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Group For the East End: The Role of Childhood Environmental Education in Improving Learning Behaviors and the Health of Humans and the Environment

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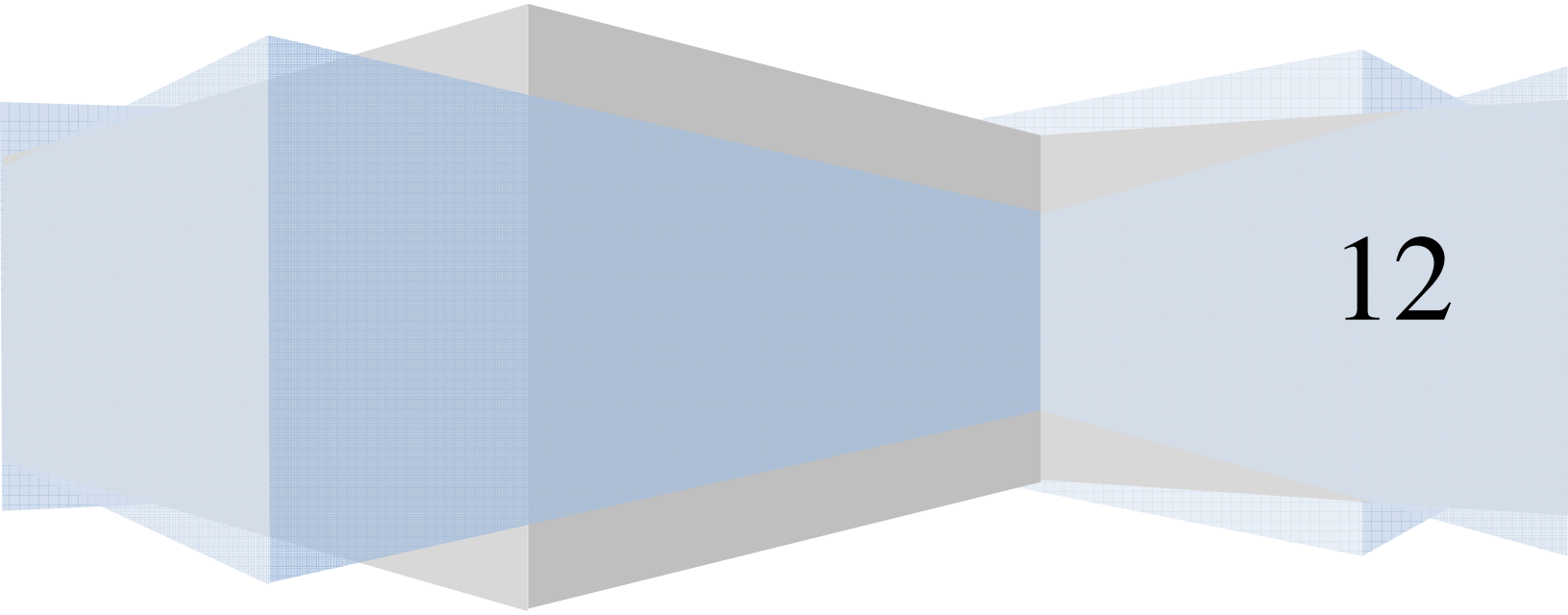

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As far back as I can remember the east end of Long Island has been a favorite vacation destination for my family. Taking a ride "out east" in the spring to pick strawberries and in the fall to fill the trunk with pumpkins were annual events for our family. In the summer months we would visit friends of mine, fortunate enough to own vacation homes on the North Fork, to enjoy a multitude of water sports and beach activities on and alongside the Great Peconic Bay. Yet, beyond these lifelong memories, the aspect which truly amazes me has been the sheer amount of physical change on the east end in just my short lifetime.

My first memories of the east end landscape were of endless farmlands, rows and rows of corn fields and vineyards. It was an immensely rural area, so vastly different from the fully developed suburbs of Nassau County in which we live. There were many wooded areas and untouched natural landscapes along the two lane main road we would follow to our destination. Stores and businesses were few and far between so out of necessity we would pack a cooler of drinks and a picnic lunch to enjoy during our travels. I remember as a child looking out the back window of our car and feeling as though we had ventured for days into the countryside when in reality we had only driven one short hour to the east.

Over the years the countryside has, at first gradually, but with quickening rapidity changed to the chagrin of many long time residents. The two lane highway ballooned into four, including a four lane traffic circle designed to maintain the flow of a profound volume of traffic. The natural wooded lots and open fields have been replaced by strip malls comprised of national chain stores and one too many 7-11s. Fast food restaurants are sprouting at random like saplings and many a corner lot now holds a large drug store or the sparkling new automobiles of car

dealerships. They say change is good, but at what cost to the environment? That is the question many environmental groups are beginning to ask today including the Group for the East End which focuses specifically on the multitude of changes taking place throughout the area.

GROUP FOR THE EAST END

The east end of Long Island, ranging from Riverhead in the west to Montauk Point in the east, is an extremely diverse region albeit a rapidly developing one. From a social perspective, the region is home to both the super-wealthy, upper class citizens including movie stars, musicians and a long list of various others celebrities located primarily in the well-known Hamptons of the South Fork, and the blue collar, home grown farmers of the North Fork carrying on with family traditions as they cultivate acres of farmland dedicated to a wide spectrum of fruits and vegetables. The region is equally diverse in its ecosystems; boulder ridden north shore beaches overlooking the Long Island Sound, dense pine barrens reawakening after a 1990's wildfire, marshy wetlands enveloping inlets throughout the Great Peconic Bay region and of course the sandy dunes and smooth beaches overlooking the Atlantic Ocean on the south shore.

The Group for the East End, formerly the Group for the South Fork, recognized the ecological diversity that this region provided. Located in Southold, Long Island, New York, the Group for the East End is a non-profit organization whose mission it is to, "…protect and restore the environment of eastern Long Island through education, citizen action and professional advocacy." [1] The group understood that these local ecosystems were being endangered by the rapid development of land for both residential and agricultural uses. Following the 1960's, a

[1] "Group for the East End", accessed February 15, 2012, http://www.eastendenvironment.org/

decade in which the Suffolk County population increased by over 60%,[2] the need for environmental regulation and stewardship became clear, and on October 16 of 1972 the Group's formal environmental defense strategies began. Less than two years later, after receiving large monetary grants from private foundations for special projects, the New York State Court system granted the Group for the South Fork 'standing' during a lawsuit in which the Group argued for the protection of tidal wetlands in East Hampton. This was an historical achievement as the Group became the first ever public interest organization to be granted such 'standing' in New York State. Such events allowed the Group to expand quickly in the following years and enabled the group to achieve great success in major environmental cases. For instance, in 1981, the Group urged New York State to require all new development to be clustered away from important natural resources in the towns of East Hampton and Southampton. Not only did the state agree to these terms, but the following year it applied this environmental requirement to all towns throughout the entire state of New York. [3]

For another 10 years the Group for the South Fork worked to establish environmental protection standards for the South Fork of Long Island by working with town, state, regional and even national levels of government. Many successes were had, highlighted in 1988 by the Group's involvement in obtaining the nomination from the United States Congress for the Great Peconic Bay to be included in the National Estuary Program.

In 1992, as the Group continued to bolster its reputation in governmental settings, they decided to branch out into educational practices as well. That year Group for the South Fork

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[2] "Results." *American FactFinder*. U.S. Census Bureau. Web. 22 Jan. 2012.
[3] "History." *Group for the East End*. Web. 22 Jan. 2012. <http://www.eastendenvironment.org/about-us/history.aspx>.

partnered with the Springs School of the town of East Hampton to develop a South Fork based, environmental curriculum. This would be the first of many partnerships throughout the East End school districts, and environmental education would quickly become another major focus of the Group for the South Fork, however the organization did not abandon their conservation efforts.

One of the largest successes for the South Fork region came when the Group led a 200-member coalition of local business, civic and environmental organizations to develop a Community Protection Fund. After a long legal battle, a plan was adopted in which a small transfer tax would be required on certain real estate sales and the money would be used for environmental protection projects throughout the region. The profits raised from this transfer tax would in 10 years amount to over $500 million and would be used to protect 8,000 acres of land. This Protection Fund was extended in 2006 thanks to efforts from both the Group for the South Fork and The Nature Conservancy. The 2% tax will now continue to raise money until the year 2030.

In 2007, the Group for the South Fork expanded its operations to include the North Fork of Long Island as well, becoming the Group for the East End as they are still known today. In its expansion, the Group relocated its primary offices to the town of Southold located on the North Fork. Since establishing themselves as the Group for the East End, much work has been done to preserve land on the North Fork, including creating a Long Island Sound to Peconic Bay natural trail project through the town of Greenport and partnering with the Fish and Wildlife Foundation to put an end to storm water runoff in Mattituck Inlet and other designated wetland areas.[4]

[4] "History." *Group for the East End*. Web. 22 Jan. 2012. <http://www.eastendenvironment.org/about-us/history.aspx>.

Today, the Group for the East End continues to work for the local environment through education, civilian action and advocacy. Recent projects include ecosystem preservation efforts, wetland restorations, area cleanups and persistent involvement in real estate development projects in the East End. Beyond these advocacy and citizen action projects, the Group for the East End has expanded their environmental education program to include multiple school districts, each of which has several individual schools involved. Further, the Group has created a Summer Field Ecology Program (SFEP) which offers week-long programs for children ages 7-15 to continue exploration of natural ecosystems throughout the summer. The SFEP has become so successful that the Group has expanded from its original 3 sessions to 7 sessions per summer, most of which are filled to capacity.

In the almost 30 years that the Group for the East End has existed, maintenance of the environmentally diverse regions of the East End has been successfully addressed by a multi-faceted approach. Continuing with their advocacy beginnings, the Group has been able to prevent increased development from further degrading the natural resources vital to the health of the larger ecosystem. In addition to advocacy work and governmental partnerships, the Group for the East End has garnered local support through community involvement, such as by sponsoring ecosystem cleanups, as well as through its popular school programs and summer field ecology programs. Education, action and advocacy, as stated in the Group for the East End's mission statement, have allowed the Group to successfully protect and restore the natural resources and environment of Long Island's East End.

To describe in greater detail the undertakings of the Group for the East End, it is worthwhile to discuss some of their more recent as well as ongoing projects. Beginning with the first of their three main focuses, advocacy, we can most recently observe the success of October 2011 highlighted by the preservation of 450 acres of land in the towns of Southampton and Riverhead. The Group for the East End worked diligently to preserve a large parcel of land in Southampton Township that was being reviewed for the development of a large subdivision known as The Links. For months, going all the way back to June when I first began my internship with the Group, The Links had been a major focus in almost all of the weekly staff meetings. The advocacy division of the Group spent hours attending town hearings and community forums regarding The Links in order to support the preservation of the large natural ecosystem located in the village of East Quogue in Southampton Town. Citing reasons such as the location of the parcel lying within the Pine Barrens Core and Compatible Growth Areas, which are both protected areas, and, as stated by one of the Group's Environmental Advocates, Jenn Hartnagel, "The parcel known as The Links in East Quogue is a valuable groundwater

recharge area and is adjacent to already-preserved land, making it a prime extension of wildlife habitat and migratory corridors."[5] With consistent opposition to the development of The Links subdivision, the Group for the East End was rewarded with the cessation of the development of 150 acres of untouched land. In that very same month, the Group also applauded the work of both Suffolk County and the Town of Riverhead in the purchase of 330 acres of land that will be designated the North Fork Preserve. While the Group had less of a hand in acquiring this second parcel of land, the result was viewed as a major success for its part in preserving Long Island's East End. The land has now officially been designated a county park, approximately half of which will be used for camping activities, while the other half will be left untouched for 'passive recreation.' Passive recreation permits the creation of hiking trails while still maintaining the natural habitats for local flora and fauna and protecting vital wetland ecosystems, a balance that will become greatly important further along in this essay.

The protection of such vast expanses of land has become necessary for Long Island as the rate of development steadily increases. There are few untouched parcels still remaining, especially as you move from east to west, and it is central that we protect those parcels while they are still available. The Group for the East End, as described in The Links example presents its case for preserving such lands through community involvement at town board meetings and community hearings.

But the Group's mission statement does not stop at environmental advocacy; rather it continues to speak of citizen action and involvement. By this it refers to the type of involvement

[5] Fullam, Kate, "Press Release: A Good Week for Preservation," Group for the East End Blog, October 24, 2011, http://blog.eastendenvironment.org/post/2011/10/24/PRESS-RELEASE-A-Good-Week-for-Preservation.aspx

which entails physical acts of preservation, restoration and rehabilitation by the residents of the area. Supported by volunteers throughout the East End, the Group not only works to inform citizens of the importance of habitat preservation, but gives citizens the opportunity to make a difference themselves. The contributions are great and the results even greater. One of the best examples of voluntary citizen action which sadly has been discontinued in recent years was the annual sponsored clean-up of local estuaries, wetlands or ponds which coincided with International Coastal Cleanup Day on the 19th of September. Each year a group of volunteers would head out to a predetermined habitat and work to remove all of the garbage from the area, one piece at a time. It seems a very simple remedy, but it entails much hard work and determination. Litter collected by the volunteers included everything from bottle caps to kitchen cookware and everything in between.[6]

Plastic bags constituted a major portion of the garbage collected during the event in 2009 and in a way this helps to further describe the Group for the East End. In recent months the Group for the East End, working closely with the local governments have been able to achieve plastic bag bans in the villages of Southampton and East Hampton[7]. Not only is this another example of the group's work in environmental advocacy, but it demonstrates the group's ability to recognize the problems locally and respond accordingly and more importantly, successfully. Hopefully this ban will spread to other towns and villages on the east end in years to come.

Citizens can also volunteer annually with the Group through the Fauna-thon fundraiser. Being a not for profit organization the Fauna-thon is an important fundraiser for the Group and

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[6] Hartnagel, Jenn, "Suffocating Amounts of Plastic Found in Goldsmith Inlet," September 7, 2010, http://blog.eastendenvironment.org/post/2010/09/07/Suffocating-Amounts-of-Plastic-Found-in-Goldsmith-Inlet.aspx

[7] Freedman, Mitchell, "East Hampton Village bans plastic bag use," *Newsday*, July, 29, 2011, accessed January 27, 2012, http://www.newsday.com/long-island/suffolk/east-hampton-village-bans-plastic-bag-use-1.3061197

more specifically the education division. The event allows local residents to team-up during a 24-hour period in an attempt to observe as many native species as possible. The end tally gives those interested an idea of the regions ecosystem health. In order to make this event a fundraiser, the Group accepts monetary pledges before the count begins, for example, an individual might pledge 10 cents for every species identified and physically observed during the Fauna-thon. During the past summer, 12 teams of local residents, each led by an individual with some zoological experience set out and observed 227 different species. One of my first jobs with the Group during the past summer was to compile all of the results of the 2011 Fauna-thon. (See Appendix A).

But the aspect of most importance to me personally, is Group for the East End's environmental education division. Beginning in 1992, the Group for the East End has today formed partnerships with various local school districts and has educated thousands of students in grades K-12 on the diversity of the east end's various ecosystems. The first partnership, which remains intact today, was formed with the Springs School of East Hampton, NY.[8]

Director of Environmental Education at the Group, Mr. Steve Biasetti, has worked with a handful of colleagues in order to create a curriculum which provides school-aged children an understanding of the importance of the natural environment in our everyday lives. The curriculum includes lessons such as "Beaks and Feet", "The Water Beneath our Feet" and "The Great Migration Challenge". Aside from classroom visits, the partnerships with local schools

[8]"History." *Group for the East End*. Web. 22 Jan. 2012. <http://www.eastendenvironment.org/about-us/history.aspx>.

also include scheduled field trips to important ecosystems where children can physically interact with native plants and animals in a fun and educational experience.

The Group is a special organization though, and does not stop for summer vacation just because the school districts do. In addition to education within the local grade schools, Mr. Biasetti has developed the Summer Field Ecology Program in order to give children the opportunity to continue the exploration of their local ecosystems in a week-long, day camp type setting. Many of the regions residents are seasonal, most of whom, as I learned while working with the Group last summer, come from Manhattan. For these children, interacting with these ecosystems can be eye-opening and the experiences are sure to remain with these children for years to come.

Environmental Policy is a strongly interdisciplinary field. The Group for the East End recognizes this and responds by creating their multifaceted approach. The Group, as seen above, combines environmental education theory along with environmental politics and the natural history of Long Island to achieve the biggest impact in policy decision making. These three disciplines work together to create the strongest argument for the preservation and conservation of natural habitats on the East End of Long Island.

SUMMER FIELD ECOLOGY PROGRAM

As an intern with the Group for the East End, the majority of my time was spent working directly with the Summer Field Ecology Program. The program offered sessions for three age groups, each distinguished by a unique name. The Pondhawks were 7-10 year-olds, the Terrapins were 11 and 12 year-olds and the Falcons ranged from 13-15 years old. Over the

course of the summer the Group held seven sessions of the program, each session consisting of four days of exploratory learning. (See Appendix B & C). Each of the four days was dedicated to a different local ecosystem, allowing the children to experience a variety of landscapes, from beachfronts to woodlands and fresh water ponds. For example, during the week of June 17th, we led a Terrapins group of eighteen 11-12 year olds to the estuaries of Northwest Creek, East Hampton on Monday where they were able to explore with nets and tanks for a large portion of the day, then to Barcelona Neck Preserve in Sag Harbor on Tuesday for a day of trail biking and exploration of multiple ecosystems from woodlands to shorelines. Wednesday we traveled to Sammy's Beach, East Hampton with kayaks in order to paddle through the salt marshes toward Three Mile Harbor and its many resident species of crabs and birds such as the double crested cormorant and the impressive great heron. On the final day of the program, Thursday, we traveled to Cedar Point County Park for an extended day of mega-search competitions, scavenger hunts and of course time for free exploration.

Being able to lead these children on such ecological field trips was not only fun and educational for the participants, but for me as well. As a group we made some fascinating discoveries throughout the summer, such as spider crabs measuring a foot and a half in diameter, a small dogfish shark and a snapping turtle weighing in at upwards of fifty pounds. But for all of the fun and educational experiences I was able to enjoy with the children, many hours of hard work were needed to make sure the children were getting the most out of the program. Since the programs ran only once every other week, during the off weeks I spent a large portion of my time in the office prepping for the next full week of activities. Such preparation included creating and editing Mega-Searches and Scavenger Hunt worksheets, (See Appendix D)

compiling the informational folders each student received at the beginning of each program, filing medical forms for each participant and so much more. The informational folders consisted of approximately 25 different handouts containing relevant facts about the areas we would be exploring and the species we might come in contact with. The folders proved to be a very strong supplementary teaching item in that once children left the program they would still be able to continue informed exploration using these handouts. The response we received from parents at programs end gave us proof that these folders were being used often by the participants. (See Appendix E)

When it came to preparing the activities such as the Mega-Searches and Scavenger Hunts, some additional field work was necessary. In order to make sure that the children in these programs could actually make the most of these activities, it was necessary for the educators in the program to scout the ecosystems beforehand and edit the hunts accordingly. Many times such scavenger hunts would need to be greatly revised because from year to year new organisms would appear and disappear from certain areas, a sign of the ever-changing ecological diversity of Long Island's East End.

A typical day for a participant in these programs would consist of about two hours of free exploration of the ecosystem using nets and tanks to observe the native species of the area. For the younger children in the Pondhawks program half an hour was usually dedicated to making crafts using found objects such as

driftwood, rocks, shells, etc. For the older kids, the craft would be replaced by a more physical event such as kayaking or biking. Lastly, each day featured some form of organized exploration, which was usually designed as a competitive activity, such as Mega-Searches or Trail Challenges.

Every activity implemented during the program is designed to serve the dual purpose of educating and entertaining the participants. For example, during the free exploration periods, the children would capture numerous species of fish, crabs, mollusks, amphibians, butterflies, moths, etc. As educators, we would help them to observe their catches and explain to them what each animal was.

More often than not the children could not wait to hold the organism as they learned more about it through a hands-on approach. When the exploration time was up and it was time to move on to the daily challenges such as the mega-searches, the children would be given a list of items to find, usually items that they had already seen in their free exploration periods. This would be introduced as a competitive challenge to the children although it held another purpose in that it reinforced what they had learned earlier that day or previously that week. In a way these challenges were like exams, only the children truly enjoyed studying for them. I am confident enough to say that this type of learning and reinforcement works as well as any classroom lesson plans. In support of this claim; a large handful of the participants that I was able to work with were repeat registrants from previous years. It was evident from the very first day with these specific children that they were learning, learning a lot and most importantly, remembering what they were learning. To retain the knowledge gained during SFEP from one

year to the next speaks volumes about the method of teaching as well as for the teachers themselves. Unfortunately, the Group for the East End is only so big of an organization reaching just a small percentage of children on Long Island's east end. What about the rest of the nation?

REASEARCH

Edward O. Wilson, a renowned entomologist from Harvard University, introduced in the 1890's his 'Biophilia Hypothesis'. In this hypothesis he explained a, "…human sense of connection to nature and other forms of life,"[9] or the idea that humans are born with an innate affinity toward the natural environment; a desire to be within the reaches of natural landscapes in order to experience their beauty and vastness. In the simplest terms the Biophilia Hypothesis states that people, on their most basic level, have a love for the natural environment built into their genes. What has happened to that relationship? Nature has become so overwhelmed by the human species that it seems necessary to question whether or not the Biophilia Hypothesis remains true today. If it does hold true, why do we find ourselves needing to spend substantial amounts of time and money toward restoring the environment and limiting our human impact? If such a connection between humans and the natural environment has always existed, our natural landscapes should not have suffered the severe degradation we have created during the past few decades.

The answer to this issue to me seems quite simple. People have become disconnected with nature. They may still subconsciously hold that Biophilia Complex as described by Wilson,

[9] Neil A. Campbell and Jane B. Reece, *Biology: Eight Edition* (San Francisco: Pearson Benjamin Cummings, 2008) p.1247

but it has been overshadowed by such things as development, technological innovations and consumerism. Studies show that the average American spends more than 95% of their time indoors. Furthermore, 90% of all Americans live in urban areas which are severely lacking in natural landscapes. For those children growing up in such urban areas, studies have shown that many "…develop unfounded fears and feelings of disgust in relation to natural objects."[10] Nature is disappearing from our everyday lives, and this has already begun to cause worldwide problems as can be seen by global warming.

Thus, in order for our human population to protect and eventually live harmoniously with the natural environment we need to rekindle our relationship with nature and return to biophilia. The best way to do this, is to start with the future leaders of the world, our youth. Children are a blank slate. They are not yet overcome by the need for wealth or material objects. They are constantly learning, through observation and exploration, and what better topic to explore than the physical environment which surrounds us. This leads to the thesis that, through direct interaction with the natural environment and by means of such curriculum as that taught by the Group for the East End, children develop improved learning behaviors and healthier lifestyles and our environment gains the appreciation of the future leaders of our planet. Much more of this hands-on, immersive experience, environmental education is needed throughout the United States as a way to improve the lives of future generations as well as the health of our global environment. Many other nations, most notably in Europe, have embraced this form of

[10] Wilson, Ruth A., "Starting Early Environmental Education During the Early Childhood Years," *ERIC Clearinghouse for Science, Mathematics and Environmental Education* 1996, accessed January 27, 2012, ERIC Identifier ED 402147

education already and it has resulted in much more eco-minded political systems greatly superior to our own.

This Summer Field Ecology Program described earlier as a method for teaching and learning fosters creativity, independence and investigative behavior among its participants, something that traditional classroom settings often times do not. This form of environmental education also promotes physical activity in an outdoor setting, something that television, video games and technology in general have severely diminished. Outdoor activity combined with educational programs can be greatly beneficial by helping to lead children not only to developing stronger learning behaviors, but towards living healthier lifestyles as well.

Yet the major issue remaining today is described by Richard Louv as 'nature deficit disorder' in his book *Last Child in the Woods.*[11] A disconnect from nature that has been brought on by an overwhelming reliance on technological advancements as well as increasingly prohibitive laws against creative play within our own backyards. An example presented by Louv is the ever more common prohibition of tree houses in small towns and municipalities across the nation due to the fear of lawsuits if and when an injury occurs. Another example is the refusal of many parents in today's society to allow their children to explore their local environments, especially unsupervised. Louv draws on his own childhood experiences, when he used to walk by himself to the nearby woods to explore, climb trees and overturn large rocks to see what might be lurking underneath. Even more prohibitive is the fact that untouched woods areas have become few and far between as suburban sprawl continues. Most children looking to explore are confined to their backyards, if they even have a natural backyard space to explore, or the local

[11] Louv, Richard, *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder* (Algonquin Books of Chapel Hill, 2008)

town or state owned park to which most children are only allowed to attend under the supervision of their parents. Even those children actively seeking the opportunity to explore the great outdoors are greatly restricted by today's societal problems and the impact they have had on the natural environment. Probably most disturbing is the serious problem that fewer and fewer children still hold any desire to observe the natural environments in which they live. Children have become far too disconnected from their own surroundings due in large part to changing societal values.

One thing of great value to society today is technological advancement. The economy flourishes thanks to advances in computers, machines, communications technology, etc. And while technology is great for improving business efficiency and productivity it has taken over the lives of many teenaged children, and even younger children have sadly become the targets of marketing campaigns by numerous electronics companies. One study done by Amanda Lenhart of the New York Department of Health and Mental Hygiene, interviewed teens ages 12-17 regarding technology, internet connectivity and social networking. According to the study which was completed in 2009, 71% of teens between the ages of 12 and 17 own their own cell phones. This is a 26% increase since 2004 which shows how rapidly the technology is taking hold and the percentages have probably risen in the years since the study was completed. Furthermore, 77% of this same age group owns a video game console, 74% own an iPod or other MP3 player and 60% own their own desktop or laptop computer device.[12] What is more disturbing are reports that mobile telephone companies have now begun to target children in the 8 to 12 year

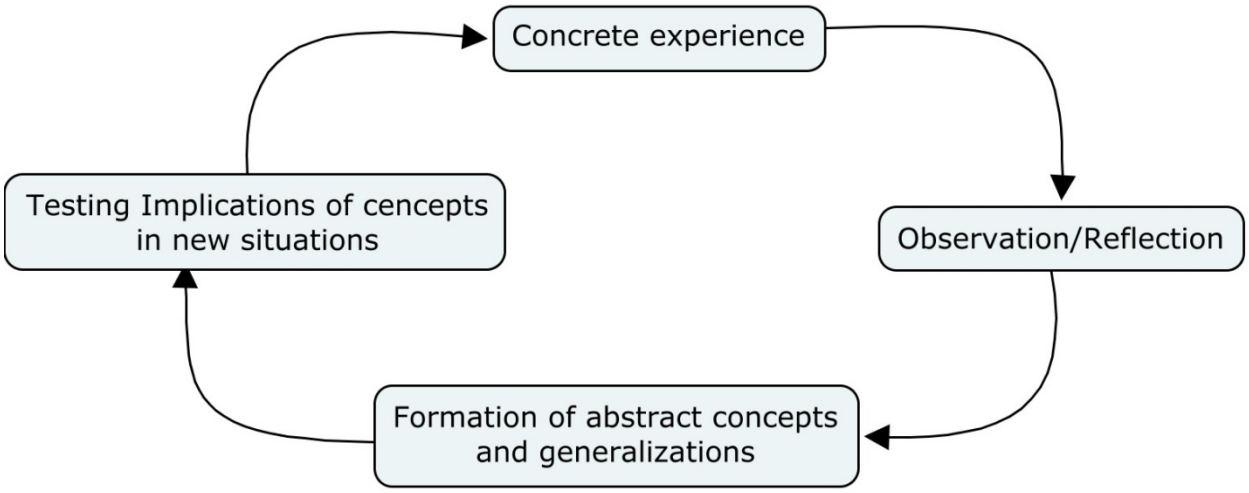
[12]Amanda Lenhart, "Teens and Social Media: An Overview," (PowerPoint presented by New York Dept of Health and Mental Hygiene, 2009)

old demographic. Third grade students have become the primary targets of wireless telephones. "Firefly Mobile, Inc, a new company founded three years ago, launched its Firefly phone for the eight to twelve year-olds. This represents a market of 20 million youngsters, of which only 10% currently have mobile phones."[13] Even Hasbro, one of the largest toymakers worldwide, has recognized the potential of this age group and is targeting a phone designed for the 11 to 14 age group. While from a business standpoint the untapped market may seem inviting, children are becoming more connected to technology every day, the results have shown a steady degradation of the relationship children have with the world in which they live.

While the outlook may seem bleak, there is hope that the negative impact of invasive technology may be warded off by efforts to increase children's exposure to environmental education programs. Some of the greatest benefits of early, childhood environmental education are the learning behaviors the students develop. Ruth A. Wilson describes these behaviors through her two main premises on which she bases her rationale for environmental education. The first premise, which I will return to later is that, "…children must develop a sense of respect and caring for the natural environment in their first few years of life or be at risk for never developing such attitudes." The second premise is that nature related experiences foster the emerging senses of wonder in children. This sense of wonder, explained in great depth by Rachel Carson in her book of the same title, was described previously by Plato as the 'source of knowledge' and much more recently by Edith Cobb in her book titled, The Ecology of

[13]Rose Marie Williams, "Cell phones and children," *Townsend Letter for Doctors and Patients* July 2005, accessed February 5, 2012, http://www.vws.org/documents/3.TownsendCellphonesandchildren.pdf

Imagination in Childhood.[14] This sense of wonder is a learning behavior, one that does not develop in traditional classroom settings through reading and writing, but through outdoor, hands-on experiences. As Wilson states, "Focus on 'experiencing' rather than 'teaching'."[15] Children learn best through experience, trial and error, observation. The Lewinian Experiential Learning model shown below gives the simplest, and in my own opinion the best, summation of the theory that learning through experience, as is done in environmental education, is the most beneficial method toward developing valuable learning behaviors.



The model explains that concrete experiences, the type which children are given access to during the Group for the East End's programs, form the bases for observation and reflection. This analytical thinking by the child then allows the creation of a theory from which new suggestions for action can be developed. Lastly, the child is able to implement these actions in the next occurrence of said experience to refine their previous observations and create new

[14] Ruth A. Wilson, *Fostering a Sense of Wonder During the Early Childhood Years* (Columbus, OH: Greyden Press, 1993)
[15] Wilson, Ruth A., "Starting Early Environmental Education During the Early Childhood Years," *ERIC Clearinghouse for Science, Mathematics and Environmental Education* 1996, accessed January 27, 2012, ERIC Identifier ED 402147

experiences.[16] This model is a trial and error course of sorts, for children to learn in a way that they will enjoy. It provides children the opportunity to learn what they want to learn, in the way they want to learn it as opposed to being taught specific pieces of information. Children are able to teach themselves through experience, and this experience is then reinforced by educators instead of being introduced by educators first.

The Lewinian model can be further simplified as a stimuli-response driven learning model. Yet often with such a model, people tend to see only a one directional process. For example in the case of environmental education, people tend to believe that the stimuli provided by the environment cause a change in human behavior as a response. On the contrary, human behavior can undoubtedly be the stimuli for a change in the environment, an environmental response, something that is becoming ever more prevalent in the global warming and climate change debates.[17]

Adults too are becoming less and less in tune with the environment and if this course remains steady future generations will see even further decline in human - natural environment relations. As of the 2000 United States census information, 79% of the nation's 222 million plus people lived in urban areas.[18] One of the problems with such a large percentage of the population living in urban areas is the lack of access to nature. New York City for example is described by many as a 'concrete jungle', and it's for good reason. Only 27% of the entire New

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[16] D.A. Kolb, *Experiential Learning: experience as the source of learning and development* (Englewood Cliffs, NJ: Prentice Hall, 1984) http://www.learningfromexperience.com/images/uploads/process-of-experiential-learning.pdf

[17]D.A. Kolb, *Experiential Learning: experience as the source of learning and development* (Englewood Cliffs, NJ: Prentice Hall, 1984) http://www.learningfromexperience.com/images/uploads/process-of-experiential-learning.pdf

[18] U.S. Census Bureau, 2000 Census of Population and Housing, Population and Housing Unit Counts PHC-3, <http://www.census.gov/prod/cen2000/index.html

York City land mass, including all five boroughs, is open land. The definition given by the New York City Department of Planning regards open space as, "…public parks, playgrounds and nature preserves, cemeteries, amusement areas, beaches, stadiums and golf courses."[19] Yet by this definition, areas of natural environment make up even less of New York City's land area. Stadiums, playgrounds, amusement areas and cemeteries, in terms of this argument, do little to reconnect residents with the natural environment. And the effect of the urbanization of our nation, among very many other factors, has led to a steady decline in the health of our planet.

Environmental education at an early age would help to slow this decline in the short run, and hopefully end such degradation in future generations. During the Summer Field Ecology Program, many of the registrants are full-time residents of Manhattan, used to the pavement and overall gray landscape that defines their neighborhoods. Yet a summer on the East End introduces them to a whole new atmosphere, where they can hear, see, feel, smell and sometimes even taste our planet Earth in its natural, mostly untouched state. Even Central Park cannot compete with the landscapes and ecosystem diversity of the East End.

This introduction to the natural environment can help preserve the health of our planet in a big way. Children are the future leaders of our nation and need to learn the importance of the natural environment for humans. Living in urban areas with little access to the natural environment, as well as living in an age of great technological advancement, does little to foster this relationship between humans and the environment. Children and adults alike for example, have lost all sense of where the food they eat comes from… other than the local supermarket.

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[19] "New York City Land Use," New York City Department of City Planning, accessed February 17, 2012, http://www.nyc.gov/html/dcp/html/landusefacts/landusefactshome.shtml

How is the food grown, who harvests the crops, are there harmful pesticides used on this food? These are all questions that are immensely important to both the health of humans and the health of our environment. If adults today cannot regain a closer relationship with the natural world, it is in the hopes of environmental educators worldwide that children will be able to grow up and eventually lead our nation with an environmental conscious. And such hopes are not far from reality.

Environmental education, beyond developing beneficial learning behaviors in children as discussed previously, can help to develop pro-environmental behavior as well. Many hundreds of studies have been done in an attempt to discover what factors lead one to eventually behave pro-environmentally unfortunately most such studies come back with inconclusive, yet noteworthy results. But in the search for a more concrete answer, Anja Kollmuss and Julian Agyeman have attempted to compile all such results and frameworks from previous studies with the plan to determine the major factors in developing pro-environmental attitudes and behaviors in humans. According to Kollmuss and Agyeman, our daily environmental decisions and actions are shaped by many conflicting and competing factors. It is important to note that Kollmuss and Agyeman clearly state that they see no direct relationship between environmental knowledge and pro-environmental behavior, but rather that a combination of external and internal factors help to develop sustainable mindsets. "We see environmental knowledge, values, and attitudes, together with emotional involvement as making up a complex we call 'pro-environmental consciousness'."[20]

[20] Anja Kollmuss & Julian Agyeman, *Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?* (2002) Environmental Education Research, 8:3, 239-260

To elaborate on this conclusion, Kollmuss and Agyeman give brief descriptions of what each of the above terms mean. As stated, these researchers do not believe environmental knowledge has a significant relationship on developing pro-environmental knowledge but they do agree that at least some extent of understanding of the negative environmental impacts of our actions is necessary to even consider developing pro-environmental behaviors. Building off of this, they also agree that highly specialized or technical knowledge will neither increase or decrease pro-environmental behaviors in individuals.

In the study it was determined that attitudes can also indirectly effect our relationship with pro-environmental behaviors. As the example points out, people who believe that technological advancement and growth will be able to most easily and most completely solve environmental problems will be largely less likely to make personal sacrifices toward developing pro-environmental behaviors. On the other hand those people holding the attitude that technology will only get us so far will be more willing to develop and eventually act on environmentally friendly behaviors.

By far though, the piece of the puzzle that plays the largest role in developing strong healthy environmental behavior is our values. Kollmuss and Agyeman reference another study done by Louise Chawla, in which she interviewed numerous professional environmentalists in order to determine what they attribute as influences on their decisions to become environmentalists. Below are some of the findings, responses from the environmentalists, listed in order most to least attributed influence:

- Childhood experiences in nature
- Experiences of pro-environmental destruction
- Pro-environmental values held by the family

- Pro-environmental organizations
- Role models (friends or teachers)
- Education[21]

At this point, with this data, I believe it is important to connect back to the environmental education programs developed and implemented by the Group for the East End's education sector. Of the six influences attributed by environmentalists, five can be witnessed directly in the Group's Summer Field Ecology Program. To begin, childhood experiences in nature are the foundation of SFEP. Full days are given to the exploration and observation of local natural ecosystems. Pro-environmental values held by the family are greatly prevalent for the registrants of the program seeing as many of the parents and guardians of these children are also members, and annual donors to the Group for the East End. It is also important to realize that these parents encourage their children to attend SFEP even though there are entirely recreational camps offered throughout the area in addition to the increasing popularity of specific sports oriented camps. Pro-environmental organizations should need no explanation as the Group for the East End is exactly that and its staff is full of role models. The employees are the best role models these children can have because they love what they do and bring excitement to the field of environmental education. And lastly, the final influence, mentioned often by today's professional environmentalists, is education. The Summer Field Ecology Program, as well as the in class visits during the school year, offered by the Group for the East End is an environmental education program. It is designed to teach, to inform and to excite children about the natural

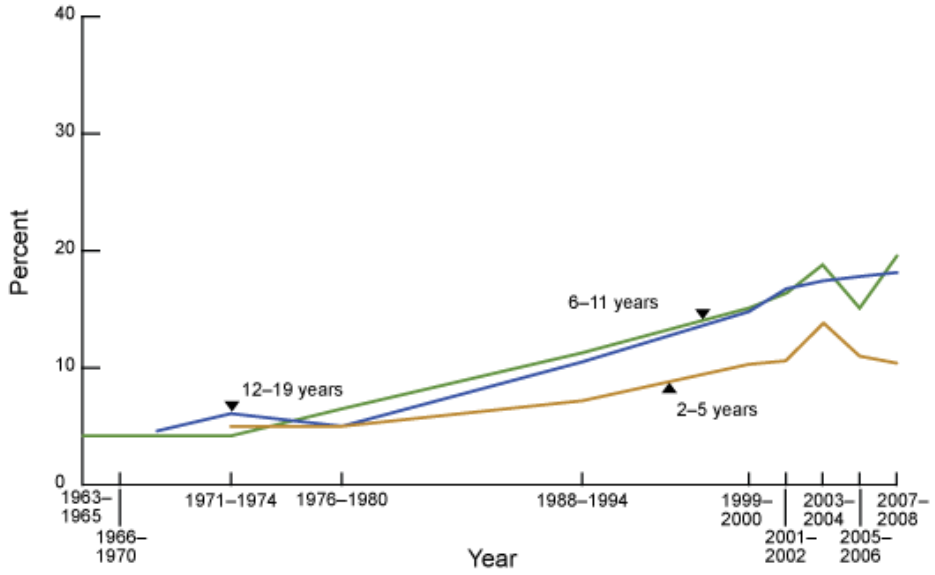
[21] Anja Kollmuss & Julian Agyeman, *Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?* (2002) Environmental Education Research, 8:3, 239-260

environment and it does this through the values as compiled by Chawla. The Group for the East End, one child at a time, is creating pro-environmental behaviors in the future leaders of our nation. If these values influenced numerous people beforehand to become professional environmentalists then this is exactly what is needed to ensure a healthy environment for generations to come.

Yet the benefits of environmental education of course do not stop there. Yes, such education practices lead to improved learning behaviors and can lead to pro-environmental behaviors as well, which plausibly will aid in the conservation of a healthy earth for generations to come. But environmental education helps to reduce another major problem with our society today, one that many may not immediately, or for that matter ever, relate with education. This problem is human health, specifically obesity cases among our nation's youth.

According to the Centers for Disease Control and Prevention, "The percentage of children aged 6–11 years in the United States who were obese increased from 7% in 1980 to nearly 20% in 2008. Similarly, the percentage of adolescents aged 12–19 years who were obese increased from 5% to 18% over the same period."

Figure 1. Trends in obesity among children and adolescents: United States, 1963–2008



NOTE: Obesity is defined as body mass index (BMI) greater than or equal to sex- and age-specific 95th percentile from the 2000 CDC Growth Charts.
SOURCES: CDC/NCHS, National Health Examination Surveys II (ages 6–11), III (ages 12–17), and National Health and Nutrition Examination Surveys (NHANES) I–III, and NHANES 1999–2000, 2001–2002, 2003–2004, 2005–2006, and 2007–2008.

The CDC also gives very simple preventative measures for obesity cases, "Healthy lifestyle habits, including healthy eating and physical activity, can lower the risk of becoming obese and developing related diseases."[22] Once again we are faced with behavioral problems. Children have become accustomed to the society we have created, and we cannot blame them for that. Children as discussed earlier are being put in contact with technology at a much earlier age and because of that are developing much more stationary and indoor oriented lifestyles. The ever growing number of fast food chains in all neighborhoods, urban and rural alike, are making unhealthy foods ever more accessible and economical for the fast paced lifestyles of many families with multiple children. These behaviors are contributing to the national occurrence of obesity rates that has tripled in the past 30 years.

[22] "Childhood Obesity Facts," Adolescent and School Health, accessed March 2, 2012, http://www.cdc.gov/healthyyouth/obesity/facts.htm

How does environmental education aid in eradicating this decline in human health? One study, titled Healthy Parks Healthy People was developed in 2002, compiled over 200 literature sources from ecological to psychological studies indicating that, "human health benefits of contact with nature could not be overstated." In addition the conclusion of the study compiled evidence that viewing nature can improve stress related problems, improve job satisfaction, aid community cohesion and increase disease prevention among many other things.[23] As the CDC stated, healthy lifestyles habits are comprised of physical activity and healthy eating. Environmental education of the type developed by the Group for the East End promotes much physical activity. Full days are dedicated to being outdoors and walking, running and swimming through ecosystems. For the older children in the program, days are even dedicated to biking and kayaking the local terrain. From personal observation, children enjoy this physical activity and if given the opportunity to partake in such activities, would willingly accept, but as has been stated, many of those opportunities have been trumped by the appeal of technology. So too have those opportunities been made impossible without proper supervision because of the depletion of open parkland and the dangers of our society. Richard Louv retells the story of a young student in his book Last Child in the Woods:

> "She was one of those exceptional children who do still spend time outside, in solitude. In her case nature represented beauty - and refuge. "It's so peaceful out there and the air smells so good. I mean, it's polluted, but not as much as the city air. For me, it's completely different there," she said. "It's like you're free when you go out there. It's your own time. Sometimes I go there when I'm mad - and

[23] "Healthy Parks Healthy People Evidence," Healthy Parks Healthy People Congress. Accessed May 11, 2011. http://healthyparkshealthypeoplecongress.org/why-attend/healthy-parks-healthy-people-evidence

> then, just with the peacefulness, I'm better. I can come back home happy, and my mom doesn't even know why."
>
> The she described her special part of the woods.
>
> "I had a place. There was a big waterfall and a creek on one side of it. I'd dug a big hole there, and sometimes I' d take a tent back there, or a blanket, and just lie down in the hole, and look up at the trees and sky. Sometimes I'd fall asleep back there. I just felt free; it was like my place, and I could do what I wanted, with nobody to stop me. I used to go down there almost every day."
>
> The young poet's face flushed. Her voice thickened.
>
> "And then they just cut the woods down. It was like they cut down part of me."[24]

No longer in our society are the experiences such as that described by the young girl easily accessible and all we have to show for it is a decline in our younger generation's health.

Environmental education, by way of its heavy reliance on outdoor exploration, can reverse the health problems that inactive, technology-centered values produce for our children. It promotes a safe form of physical activity while also educating children and developing positive behaviors in those children. Obesity rates in children are undoubtedly climbing and physical activity is a must in such cases. To get an idea of the importance of this issue, we can observe the National Football Association's well advertised Play 60 campaign which encourages children to get outside for at least an hour a day in order to maintain a healthy lifestyle.[25] The Group for the East End's Summer Field Ecology Program gets participants outside from 9 to 3 four days of the week. Children are enthused to get outside and explore and whether they realize

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[24] Louv, Richard, *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder* (Algonquin Books of Chapel Hill, 2008)

[25] "Play 60: The NFL Movement for an Active Generation," National Football Association, http://www.nfl.com/play60

it or not they are developing positive lifestyle behaviors, beneficial learning behaviors and pro-environmental behaviors all the while.

CONCLUSION

Environmental education is something new. It is rarely a part of the standard curricula imposed by many school districts, especially here in the United States. But it is important and the Group for the East End has recognized its importance. We have reached a point in society at which advocacy has become limited in what it can achieve towards the betterment of our natural environment. There are many dangers to our environment that we are solely responsible for creating and as a population we have become reliant on such dangers. An example may be the destruction of previously untouched ecosystems to make way for residential or commercial zoning. By removing say a wetland ecosystem to build a new Home Depot we have greatly degraded the health of more than just that wetland; we have hurt the water cycle by no longer providing a means of natural water filtration, we have hurt species diversity and potentially migration patterns and in the long run we may have hurt human health as rain water becomes contaminated by chemicals in the parking lot in turn damaging surrounding environments and contaminating human drinking water. It is profound how what may seem as such a minor change in the grand scheme of things can really lead to much more devastating consequences over time.

Advocacy can prevent some of this development, but often times support for projects overwhelms the relatively small pro-environmental groups. Environmental education on the other hand, although it will take time, can eradicate this sort of development as our children eventually become the leaders of our society. Introducing children to the wonders of our

environment at an early age instills in them the attitudes, values and behaviors necessary to redevelop a healthy relationship between humans and our environment in the coming generations.

This paper explains the benefits environmental education at an early age can have for both the children and the environment. As stated earlier, environmental education of the type offered by the Group for the East End helps to develop more beneficial learning behaviors in children. Exploring ecosystems and being allowed to observe natural occurrences relatively unobstructed by educators helps children develop investigative behaviors. It helps to enact the Lewinian Model in which children experience some interaction, make observations about such experience, and then form on their own, abstract concepts about the interaction which they can retest at the next occurrence of the experience. Children learn best through physical experiences and environmental education relies heavily on such interactions.

Beyond developing learning behaviors, the children will often develop pro-environmental behaviors as well which over time will lead to a healthier environment for all to enjoy. To reiterate research presented previously, many of today's environmentalists attribute their career choices to early environmental education and to experiences in nature at a young age among other factors. The Group for the East End's programs, both in the summer and during the school year, offers both of these aspects. Children learn about ecosystems and their importance and then the children get to experience those ecosystems on their own. It is not to say that all children who participate in environmental education will become professional environmentalists in the future, but hopefully most will always retain their childhood experiences with nature and hopefully maintain a connection to the environment for the rest of their lives. This connection

will help to ensure that our environment will be in good hands come future generations and that negative human impacts will be reduced.

Lastly, environmental education, especially that of the out-of-classroom variety helps to improve human health both long and short term. For one it gets children active, especially those enrolled in the Summer Field Ecology Program, by allowing them time to explore the natural landscapes of their hometowns on their own. This promotes healthy, physical activity, the type encouraged by many national movements, just one example being that of the NFL's Play 60 campaign. In the long term environmental education helps to improve human health because human health and environmental health share a fairly direct relationship. As environmental health degrades, leading to more pollution, contamination, etc, so too does human health. Going along with the development of pro-environmental behaviors, environmental health will likely improve as more and more children exposed to environmental education grow into the leaders of our society and nation. As this environmental health is restored, human health will likely improve as well. There will be less pollution, less contamination of drinking water from harmful pesticide use, etc.

Environmental education can be a hugely beneficial form of teaching. It does not solely teach children concrete facts about species and ecosystems; it also demonstrates the human relationship with the environment and promotes beneficial behaviors in our future leaders. The Group for the East End, the small, non-profit organization on Long Island, is making huge strides in all aspects of their work; advocacy, citizen action and education. The Group should be seen as an exemplary model for other organizations nationwide in order to rekindle in our society E.O. Wilson's biophilia.

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