the lowest Academic Performance Index (API)\textsuperscript{174} score. While this correlation is telling, it is important not to associate all high-minority populations with lower-performance schools. In this case, perhaps the lower median household income combined with high Latino population could signify a larger immigrant population. This is corroborated by the higher level of English Language Learners, 15 percent, at said school, which might contribute to lower API scores.

Two of the elementary schools are recognized as Title One Schools. Title One, Improving The Academic Achievement of The Disadvantaged, is a section of the Elementary and Secondary Education Act of 1965 and refers to schools that receive financial assistance due to high numbers or high percentages of students from low-income families to help ensure that all children meet challenging state academic standards. Federal funds are currently allocated through four statutory formulas that are based primarily on census poverty estimates and the cost

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\textsuperscript{174} API scores are a way California measures the success of schools based heavily on standardized testing. A numeric API score ranges from a low of 200 to a high of 1000. The interim statewide API performance target for all schools is 800.
\end{flushright}
of education in each state. Further demonstrating the poverty of certain sections of Claremont, 42 percent of students in the CUSD are eligible to receive free or reduced cost school lunch.

Claremont has a fascinating relationship with schoolyard-based education, marked by enthusiasm from many teachers and administration, an enthusiasm now on the brink of blossoming into something more concrete. Schoolyard-based education in Claremont has a long and inconsistent history. Claremont, like the rest of the country, has put the emphasis of schoolyard-based education on school gardens. Ron Mittino, an active community member, remembers the presence of school gardens as far back as the 1970s.

Rick Cota, the head of the CUSD Nutritional and Maintenance services, recalled that schoolyard-based education really took off around 2009. By that point, most of the schoolyard infrastructure from earlier periods had fallen to the wayside. Outdoor classrooms and gardens that had thrived decades ago in the days of counterculture-inspired education, were nothing more than rotting raised beds overflowing with weeds.

In 2008, Claremont adopted a “Sustainable Claremont” goal, designed to create a greener, more socially just city. To help realize this dream, the non-profit group Sustainable Claremont was launched in 2009. One of the main goals of the organization is to build bridges between the school district and the community. With loud, passionate members like Ron Mittino, the subject of schoolyard-based education and school gardens were once again put on the agenda.

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177 Ron Mittino, Personal Communication with Authors. Claremont, California, March 7, 2013.
178 Rick Cota, Interview with Authors. Claremont, California, March 13, 2013.
Following the creation of Sustainable Claremont, in 2009, Rick Cota and Ron Mittino met with the superintendent of the CUSD to make a concrete and centralized plan to revitalize the garden initiative and integrate it into the curriculum. Cota’s motivation for this work was a “mission for nutrition.”\(^{179}\) He intended for children to understand where their food comes from and build a connection to it. Cota had read many studies citing the correlation between good nutrition and high testing scores. He also believed that working in a garden and understanding the American food system would “put kids more in touch with larger social problems, and get them engaged.”\(^{180}\)

In response to these interests, a position for a garden manager was created for the CUSD. Dessa D’Aquila, an energetic young green thumb, was hired in 2011 to maintain existing school gardens, start them in other schools, and to try to get teachers and the larger community involved in them.

So far, thanks to efforts by D’Aquila, Cota and Mittino, school gardens have been established in all but one school (Sumner Elementary) in the CUSD. However, even with infrastructure in place, Claremont principals like Dave Stewart from Vista Del Valle Elementary hesitate to call their schools, “environmentally focused”, or “green” due to spotty participation from a majority of teachers.\(^{181}\)

In addition to infrastructure and guidance from D’Aquila, community members and college students have established garden clubs at many of the CUSD schools. Many of these programs strive to give college students experience in education and lesson planning, while helping teachers to integrate schoolyard-based education. This can be a valuable

\(^{179}\) Ibid.

\(^{180}\) Ibid.

\(^{181}\) Dave Stewart, Interview with Authors, Vista Del Valle Elementary School, Claremont California, March 11, 2013.
partnership for teachers who are not knowledgeable in schoolyard-based education and do not have the time to research the subject. However, while a wonderful opportunity for the schools and college students, these programs can be problematic. Participating college students are not trained teachers and many times unprepared for the sometimes trying masses of small children, nor are these college educators bound by the same curriculum standards as teachers. Consequently, children have a fun time, but teachers lose time in the day to strengthen children’s knowledge on what they have been assigned to learn.

Claremont needs a more universal stance on and implementation of schoolyard-based education. As Ron Mittino stated in a meeting to promote environmental curriculum, Claremont has been putting its feet in the green curriculum realm and it is ready to jump in.\footnote{Mittino, Personal Communication with Authors. March 7, 2013.}

In an effort to address Claremont’s ready palate, members of the CUSD community are pushing for the integration of the California Environmental Education Initiative (EEI.) The first of its kind in the nation, EEI, is a free curriculum written for teachers to substitute regular standards’ lessons with ones that focus on environmental intelligence. As of now, the state has not mandated EEI, but many districts in California have started implementing the cutting edge curriculum. Nearby, Pasadena and Culver City have fully adopted EEI, and Claremont is in the very beginning stages of getting on the bandwagon.\footnote{Ronnie Java. Personal Communication with Authors. Claremont, California, March 7, 2013.} While EEI would be an excellent step in the direction of environmental education, EEI does not have an outside teaching component. A representative for EEI, Ronnie Java, insisted that EEI

\footnote{182 Mittino, Personal Communication with Authors. March 7, 2013.}
\footnote{183 Ronnie Java. Personal Communication with Authors. Claremont, California, March 7, 2013.}
lessons could easily be implemented in the schoolyard; it is however, not schoolyard-based education.\textsuperscript{184}

Thus, Claremont stands at an interesting point for the adoption of a utilitarian outdoor space; the infrastructure is in place, the administration is largely supportive, and most importantly, teaching resources are becoming widely available. Accordingly, the question becomes, as with the rest of the country: why hasn’t schoolyard-based education taken flight?

**METHODOLOGY**

For the case study of Claremont, we focused on three elementary schools: Oakmont (Outdoor)\textsuperscript{185} Elementary School, Vista del Valle Elementary School and Sycamore Elementary School. These schools were chosen due to their varied geographic locations within Claremont, their socioeconomic placement, and vast differences in available resources among them. Oakmont and Vista del Valle are located in areas with higher Latino populations, Vista del Valle in an area with significantly lower median household incomes, and Sycamore is located in Claremont Village and serves a wealthier, whiter, more homogenous population.\textsuperscript{186} As shown in Figure 6, Vista del Valle and Oakmont has relatively similar populations, while Sycamore has strikingly different demographics: smaller population of Latino students, significantly larger population of parents with college level degrees or higher, and smaller percentages of students eligible for free or

\textsuperscript{184}Java. Personal Communication with Authors. March 7, 2013.
\textsuperscript{185}The school’s official name is Oakmont Elementary, however they have adopted the title Outdoor School to advertise the biome learning program
reduced lunch. We wanted to decipher how demographics play a role in the success of schoolyard-based education.

Figure 6.187

<table>
<thead>
<tr>
<th>Percent Latino</th>
<th>Vista Del Valle</th>
<th>Oakmont</th>
<th>Sycamore</th>
</tr>
</thead>
<tbody>
<tr>
<td>65%</td>
<td>56%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Percent English Language Learners</td>
<td>15%</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>Percent Parents with college level degree or higher</td>
<td>34%</td>
<td>37%</td>
<td>83%</td>
</tr>
<tr>
<td>Percent Students eligible for free or reduced school lunch</td>
<td>79%</td>
<td>63%</td>
<td>17%</td>
</tr>
</tbody>
</table>

We gathered data through interviews with administrators, in which we attempted to understand the support and infrastructure of SYE within the school. Next we conducted intensive interviews with two to three teachers at each school, representing different grade levels. In these interviews we focused on the implementation of SYE and tried to understand individual teachers’ pedagogy of nature and teaching outdoors. We also drew conclusions from observations of lessons and classrooms. A third round of interviews were conducted with two to five students from the class of each teacher we spoke to. The testimony of children’s experience with schoolyard-based education and their personal relationship with nature was vital to our research. Questions we posed to the children we interviewed varied in word choice depending on their age and grade level, but with all questions we tried to make sense of each child’s personal relationship with nature and if, and how, the school was fostering it. The questions posed to students and teachers can be found in Appendix B.

187 Case Study Site Statistics, Information taken from CUSD website.
To synthesize the differing approaches to schoolyard-based education we gathered our data through a series of questions for each school. We wanted to explore how SYE was being utilized, and what infrastructure was available at each school. Next we explored where the motivation to implement SYE was initiated in each school. Then, we analyzed the relationship of SYE to state mandated educational standards. Next, we looked at what concept or definition of nature is being taught. We also examined if the rhetoric of or around Nature-Deficit Disorder was in place in the school. We then looked at the correlation of the school’s demographics with the implementation of SYE. Finally, we analyzed what the barriers to schoolyard-based education were throughout the three schools in order to conclude how to make schoolyard-based education a more viable and widely used teaching and learning tool.

OAKMONT OUTDOOR SCHOOL

Figure 6. 188

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188 Oakmont from Above. Image from Google Earth.
Oakmont, the first location of our case study, is slowly fostering a rich relationship with SYE. To understand the role of schoolyard-based education within Oakmont it is easiest to first examine the examples of lessons and use of infrastructure as explored through interviews with students, teachers, and the administration.

One teacher, in her interview, explained that Oakmont’s commitment to schoolyard-based education could be clearly observed in its self-appointed title: “Oakmont Outdoor School.” The “Outdoor” portion was added to promote and advertise the school-wide biome project. In 2009, Oakmont adopted a plan for each grade level (see table 2) to thematically integrate a specific biome through which to teach curriculum.

At the end of the year each grade would go on a field trip, over nights for the older grades, to their assigned biomes. Of note is the sixth grade focus on Claremont’s native biome (shrubland) where students are introduced to native plants and development’s affect on the biome. The biome project is an ambitious one, for which many teachers do not feel prepared. A teacher of fourth and fifth grade explained that as the material students are expected to master increases with time and grade level, it becomes increasingly difficult for teachers to find time in the day to explore concepts not in the state standards.

Table 2.

<table>
<thead>
<tr>
<th>Kindergarten: Introduction to all Biomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade: Forest Biomes</td>
</tr>
<tr>
<td>2nd Grade: Arctic/Antarctic Biomes</td>
</tr>
<tr>
<td>3rd Grade: Grasslands Biomes</td>
</tr>
<tr>
<td>4th Grade: Desert Biomes</td>
</tr>
<tr>
<td>5th Grade: Water Biomes</td>
</tr>
<tr>
<td>6th Grade: Shrubland Biomes</td>
</tr>
</tbody>
</table>

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189 Kindergarten and First Grade Teacher, Interview with Authors, April 8, 2013
In order to further the biome program, Oakmont has plans to put in a multi-biome learnscape. This learnscape would encourage and enable teachers to teach their biomes outside with physical examples. While a wonderful idea, this biome learnscape is still in the beginning stages of development and it is moving slowly.

Figure 7.

In addition to school-wide programs like the biome project, Oakmont has schoolyard-based education in most classrooms initiated by individual teachers. The kindergarten classes have a garden bed in a separate, fenced-in kindergarten playground. It is a small area, no more than 4 feet by 4 feet, but gave one of the kindergarten teachers the inspiration to create a garden club during school. One kindergarten and first grade teacher, beyond teaching in the garden, also tries to integrate the natural world in her lessons through raising worms, butterflies, and observing the life cycle of plants. The teacher highly praises working outside with her young students, stating that,

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190 image obtained from a member of the biome project at Oakmont
Many children do not understand nature’s cycles and the importance of such ‘icky’ things as decomposition and scary bugs. Raising worms, planting in dirt and learning life cycles and decomposition helps them gain a greater appreciation and respect for the natural world.\textsuperscript{191}

Or as a six-year-old put it, “now, I really like [worms] because they make the trees grow.”\textsuperscript{192} In the low primary grades, several Oakmont teachers are having success integrating lessons about and in the outdoors into curriculum.

A fourth and fifth grade teacher has her class do individual work on picnic benches outside her room and in a small outdoor classroom nestled in rose bushes and wooden benches. Students were very responsive to working outside. One 11-year-old girl stated that her favorite subject is math, partially because the 5\textsuperscript{th} graders were allowed to do their math worksheets outside.\textsuperscript{193}

Additionally, she felt she learned better outside because it was “a new place”\textsuperscript{194} with fewer distractions. The student liked “looking at nature rather than talking to [her] friends.”\textsuperscript{195} Another fifth grade girl spoke insistently about her art class.

\textsuperscript{191} Kindergarten, 1\textsuperscript{st} Grade Teacher, Interview with Authors, April 8, 2013
\textsuperscript{192} Kindergarten Student #1, Interview with Authors, April 9, 2013
\textsuperscript{193} Fifth Grade Student #1, Interview with Authors, April 25, 2013
\textsuperscript{194} Ibid.
\textsuperscript{195} Ibid.
adventures in the outdoor classroom and the “inspiration”\textsuperscript{196} she found there. A different student recalled in great detail the difference of natural light to the projector screen.

At Oakmont, there were differing opinions on where the motivation for schoolyard-based education originates. One teacher felt strongly that there is definitive administrative support of schoolyard-based education. This teacher cited the level of commitment to the biome project from the administration as her reasoning, particularly as the principal makes a point of attending all the biome field trips and overnight trips.

Conversely, a second teacher stated she felt that the principal had “a laser-like focus”\textsuperscript{197} on Oakmont performing well on the state standard tests. Therefore, the teacher felt that while the administration was passively supportive of schoolyard-based education, the infrastructure—such as lesson plans and garden maintenance—was left to individual teachers to organize and maintain.

The way the concept of nature is being taught at Oakmont differs from teacher to teacher and by the age of students. A kindergarten and first grade teacher stated that her SYE pedagogy was “deeply rooted in values,”\textsuperscript{198} meaning she actively tried to instill a sense of care and respect for nature in her students. The way in which her students described their role in nature was very idealistic and broad. When asked what the word nature made her think of, one girl replied, “the world.”\textsuperscript{199} Another student felt a special connection with nature because her family is Buddhist and stated matter-of-factly, “Buddha died in nature,

\textsuperscript{196} Fifth Grade Student #2, Interview with Authors, April 25, 2013
\textsuperscript{197} Fourth and Fifth Grade Teacher, Interview with Authors, April 23, 2013
\textsuperscript{198} Kindergarten and First Grade Teacher, Interview with Authors, April 8, 2013
\textsuperscript{199} First Grade Student #1, Interview with Authors, April 9, 2013
so I feel related to outside." This is perhaps indicative of the developmental stage of four to six year olds, in which it is hard to understand anything beyond the self and home.

Older children in fourth and fifth grades defined nature more in terms of their relationship with it and identified nature with specific experiences. When asked what nature was, two students replied that it was “green,”“lush,” reminded them of science class, and recalled family camping trips. However, these students were unsure of the boundaries of nature. One student was adamant that the steel picnic benches outside their classrooms were “in nature” but that the playground was “a little less in nature because no one stops and pays attention.” Older students were able to be less abstract and more critical about their definitions of nature. Their teacher focused on science and observation during outdoor class time as well as allowing students to work on math outside individually; this focus and critical observation shined through in the students.

Oakmont’s administration has a strong focus on performing well on California state standardized tests. This perceived importance trickles down and causes teachers to feel the same pressure. Teachers and schools are punished if their students do not meet the Adequate Yearly Progress. One Oakmont teacher described the looming terror of “Program Improvement” (PI) in which teachers are shuffled around and curriculum regulation becomes more intensive if AYP scores are not achieved. In order to avoid PI, teachers at Oakmont describe teaching lessons that incorporate as many standards as
possible. One teacher explained this relationship as “it is assessment that drives lessons”\textsuperscript{207}

Another teacher added, “No Child Left Behind has... cut into the time I can carve out for [SYE].”

Since standards-based learning takes priority at Oakmont, SYE is only able to thrive if it can encompass state standards. A kindergarten and first grade teacher felt confident that, “many [kindergarten and first grade] standards can be intertwined with outdoor and nature studies and the products are authentic and meaningful.”\textsuperscript{208} For example, the kindergarten math standard of identifying common geometric shapes can be easily taught outside.

A teacher of fourth and fifth grade stated that integrating SYE into state standards for older children was a challenge but she is hopeful it will get easier with several new reforms. First, she cited the Education and Environment Initiative (EEI)\textsuperscript{209}, as a resource she used to plan lessons outside. The teacher praised EEI saying it is easy to use, her students love it, and that she uses it frequently. She even attends EEI conferences.

This teacher also seemed hopeful that the shift to Common Core standards, as explained in Chapter Two, taking place over the next several years would change the relationship of standards and SYE. Common Core will allow teachers to teach more than one standard at a time and features assessments that focus more on problem solving, which encourages a more integrative approach to teaching. This same teacher felt that a new regime of problem solving and integrative learning would meld well into SYE.

\textsuperscript{207} Ibid.
\textsuperscript{208} Kindergarten and First Grade Teacher, Interview with Authors, April 8, 2013
\textsuperscript{209} EEI, as explained earlier in the chapter
VISTA DEL VALLE

Vista del Valle, the second school in our case study, is marked by impressive garden infrastructure and interest in schoolyard-based education in need of development. Vista del Valle’s campus features a relatively large garden with garden beds filled with succulent vegetables, a patch of sugar cane, bean teepee, and a tranquil outdoor classroom of stump stools surrounding a large, shady tree.

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210 Vista Del Valle from Above. Image taken from Google Earth.
This exemplary garden was started under the former principal of Vista del Valle who, an avid gardener himself, encouraged his teachers to get their students in the garden. Presently, Dessa D'Aquila, the garden coordinator, for the school district, maintains the garden. Weekly, a master gardener comes during the lunch period and interested children can participate in planting, harvesting, small cooking projects, and nutritional-based lessons. Even this minimal time in the garden seems to be having a profound effect on students. Teachers have noticed a change in behavior while children are engaged in the garden. D'Aquila, the garden coordinator affirmed, “teachers came up to me saying, ‘woah, this is my hardest class, I have lots of kids with ADD, but they’re paying attention, asking questions, they’re really engaged.’”

But, despite evidence citing the positive implications of SYE in the Vista del Valle garden, not all children get to participate in the garden.

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211 Dessa D’Aquila, Interview with Authors, March 5, 2013.
Given that the master gardener comes infrequently and the garden club is only available during lunch, only a fraction of students partake. A first grade teacher conveyed that when a survey was given to all Vista del Valle students asking if they would like to be a part of garden club, the response was an overwhelming yes. In response, D’Aquila reminds that the master gardener is an unpaid volunteer and that the school does not have the funds to hire a full time garden teacher. So, she recommends that teachers utilize the garden for lessons, so every child has the opportunity to be outside.

Despite the available infrastructure, the only teacher who appeared to be teaching SYE in the garden was a first grade teacher with prior gardening experience. The first grade class comes out to the garden and does writing projects, science observations, and math lessons, all focused on the garden infrastructure and all standards-based.

In addition to the garden, Vista del Valle has several fruit tree orchards, donated by the organization Uncommon Good. These trees serve to beautify the campus, but no one could quite tell us what was done with the young fruit. The same first grade class that has
lessons in the garden did a fruit tree-pruning workshop, but that is the only evidence that these trees are being utilized for academic purpose.

SYE is taking place in locations other than the garden and orchards at Vista del Valle, although minimally. The same, involved first grade teacher occasionally took her children outside to learn, but mostly limited SYE to the garden. A fifth and sixth grade teacher was very hesitant to take her students outside, even though she cited the many proved benefits of outdoor education. Her students, in the past, participated in the Leadership in Environmental Education Program (LEEP.)

LEEP is a program run out of Pitzer College where college students, one morning a week, teach sixth grade students from several schools across the district environmental science. The classes take place at the Bernard Field Station, a parcel of preserved nature ecosystem where the children explore nature through very hands-on lessons. The participating teacher talked about how much her students loved the program and priceless experience of learning in a native ecosystem. Unfortunately, Vista del Valle’s partnership with LEEP was ended this year by the Vista del Valle administration. The teacher who once participated in LEEP cited the reasons for stopping the program as cuts in the length of the school day and pressure to focus on standards-based lessons.

The sixth grade students also get a unique experience at an overnight outdoor science camp. The students spend three days (cut down from a week) in rustic cabins in the woods learning science outdoors and hiking. Lessons focus on “Leave No Trace”\textsuperscript{212}, environmental stewardship, and hands-on science.

\textsuperscript{212} Leave No Trace: Ethical principles to promote conservation in the outdoors
The fifth and sixth grade teacher whose class participated in LEEP and outdoor science camp valued what the children learned from these programs, but felt since they got the lessons there, she might as well spend more time during school learning things her students will be assessed on- which very rarely allowed for SYE. In an effort to bring a bit of nature to her students, the fifth and sixth grade teacher acquired a Bearded Dragon, a large lizard, as a class pet. Her students wrote research papers on the reptile, but were unable to see a wild one at the Bernard Field Station.

Schoolyard-based education, with a focus on general curriculum and within the school campus is very minimal within Vista del Valle, and this minimal focus on SYE stems from minimal support from inside the school. The garden and orchard programs are maintained through the work of organizations and individuals not directly affiliated with Vista del Valle- namely, Sustainable Claremont, Uncommon Good, LEEP, and the Outdoor Science School. Within the school, the general feeling is SYE takes a backseat to state standards and the pressure to perform well on assessments.

A fifth and sixth grade teacher did not use SYE as much as she would have liked because she found it difficult to work SYE into standards, “Standards have restricted the amount of time we can spend outside.”213 This teacher was animatedly frustrated with the amount of concepts she must cover in the year, “They think, for some reason, that older kids can handle twice as many standards, so there is less time for going outside.”214 She felt that lessons were more involved and took longer outside, so that even lessons she felt comfortable teaching with SYE, such as “Fifth grade science standards, like photosynthesis

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213 Fifth and sixth Grade Teacher, Interview with Authors, April 22, 2013
214 Fifth and sixth Grade Teacher, Interview with Authors, April 22, 2013
and the plant cycle, which can be taught outside” were locked indoors because she did not feel she had the time to go outside.

Even with minimal experience of SYE, students at Vista del Valle felt it improved their learning. One first grade student spoke about her frustrations with always sitting still when learning in the classroom, “inside it not nice, you’re just sitting.” This student went on to talk about how her back gets sore when she sits for too long, another student explained the same phenomena with the term her mother used, “I get ants-in-my-pants.” However phrased, a majority of students agreed that they felt less antsy learning outside and were able to concentrate more effectively.

Two first grade students spoke at great length about why they liked learning outside better. A very eloquent seven-year-old explained her love of learning outside as, “[I] get to physically do things outside.” She went on to say she felt more focused actually doing things rather than when writing. The other student could not recall an example of SYE, so instead he talked about learning at recess. This boy argued that recess was a subject, because he learned new things during it. Like his classmate, this student echoed that he learned best by doing. His example was learning to overcome his fear of going down the big slide during recess- by trying again and again until he was able to accomplish the task. He felt more ownership of his knowledge than “getting an A on my Friday spelling test.”

The support from the administration of Vista del Valle is a complex issue. The previous principal, as stated easier, was very involved in the garden aspect of SYE, a role the new principal is not filling. The new principal, David Stewart, has implemented some

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215 Ibid.
216 1st Grade Student #1, Interview with Authors, April 18, 2013
217 1st Grade Student #2, Interview with Authors, April 18, 2013
218 1st Grade Student #3, Interview with Authors, April 18, 2013
219 1st Grade Student #4, Interview with Authors, April 18, 2013
wonderful new programs more aligned with his interests and values, such as Project Champion, which encourages children to exercise.

He is very supportive of Vista del Valle teachers implementing SYE on campus, but has left the planning to individual teachers. The priority at Vista del Valle, like Oakmont, is to perform well academically, which under the testing regime means performing well on state assessments. Despite this general attitude, the principal is open to infrastructure that would assist in SYE and standards simultaneously. During our research, we sat in on a meeting with Mr. Stewart, members of Sustainable Claremont, and a representative of the EEI curriculum who had come to convince Vista del Valle, and eventually Claremont, to implement EEI. Vista del Valle’s principal was very responsive to EEI and it’s environmental values, citing only concerns about burdening his already overwhelmed teachers. We are hopeful it will start to be integrated into Vista del Valle.
Sycamore Elementary School, the third and final school in our case study, has found a way to integrate SYE in a unique way that focuses on the outdoors as a classroom. While Sycamore does not boast the impressive garden or campus infrastructure, its architecture and landscape design do a fantastic job of creating small outdoor learning spaces away from the hubbub of the playground. The way the buildings are set up, each classroom has access to a small garden plot and outdoor area with picnic benches. In addition, there are small nooks of outdoor space all over the campus.

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220 Sycamore from Above. Image taken from Google Earth.
Students in several different classes talked about their teachers utilizing the outdoor space around their classrooms as extra space for larger activities. A third grade student described a physical spelling game that took place outside. Another student talked about a lesson on telling time with the sun. Each classroom is responsible for its own small garden plot. Some plots are taken better care of than others, but all see some use. A third grade student said his class used their garden plot outside their classroom more for science experiments than gardening; they are growing one tomato plant from the soil and another from a hanging up-side-down box and seeing which grows faster. Another teacher is using vermaculture\textsuperscript{221} to teach her students about decomposition.

Other teachers, similar to Oakmont, used the outdoor space for individual working time. One teacher worked in an English Language Arts standard by having her students write haiku poems about nature while observing plants outside. Another teacher had her sixth grade students go outside and work on a biography project. Partially, these individual projects work well because Sycamore has the mobile technology

\textsuperscript{221} Vermaculture: a form of composting utilizing earthworms
for students to work on Apple i-pads while outside. A teacher conceded, “Students would have a much harder time with pens and paper blowing around.”

Off campus, one teacher’s students get to participate in LEEP. A fifth grade student, whose sixth grade level classmates participated in LEEP, said her teacher taught extensions of lessons half the class had started during LEEP.

The administration at Sycamore is, like the other schools, focused on the academic performance. However, overall, teachers seem less visibly stressed about performing in state assessments. One teacher explained it as, “While more pressure is put on students and teachers to improve test scores, we still work to the best of our abilities to help each child reach their potential and celebrate their strengths.” A different teacher felt Sycamore teachers were able to find creativity in lessons while still performing well, “We still have complete control in what and how we teach. We never had to get the curriculum and turn the page, and everyone be on the same page.” Teachers also felt a sense of individual motivation. Whereas at the other schools only a handful of teachers participated in SYE, a majority of Sycamore teachers were involved. Every teacher we interviewed felt confident and comfortable in teaching standards outdoors. One teacher stated, “We do tons of outdoor investigations relating to science; ecosystems standards for fourth, fifth, and sixth grade tie in, fourth grade social studies standards tie into California agriculture and growing food on campus.” Several at Sycamore felt that integrating SYE was simply part of teaching.

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222 Kindergarten and 1st Grade Teacher, Interview with Authors, April 17, 2013
223 4th, 5th, 6th Grade Teacher, Interview with Authors, April 17, 2013
224 Kindergarten and 1st Grade Teacher, Interview with Authors, April 17, 2013
225 4th, 5th, 6th Grade Teacher, Interview with Authors, April 17, 2013
Students at Sycamore echoed students from the other schools saying they enjoyed learning outside, and in many cases felt they learned better outside. One fifth grade girl stated, “I concentrate more [outdoors]... I feel more fresh.”\footnote{5th Grade Student #1, Interview with Authors, April 26, 2013} Her classmate stated, “outside you get to be more non-careful... That makes me feel more flexible.” Both students felt dexterity when outside, not available to them inside. A third grade boy thought that SYE has changed the way he felt about nature, because he “get to experience it.”\footnote{3rd Grade Student #1, Interview with Authors, April 29, 2013} Another student went on to say, he thought he learned better inside after being outdoors, that he was “more ready to concentrate, because it’s calm and peaceful outside so my mind relaxes and is ready.”\footnote{6th Grade Student #1, Interview with Authors, April 26, 2013} These students had a different understanding of what nature is. One child insisted the quad we sat in was nature, saying, “everything’s a part of nature in its own way”\footnote{3rd Grade Student #2, Interview with Authors, April 29, 2013} A different third grade student felt that nature meant native species. She explained this as, “the playground is sort a nature, but it has redwood trees and they’re native to north California.”\footnote{3rd Grade Student #3, Interview with Authors, April 29, 2013} A second grade boy stated that anything not human-made was nature, but then had a hard time thinking of something totally human-made so settled on “everything is nature.”\footnote{2nd Grade Student #1, Interview with Authors, April 29, 2013} Students at Sycamore were comfortable in nature, and thought of it as both a way to learn and a part of their everyday life.
FURTHER FINDINGS

We anticipated demographics to play a large role in the way SYE was implemented into schools. We focused background research on ethnicity (looking at Latino percentage given that is the major minority in Southern California) and poverty level (by examining the median household income of neighborhoods.)

In Los Angeles County, larger Latino/Hispanic populations usually correlate with lower API scores, as seen in figure 10. However, we found that percentage of Latino population did not correlate with low API scores, as Oakmont and Vista Del Valle both had high Latino populations (56 percent and 65 percent respectively.233) Instead, median household income, and other indicators of poverty (percent of students eligible for free or reduced school lunch and the education level of parents234) had more of an effect on API scores. Although both Oakmont and Vista Del Valle have high Latino populations, Vista Del Valle has a lower median household income and a correlating lower API score.235 Additionally, Sycamore, which serves the wealthiest surrounding area, was able to purchase such supplies as mini i-pads to further aid in SYE, giving their school an advantage.

The one area where ethnicity did perhaps have an effect is which schools were given

232 Data taken from the U.S. Census and complied in GIS mapping by Emily Palena
234 Refer to Figure 6.
235 Refer to figure 4.
infrastructure donations. As mentioned in Chapter Four, the popular rhetoric in school gardens calls for the setting up of garden infrastructure in poor, minority schools. One can see this enacted in Claremont, as Vista Del Valle, the school with it’s population making up the lowest median household income in the district and the highest percentage of Latino students, is the school where outside organizations have stepped in. Where Oakmont and Sycamore have less impressive gardens and grounds, the school community maintains them on a by-need basis. A district employee and volunteers maintain Vista Del Valle’s beautiful garden and the orchard was donated by a nonprofit. This gives Vista Del Valle less of a sense of ownership of their garden infrastructure, as seen by only one teacher fully utilizing the garden for her lessons.

Another interesting finding through our research was that at At Oakmont, Vista Del Valle, and Sycamore teachers, students, and administrators all experienced the benefits of schoolyard-based education. Furthermore, every teacher we spoke to was aware of the academic discourse linking SYE to better learning and improved test scores. It became imperative to understand where the break in the chain was from teachers understanding the benefits of SYE to teaching with SYE.

When asked what the barriers to SYE were, a fifth and sixth grade teacher at Vista Del Valle argued that students had to be acclimated to outdoor learning from a young age or it becomes too distracting and takes too long to switch lessons. She felt that SYE had to be started at an early age. A kindergarten and first grade teacher at Oakmont felt that, “the biggest barriers are time and money.”236 By citing time, this teacher was referring to the lack of time left for other activities after teaching to standards and by money she was talking about the lack of infrastructure that Oakmont has. Other teachers agreed that more

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236 Kindergarten and 1st Grade Teacher, Interview with Authors, April 8, 2013
money or infrastructure was needed to make SYE a success. In a particularly poignant interview, a teacher at Oakmont stated that infrastructure in the form of lesson plans showing how to connect SYE and standards was vital,

“You can show the correlation between outdoor education and academic achievement, but unless you can show teachers a clear path on how to do that, it’s not going to happen”... but if a teacher doesn’t feel comfortable teaching it, and doesn’t know what next step to take, then they’re not going to do it. Until teachers are trained in [SYE] they’re not going to feel comfortable doing it. If we don’t have a roadmap of how to incorporate outdoor education into classroom achievement, that is going to meet the standards, that is going to show up on an assessment, then teachers aren’t going to do it. [SYE is] going to be considered one of the extras.”

An overwhelming majority of teachers we spoke to echoed this sentiment. Not all were completely frustrated with standards, but all agreed more direct teaching training and resources would make SYE more easily accessible for teachers.

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237 4th, 5th Grade Teacher, Interview with Authors, April 23, 2013.
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Conclusions

There is a broad consensus among teachers and scholars that SYE is an effective teaching method. SYE also has beneficial side effects, such as mitigating the current trend of Nature-Deficit Disorder prevalent in today’s youth, promoting environmental stewardship and responsible citizenship. Therefore, we find it to be desirable to incorporate SYE into the national public school education system. In order to achieve integration of SYE on a national scale, we conclude that there needs to be a dual initiative from teachers and from the administration on the local and national level. Furthermore, SYE must be more clearly defined than it is currently in order to have the highest positive impact.

In regards to teachers’ initiative, we have found that if SYE were included in formal teacher education, teachers would be more willing and able to incorporate SYE into the classroom. On the administration side, formal SYE curriculum needs to be adopted, and standards need to be refocused. Standards should either be relaxed, to provide teachers more leeway to be creative with lesson planning, or they should be expanded to pertain specifically to schoolyard related subjects. Both of these administration-based reforms, as well as reforms in teacher training, are called for.

In light of the fact that the beneficial character of SYE is widely accepted by the education field, we wondered why the actual implementation of SYE is so limited. Barriers for teachers include, generally: time, energy, resources (money, curriculum), lack of background and explicit directions for how and when to use SYE. We want to emphasize

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238 As corroborated by teachers at all the case-study schools)
here that desire to use SYE and the awareness of SYE’s effectiveness as a teaching strategy was found in abundance. The “I would if I could” attitude among the teachers interviewed leads us to believe that, if the teachers’ desire was met by the administration with the necessary resources, SYE would be easily and quickly adopted by the majority of teachers in Claremont.

In fact, the SYE curriculum teachers are asking for is abundant, and is already used by some teachers in Claremont. The next step for Claremont, in terms of further integration of SYE, is for the school board and/or school principals to select appropriate SYE curriculum guides and promote them in schools. We found that the main barrier for local school administration in implementing SYE is the culture of high pressure and fear brought on by NCLB’s strict AYP stipulations. The fear of missing AYP prevents local school government from promoting “experimental” teaching strategies such as SYE. Unfortunately, the resultant teaching strategy, “drill-and-kill” which is perceived as the most efficient form of teaching, is, as we have shown, not the most effective. As this is a clearly negative and national trend, we hope that the propensity towards drill-and-kill will soon be replaced with more effective teaching strategies, such as SYE.

Having drawn this conclusion for the Claremont Unified School District, we do not claim that this observation extends to other school districts in the U.S. The barriers to SYE are undoubtedly different in different regions, considering the variability of the actual characteristics of the school and schoolyard from region to region. However, we hope that

\[239\] For example, this curriculum guide used by one of the teachers we interviewed: California Department of Education. A Child’s Garden of Standards: Linking School Gardens to California Education Standards, Grades Two Through Six. (California Department of Education: Sacramento, California) 2002.
the conclusions of this case study can help provide some insight into the implementation of SYE on a broader scale.

In examining the reasons why the National Board of Education has not accepted and promoted SYE, we believe that it has to do with the government’s relatively narrow focus on economic interests in education. The strong focus on math and English language arts (ELA) in NCLB’s goals indicates that the government’s main goal is educating students to join the workforce. Naturally, this is a goal that parents and teachers have for their children and students as well, but unfortunately NCLB’s tight focus on this objective precludes other objectives in public school education. Creativity and self-expression, responsible global and local citizenship and critical thinking are all important parts of education that can fall by the wayside when 100 percent proficiency in math and ELA are the holy grail.

Additionally, the over-politicization of the environmental movement and, by extension, environment-related education constitutes another barrier to be over-come, and SYE likely won’t be nationalized until environmental themes are de-politicized. The shift towards the Common Core standards, mentioned earlier, represents the government’s growing acceptance of the need for critically thinking students. We hope that eventually avenues for SYE will be incorporated into the Common Core standards.

In terms of defining SYE so as to make it as broadly applicable and effective as possible, the definition of SYE cannot remain confined to nutrition based school gardens and, as author Julie Guthman put it, “the unbearable whiteness of alternative food,”240 we see in today’s media. The term “Schoolyard-based Education” should imply use of the

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schoolyard as a second classroom, which is in many cases a more effective learning environment than the indoor classroom. The term should also be more popularly correlated with the wide array of positive side effects, such as attention restoration, support of different developmental stages and enhanced learning, etc., as opposed to just nutrition and health.

The American public school system is ready for schoolyard-based education. The upcoming introduction of Common Core standards illustrates that the upper levels of education administration are ready move to a new education system, which promotes critical thinking and creativity, rather than rote memorization. Awareness surrounding SYE theory prevalent among case-study teachers and administration members, as well as education professors, who were interviewed for this thesis, is encouraging. The growing popularity of school gardens shows that Americans want their children to be spending more time outdoors during the school day. Support from education administration, from teachers and the general population is present in the American climate. It will only take a few seeds planted in the right places, by student, parent, community and education activists, to cultivate a better public school system, a better life, for all American children, through the implementation of Schoolyard-based Education.
APPENDIX A

For educators, staff and students who are interested in implementing schoolyard education in their own schools, we recommend this process, excerpted from Syd Smith’s article Learnscapes. 241

HOW TO CREATE A LEARNSCAPE AT YOUR SCHOOL

All groups present a wish list of how they would like to develop their school grounds and what they would like to be included. This is done after they do an assessment of and become familiarized with the school grounds. You need an accurate outline map of the school before you start. Prepare a set of maps with overlays. This will help in the planning, which will take place later. Maps could include:

• Shadows
• Major traffic flows
• Service lines including water, sewerage, electricity, gas and telephone
• Emotional (how you feel about certain areas)
• Slopes etc.

Each of your groups then prepare `mud' maps depicting their wish list features and where they would appear on the outline map. Discussions, compromises and decisions are then finalized. A landscape architect may prepare a professional final map. With a professional map, funding and sponsorship can be accessed more easily and the plans can then be put into practice.

The whole process has two advantages: First, it is a learning experience for students (and others) to measure, experiment, articulate, sketch and discuss the plan and, secondly, the final product becomes a learning site in itself. This may take some time to complete and may occur over a year or even longer.

benefits:

In a recent evaluation of Learnscape projects in eight schools, Renshaw-Hitchen and Associates made some interesting observations:

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The sustainability of Learnscapes depends on early establishment of a broad-based involvement of stakeholders with clearly articulated roles and responsibilities.

- Public support and involvement of the Principal was recognised as pivotal to the success of Learnscapes. In particular, their ability to encourage the school to feel that the students ideas were of equal value to those of the staff and parents.
- The problem of staff turnover needs to be addressed to ensure the longevity of the project.
- Vandalism had decreased in some schools as the community had increased its level of ownership through their involvement in the Learnscape project.

For help and/or inspiration in designing learnscape curriculum, we recommend Thomas Lord’s *Schoolyard science: 101 easy and inexpensive activities*. The ideas and lesson plans are fun, stimulating, and accessible for almost any school with a patch of green nearby. Lord designed a rubric for building creative inexpensive schoolyard curriculum, which is extremely practical and useful, and can be found on page five of *Schoolyard Science.*

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APPENDIX B

Further Methodology for Claremont Case Study

General questions we asked in the interviews with teachers:
1. Years teaching:
2. Gender:
3. How have you used schoolyard-based education in your class?
4. Why do you use it?
5. What is the general feeling about schoolyard-based education within the school?
6. What are barriers you have encountered trying to use schoolyard-based education in your school?
7. Does your school have outdoor infrastructure (garden etc.) to compliment schoolyard-based education?
8. How would further infrastructure affect your relationship with schoolyard-based education? How would it affect the larger school community’s relationship?
9. What is the relationship between California State standards and schoolyard-based education in your teaching?
10. Are you familiar with California’s 2003 Environmental Education Initiative (EEI)? How have you incorporated EEI into your lessons?
What incentives, or assistance would popularize schoolyard-based education?
How has No Child Left Behind affected your teaching and your classroom?
Why do you teach using environmental themes?
In your pedagogy, is environmental education based in values (valuing the environment, a relationship with nature, etc.) or in hard science?

General questions we asked in the interviews with students:
1. age:
2. grade:
3. What do you think of having class outdoors? How does it make you feel? How is it different from having class inside?
4. Do you notice any difference in your classmates when the class is outside?
5. Do you feel any different before going outside then after you go outside?
6. What are your favorite subjects in school? Why?
7. Has schoolyard-based education affected the way you feel about any classes or subjects?
8. When I say “nature” what does that make you think of? Have your ideas about nature changed by having class outside?
9. What do you remember from your outdoor classes?
A Note On Ethical Research

Given that we were dealing with human subjects, sometimes minors, great care was taken to ensure the safety, comfort, and ethical treatment of our participants. Before beginning to conduct research for the Claremont case study, we received clearance from the Institutional Review Board of Pitzer College, verifying our measures to protect confidentiality, minimize bias, and address general ethical concerns.

Explicit, written approval was given from the principals of each school we conducted research in prior to beginning interviews. Consent was obtained for adults by presenting a consent form to interviewees before the start of each interview, explaining the consent form to them and answering any questions they may have had. For children under 18, a separate consent form and explanation of the research project were sent home with the child from school for the parents to consider at home. Additionally, a third assent form, worded in a way for children to understand, for minors was sent home for the child to consider. The child and a parent or guardian signed separate consent forms (prior to the interview) and the parent/guardian was be given the option, via consent form, to be present for the interview.

To protect participants and their potentially sensitive information strict confidentiality was observed in this study. Adults are identified only if they expressly wish to be, as stated on the consent form given before each interview. Adults wishing to have their names omitted are identified by pseudonyms, unrelated to their actual names or ethnicity. If the adult is a teacher, the grade level they teach is included. The names of children under the age of 18 are always omitted. Children are identified by their grade level and pseudonyms, unrelated to their actual names or ethnicity.
Before commencing the interview process, written permission was obtained from the principal of each school we worked with. Then, we sent an email explaining the project and requesting participation from all the teachers in the elementary school. We only heard back from two to three from each school due to already endless schedules. Once a teacher agreed to participate we visited their classroom and conducted a half-hour interview. Once we interviewed a teacher, we attempted to interview students from their classroom as well. In order to interview minors, we went through the Institutional Review Board of Pitzer College and the CUSD School Board. Once we received permission to interview students at each of the three schools, we sent permission slips and letters of explanation home with students. Parents were explicitly given the option of being present during their child's interview. Only a handful of parents chose to be present, mostly parents of Kindergarteners, during the interview. A few teachers preferred to speak to parents as they picked up their children and to have them sign permission slip then and there in an effort to speed up the process. Out of the near 400 permission slips we sent out, 18 students were interviewed.
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