AN INVESTIGATION OF AN ENVIRONMENTALLY CONSCIOUS AFTERSCHOOL PROGRAM ON STUDENTS' ENVIRONMENTAL LITERACY

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ABSTRACT

This study investigated an environmentally conscious afterschool program, Art in the Afternoon, and its impacts on students' environmental literacy (EL). The goal of environmental education (EE) is to create EL citizens but EE has encountered barriers when attempting to incorporate into public school curriculum. Afterschool programs are on the rise. These programs offer flexibility and the ability to change student behavior. Afterschool programs could be a vehicle for EE and the development of EL citizens. In this mixed methods study, baseline EL scores were collected for both students and parent/guardians via surveys. From these surveys, the family units were grouped based on their scores. Parents/guardians were selected randomly to interview about the impacts Art in the Afternoon had on their child/children. Results showed that students were bringing home environmental behaviors such as recycling and reusing material. These behaviors were being modeling by Art in the Afternoon instructors and as a result impacted the students' EL. However, if the program had followed the NAAEE *Guidelines for Learning* and incorporated all strands of understanding, the students could potentially deepen their level of EL.

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CHAPTER 1.

INTRODUCTION

Background

Environmental challenges are constantly emerging worldwide. Climate change, species extinction, over population, water quality and conservation, and deforestation are just a few issues that have been given media attention throughout the past few decades. Awareness of environmental concerns has been growing through learning and action (Bruyere, Wesson & Teel, 2012). With increased understanding of learning and action, the public is gaining power to respond to environmental crises and more environmentally literate (EL) citizens will continue to keep the trend moving in a positive direction (Simmons, 1991). Building EL in children is critical to meeting current environmental challenges (Stevenson, Peterson, Bondell, Mertig & Moore, 2013).

In 1977, the environmental education (EE) movement created goals and objectives that promoted environmental literacy. The field gained momentum with the first intergovernmental conference on environmental education organized by the United Nations Education, Scientific and Cultural Organization (UNESCO, 1978). The Tbilisi Declaration (1978) was adopted and established broad goals for environmental education.

EE has better defined environmental literacy since this time and environmental literate citizenry is a main goal of EE (Disinger & Roth, 1992; McCrea, 2006). The public school system has been utilized as one of the primary avenues for EE and training students to be EL. Many studies have been conducted investigating EE and public schools (Christianson, 2004; Dresner, 2002; Ernst, 2007; Glenn, 2000; Lieberman & Hoody, 1998). However, many

limitations have been identified using public schools for the main training ground for EL (Cutter-Mckenzie & Smith, 2003; Ham & Sewing, 1988; Pedulla, Abrams, Madaus, Russell, Ramos & Miao, 2003; Simmons, 1998; Volante, 2004; Young & Simmons, 1992). Since the research clearly documents that teachers face many barriers to implementing EE into the curriculum, a non-formal way of influencing environmental literacy may offer a potential solution to increasing EL to the general public. One solution could be afterschool programming.

Afterschool programs are on the rise. Statistics show that with parents working full time, 8.4 million children are in afterschool programs (Afterschool Alliance, 2009). Over the past 15 years, there has been a dramatic expansion in the range of high quality, engaging afterschool programs (Peterson, 2013) and research shows that turning "non-school" hours into "learning hours" can provide experiential, hands-on learning opportunities that are difficult to offer within the public school system (Peterson, 2013).

Given the barriers of infusing EE in to public schools (Cutter-Mackenzie & Smith, 2003; Griffith & Scharmann, 2008; Ham & Sewing, 1988; Pedulla et al, 2003; Sacks, 2000; Simmons, 1998; Young & Simmons, 1992; Volante, 2004), the potential number of students entering afterschool programs (Afterschool Alliance, 2009) and the need for EL (Disinger & Roth, 1992; NAAEE, 2010; Stevenson et al, 2013), afterschool programs could be a significant vehicle for the advancement of EL. Therefore, the purpose of this study was to look at an afterschool program as a potential tool to impact afterschool students' environmental literacy. The question driving this research was: Does an environmentally conscious afterschool program impact afterschool students' environmental literacy?

Definitions

Environmental Education (EE) - "EE is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work towards their solution" (Stapp, et al, 1969, p. 34).

Environmental Literacy (EL) - "Someone who, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the well being of other individuals, societies, and the global environment; and participates in civic life" (NAAEE, 2010, p. 2). For the purpose of this study, the Campaign for Environmental Literacy's 5 essential components, awareness, knowledge, attitudes, skills, and action were also used to measure EL (Campaign for Environmental Literacy, 2007).

Environmentally Conscious- "an individual who engages in a wide range of pro-environmental behaviors as well as holding certain values and attitudes that different theories have associated to this type of conduct" (Sanchez & Lafuente, 2010, p. 732).

Afterschool Programs- "an array of safe, structured programs that provide children and youth ages kindergarten through high school with a range of supervised activities intentionally designed to encourage learning and development outside of the typical school day" (Harvard Family Research Project, 2008, p. 2).

CHAPTER 2.

Literature Review

Developing environmental literacy (EL) in children is critical to combat current and emerging environmental issues (Bruyere et al, 2012; NAAEE, 2010; Simmons 1991; Stevenson, Peterson, Bondell, Mertig, & Moore, 2013). Environmental education (EE) has been successful in advancing EL but faces limitations and barriers within the public school system (Cutter-McKenzie & Smith, 2003; Ham & Sewing, 1998; Simmons, 1998; Volant, 2004; Young & Simmons, 1992;). Afterschool programs are emerging as a platform to advance learning and promote behavioral changes (Afterschool Alliance, 2009; Durlak & Weissberg, 2007). Quality afterschool programming can take fresh approaches to EE, which leads to EL (Afterschool Alliance, 2009). Therefore, without the restraints of the public school system, afterschool programs may be able to offer students opportunities to broaden their EL.

The Need for Environmental Literacy

Developing EL in students is critical to meet changing environmental issues (Stevenson et al, 2013). Changing the trend of environmental degradation will require an environmentally literate citizenry (NAAEE, 2010; Simmons, 1998; Stevenson et al, 2013). EL citizens should have the skills and knowledge that is necessary to confront emerging and existing environmental concerns (Stevenson et al, 2013). There has been little research that shows how EL is formed (Blumstein, 2010; Stevenson et al, 2013).

While further research is needed to address the formation of EL, the Campaign for Environmental Literacy outlines 5 components of EL in the form of a ladder. It is designed to be a loose hierarchy from the simple to the more complex, each building on the step below (Campaign for Environmental Literacy, 2007). The ladder begins with general awareness, and

then progresses to knowledge, attitudes, skills and finally action (Campaign for Environmental Literacy, 2007). According to the Campaign for Environmental Literacy, EL cannot be achieved without all steps of the ladder. The environmental education movement, whether using the above 5 components or a similar idea, aims at producing an EL citizenry (Campaign for Environmental Literacy, 2007; Disinger & Roth, 1992; NAAEE, 2010; Stevenson et al, 2013).

Measuring EL in young children has been accomplished through surveys. The Hard Bargain survey was utilized to measure elementary school students' attitudes toward nature and the environment at Hard Bargain Farm Environmental Center in Accokeek, MD (Campbell, 2013). The Thorn survey tool that was developed for the Thorn Nature Experience in Boulder, CO (Renga, 2012) has also been used to address the awareness, attitudes and action components of EL.

Environmental Education leads to Environmental Literacy

In the 1960's, environmental issues were on the rise and awareness and relationships with nature were less than desirable. Dr. William Stapp and his students at the University of Michigan formally developed a definition of EE. In the late 1970's, the first intergovernmental conference on environmental education organized by the United Nations Education, Scientific and Cultural Organization (UNESCO). As a result, the Tbilisi Declaration was adopted and established goals environmental education (UNESCO, 1978).

More recently, the passage of the National Environmental Education Act of 1990 exemplified the nation's effort to boost the field of EE. The act created the Office of Environmental Education under the Environmental Protection Agency. The National Environmental Education Act has contributed to the foundation of EE by enhancing quality programs and resources (McCrea, 2006).

The National Project for Excellence in Environmental Education, sponsored by the North American Association of Environmental Education (NAAEE) developed *Excellence in Environmental Education- Guidelines for Learning (K-12)* (North American Association for Environmental Education, 2010). This multi-year program offers guidelines to integrate EE into the school curriculum. NAAEE *Guidelines for Learning* mirror the Campaign for Environmental Literacy's essential components.

The NAAEE *Guidelines for Learning* allow for the development of environmentally literate students. According to the NAAEE, "the ultimate goal of environmental education is the development of an environmentally literate citizenry" (NAAEE, 2010, p 3). The guidelines are organized into strands each of which represents an aspect of environmental education's goal of environmental literacy. Each strand can function independently, but in order to reach environmental literacy, one should demonstrate mastery of each strand (NAAEE, 2010). Due to the NAAEE's work in the field of EE the focus of EE has changed from EE to EL and furthered the goal of creating an environmentally literate citizenry.

Advancing EL through the benefits of EE

Research shows that EE is beneficial to children. Students who are exposed to EE perform at higher levels on standardized tests as well as in regular classroom activities in all subjects (Ernst, 2007; Glenn, 2000; Lieberman & Hoody, 1998). EE has been found to increase student engagement, enthusiasm, interest, and knowledge (Christenson, 2004; Dresner, 2002; Ernst, 2007; Glenn, 2000; Lieberman & Hoody, 1998). In addition to these findings, Chawla's (1999) study found that direct experience with nature as a child through lessons taught by a prominent adult, inspiring teachers, and memorable field trips can have significant influences on an individual's environmental attitudes and behaviors. In more current research, Chawla (2014)

has found that EE should (a) have extended duration, (b) be place based and relevant to children, (c) actively involved in learning and action.

A study conducted by Christenson (2004) found that elementary school student's environmental vocabulary improved and they developed critical thinking skills when exposed to EE. A kindergarten teacher, in this same study, described incorporating environmental literature into her lesson, which helped students reach their reading benchmarks. Environmental education is by its very nature interdisciplinary, it can help students meet the high standards set by the traditional school disciplines (Simmons, 1998).

Dresner (2002) conducted research based on a 6-week summer research experience for teachers held in the Pacific Northwest. Ninety percent of the participating teachers brought their field based, hands-on learning experiences back to their students and the following was reported: (a) Students had a greater appreciation for the environment and a heighted sense of stewardship. (b) Previously unenthusiastic students showed high levels of excitement about science. (c) Students talked about their experience outside of the classroom and at home. (d) Students felt more successful in science. (e) Students learned about science on a deeper level. Spending time in nature during a field based experience impacted students student's views of science and the environment. Given the fact that a goal of EE is to create environmentally literate citizens, increased exposure to EE and time in nature may increase the EL of students (Louv, 2005; Chawla, 1999).

Barriers to EE in Public Schools

Although there are many positive outcomes of EE in the public schools, research has shown that the public school system has had barriers established that hinder the subject (Cutter-Mckenzie & Smith, 2003; Griffith & Scharmann, 2008; Ham & Sewing, 1988; Pedulla, Abrams,

Madaus, Russell, Ramos & Miao, 2003; Sacks, 2000; Simmons, 1998; Volante, 2004; Young & Simmons, 1992) .

The studies described above have shown that the public school systems have been used as a vehicle for meeting EE goals that could lead to EL. Additional studies have identified barriers and legislation as reasons that EE has not taken root as a regular subject within the public schools.

The No Child Left Behind Act (NCLB) was signed into law in 2002, requiring all elementary students be tested annually from grades three through eight, with the public release of results. Schools that fail to meet Adequate Yearly Progress (AYP), as reflected in mandated improvements in test scores, are labeled as failing (Volante, 2004). NCLB has expanded testing and toughened standards for schools, teachers and students (Volante, 2004). Teaching to the test often utilizes worksheets, drills, practice tests and similar simple practices that consume large amounts of classroom time (Sacks, 2000; Volante, 2004).

Pedulla et al (2003) while researching teachers' feelings about testing, found that teachers and students are pressured to turn out high test scores. Other findings within this study found that teachers felt pressure to spend more instruction time on tested subject and less on instruction on non-tested subjects such as fine arts, physical education and foreign language (Pedulla et al., 2003). Less time was devoted to other activities, e.g., field trips and enrichment programs (Pedulla, et al., 2003). Teachers were less inclined to participate in non-testing activities as they were pressured to improve test scores (Pedulla, et al., 2003; Volante, 2004). Overall, this has led to less time being devoted to the science curriculum and EE related field trips since the standardized testing movement has been put in place (Griffith & Scharmann, 2008).

Teachers have difficulty in integrating EE lessons into their curriculum (Ham & Sewing, 1988; Simmons, 1998; Young & Simmons, 1992). Ham and Sewing (1988) conducted personal interviews with elementary teachers to identify and determine the relative importance of barriers to EE in public schools. Results indicated that lack of time, both in the school day and for preparation, was the most important barrier. Other important logistical barriers identified in this study were lack of instructional materials and lack of funding. Conceptual barriers included a nearly exclusive focus on science and an emphasis on the cognitive aspects of EE. Another barrier stemmed from teachers' misgivings about their own competence to teach EE. According to teachers, they tend to view EE as only fitting into the realm of science, making it difficult to fit into curriculum (Ham & Sewing, 1988). Contrary to teachers' beliefs, EE is considered to be interdisciplinary (UNSECO, 1978). The guiding principles listed in the Tbilisi Declaration (1978) state that EE, "be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective" (UNESCO, 1978). Although teachers, in this study, generally had positive attitudes toward EE, most lacked the commitment to actually teach EE (Ham & Sewing, 1988).

Prior research also indicates that public school educators may not have sufficient knowledge and training to effectively use environmental education in their teaching (Cutter-Mckenzie & Smith, 2003). Inadequate environmental knowledge leads to a lack of confidence on the part of the teachers (Cutter-Mckenzie & Smith, 2003; Ham & Sewing, 1998). The University of Maryland's Survey Research Center (2000) found that "lack of relevance to curriculum" and "too much other material to cover" were the dominant reasons why teachers did not implement EE into their daily lessons.

Since the formal educational system has barriers when it comes to incorporating EE into the curriculum, afterschool programs that do not follow the same guidelines may allow more freedom for the integration of EE. Afterschool programs could potentially be an avenue to increase EL in students.

After School Programs

After school programs offer strategies to expand learning opportunities to our nation's youth. Peterson (2013), who looked at the importance and opportunities for leveraging afterschool and summer learning, found that the power that afterschool programs have to engage children in quality learning experiences is effective and growing in numbers. There are approximately 8.4 million students active in afterschool programs (Afterschool Alliance, 2009) and these programs that were once regarded as daycare or a safe place for students to go after the academic day, have morphed into enriching learning opportunities for students (Peterson, 2013).

Little (2009) explored the role of afterschool and summer learning programs in supporting student success, examined how to bridge the divide between out-of-school time programs and schools by offering research-derived principles for effective expanded learning partnerships, and found that well-designed and implemented afterschool programs in mathematics increased mathematic test scores, grades, school attendance and student engagement in learning. A report by the Afterschool Alliance (2011) looked at effects of after school programs on how students perform in the classroom. Successful afterschool programs also tend to have significant effects on students at risk of failing in core subjects or dropping out of school (Afterschool Alliance, 2011; Little, 2009).

Positive results have also been found in afterschool programs that focus on literacy (Rasco, Cheatham, Cheatham, & Phalen, 2013). An afterschool program in New York City,

Urban Arts Fresh ED, used hip-hop as a way of developing literacy, critical thinking, and test preparation skills. They used student's interest in hip-hop dancing to increase synthesis of information, analytics of texts and performance on standardized assessments (Rasco et al, 2013). In 2012, 130 students who had previously failed their U.S. and Global History Regents exams at least once participated in Fresh Prep and successfully retook the exam and passed, increasing their scores by an average of 19 points (Urban Arts Partnership, 2013). If positive results were accomplished in literacy through afterschool programming, the same results could be experienced with environmental literacy.

Afterschool programs do not only allow students extra time to work on academics but also offer different modes for supporting, reinforcing, and accelerating learning (Parsley, 2013). Parsley (2013) while evaluating mathematics in afterschool programs, found that when there is an academic goal in mind, afterschool programs have the power to obtain the goal and improve student's learning. Successful afterschool programs have been noted to meet specific goals. EL could be the goal that was reinforced through afterschool programs.

Not only do after school programs improve academic scores but they have been found to change behaviors as well. A study conducted by Durlak and Weissberg (2007) using a meta-analysis of a group of studies found that, youth who participate in afterschool programs improved significantly in three major areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. More specifically, after-school programs succeeded in improving youths' feelings of self-confidence and self-esteem, positive feelings and attitudes toward school, positive social behaviors, school grades and achievement test scores (Durlak & Weissberg, 2007).

While these programs enhance learning, they do not have to follow the same curriculum guidelines that traditional schools are mandated to follow. This allows more freedom in the way subjects are taught and the varying programs that can be offered. Afterschool programs allow students to delve deeper into their learning because they have the flexibility to encourage more active and hands-on learning (Givens, 2013). Therefore, afterschool programs are not subject to the same barriers that are encountered in a traditional school setting when attempting to implement EE.

Environmental Education in Afterschool Programs

An Issue Brief published by the Afterschool Alliance (2009) reported that afterschool programs are at the forefront of the EE movement. Afterschool programs provide creative environmental programming that enhances academic achievement and boosts the physical and emotional health of students (Afterschool Alliance, 2009). Several states are taking new approaches to incorporating EE through quality afterschool programs. The Heritage Project in Woodlake California allows 2,500 students K-12 to participate in environmentally-focused afterschool programs. Many students in this district do not have the opportunity to explore the outdoors and 85% are eligible for free and reduced lunch (Afterschool Alliance, 2009; National Education and Environmental Partnership, 2002). In the afterschool programs students participate in classes and activities that combine learning with recreation and exercise such as river ecology studies, hiking, kayaking, and meeting with park rangers. Nearly three-quarters of the students in the district participate in the program (Afterschool Alliance, 2009; National Education and Environmental Partnership, 2002).

Research gathered in this study has found that the program has increased test scores in both language and math, decreased behavioral problems in the classroom and increased the

number of parents engaged in the classroom (Afterschool Alliance, 2009; National Education and Environmental Partnership, 2002). Afterschool programs have long been used to keep children safe and to assist working families. Research shows that they can do more than that. They provide an ideal platform to teach children about the environment and to give them access to the outdoors. Afterschool programs can be used to bolster the learning that occurs in the traditional school day and give students' opportunities to increase EL, physical activity, and hand-on learning (Afterschool Alliance, 2009).

The freedom of curriculum and the power to change behavior may make afterschool programs a useful avenue for EE to embrace. EE's goal of environmental literacy could be spread through afterschool programs, reaching the millions of students that participate in these activities.

CHAPTER 3.

METHODOLOGY

The purpose of this study was to look at an afterschool program, Art in the Afternoon, as a potential tool to impact afterschool students' environmental literacy (EL). Stephanie Sulzman, director of the program, believes the program has an active impact on the students' environmental behavior through teacher modeling and art expression. This study was based on a definition of an environmentally literate person as "someone who, both individually and together with others, makes informed decisions concerning the environment; is willing to act on these decisions to improve the well being of other individuals, societies, and the global environment; and participates in civic life" (NAAEE, 2010, p. 2). The students in Art in the Afternoon are asked to take action and participate in positive environmental behaviors as part of their daily routine within the program.

This exploratory study used a mixed methods approach (Creswell, 2009). Qualitative data was collected through interviews with parents/guardians. Quantitative data was collected through surveys of the students and parents/guardians. Collecting both qualitative and quantitative data strengthened the validity of the study as each method supports the other (Creswell, 2009). Both methods have their limitations, but by using quantitative (surveys) and qualitative (interviews with parents/guardians) methods (Creswell, 2009). Quantitative data was collected to get a baseline EL while the key information was gathered from the qualitative interviews.

Participants

This study was conducted with students and parents/guardians from Art in the Afternoon, an afterschool program that services the needs of students and families from Black Mountain,

NC. The majority of the students go to public school at Black Mountain Primary and Black Mountain Elementary schools. The afterschool program is open to all students in the area in grades K-5 regardless of the school they attend. The students attending the afterschool program are ages 5 to 10. There were 64 students in Art in the Afternoon when the research began in the fall of 2014 (S. Sulzman, personal communication, October 3, 2014). All students enrolled in the spring of 2015 that had parent/guardian consent participated in the study. Students that had not been granted consent and parents/guardians that did not give consent did not participate in the study.

Art in the Afternoon

Art in the Afternoon is an art-based afterschool program with direct methods related to environmental consciousness. The program was started in 2008 to fulfill the need for quality afterschool programming in the Black Mountain area. Art in the Afternoon is currently run by two female instructors; one with a background in arts education and the other with a BS in conservation ecology. Both instructors believe in the importance of modeling positive environmental behaviors and incorporate nature and environmental messages in their art projects.

> "The biggest influence that we have on children is in our actions. We can talk to them about the environment all we want, but the only way that it will have an impact on them, is if we live it each day. In our classroom we have a recycling container, compost, many reuse boxes, found objects, and a trash can (the last resort can!). We teach them each day where their waste goes and why. When we create art, we use many things that would otherwise be discarded in the trash. The kids learn to make something out of nothing. We sometimes create art that has the message of ways to take care of the environment. These pieces of art would be meaningless if they were not already doing these types of things in their lives somehow. When kids get their hands on recycled materials and pieces, and then create something meaningful from it, they will take that memory with them into the future. I have had many parents tell me that kids are now saving things from the trash, either to make something, or to get it in the recycling. They no longer see certain items (such as bottle caps, twist ties, metal scraps, or glass) as junk, but rather vehicles for creating art" (S. Sulzman, personal communication, November 14, 2014).

During the program, students are encouraged to create art projects using recycled and reused materials, and to express positive feelings towards the earth. For example, the students are asked to participate in an art contest sponsored by RiverLink, a local environmental organization dedicated to keeping the areas waterways free of litter. The students create drawings with an important message about the environment. Drawings from past years have included, children hugging the earth, fighting pollution or spreading the word of earth stewardship. Recycling, composting, reusing and a general sense of stewardship are practiced on a daily basis. The Art in the Afternoon teachers consider their student's work as "art with an important message" (S. Sulzman, personal communication, October 3, 2014).

While Art in the Afternoon is not an environmental education program, the emphasis on environmental stewardship is prevalent throughout the art lessons. Modeled by instructors, students take an active role in exploring the environment and outdoor play. Each day of the program, the students are given one hour or more of unstructured time outside after the art lessons conclude. At that time, the students have access to a playground and a limited supply of equipment (balls, bamboo poles, Frisbees, hula hoop and sidewalk chalk). The students are free to make their own choices about how they are going to spend their time outside. While the students are able to enjoy free play, the instructors constantly supervise and the students are aware that there are physical boundaries in which they must remain.

Research Design

This exploratory study used a sequential explanatory mixed methods approach (Creswell, 2009). Using a mixed method approach offered the researcher greater insight into the impacts of Art in the Afternoon on EL (Creswell, 2009). A multi-stage model was used as surveys were

conducted at one level to gather quantitative results and interview were conducted to explore information from specific individuals (Creswell, 2009).

Quantitative data were collected from students and parents/guardians using surveys administered to both. Each family was assigned a number: this protected the anonymity of the participants and insured that names would never be associated with the answers. The parent/guardian and child used the same number, so that the student and parent/guardian answers could be matched.

The student survey was a combination of two previously tested surveys, the Hard Bargain and the Thorn Nature Experience (See Appendix B). The Hard Bargain survey was utilized to measure elementary school students' attitudes toward nature and the environment at Hard Bargain Farm Environmental Center in Accokeek, MD (Campbell, 2013). The Hard Bargain program attempts to increase student's comfort in nature, desire to spend time in nature and create environmental stewards. The survey was originally created as a pre and post data collection and measured the program's effectiveness.

The Thorn survey tool was developed for the Thorn Nature Experience in Boulder, CO (Renga, 2012). The purpose of the Thorn Nature Experience is to build earth stewardship by connecting youth to nature. This survey was originally designed as a pre and post data collection tool. The survey would give the Thorn Nature Experience insight into the students' connection to nature and earth stewardship practices. Together, questions from these surveys will address the awareness, attitudes and action components of EL.

Parents/guardians were given the 2000 National Environmental Education Training Foundation (Coyle, 2005) survey that measures environmental attitudes, knowledge and action (See Appendix C). This survey was created to gather information from US citizens in hopes to

advance the field of EE and inform other important environmental efforts around the country (Coyle, 2005).

Personal interviews were conducted with the parents/guardians to better answer the research question as to whether or not the program impacted the students (See Appendix D). The following questions were asked:

1. What are the qualities that you like about Art in the Afternoon?
2. Are there any qualities that you don't like about the program?
3. How do you think Art in the Afternoon affects your child?
4. What are some general comments your child has made about Art in the Afternoon?
5. Do you think there are any behaviors that your child exhibits that you think are influenced by Art in the Afternoon? If so, what are they?
6. Do you think your child has done the following because of Art in the Afternoon: recycle, participate in clean-up days, reuse materials, play outside, talk about caring for the environment?

Data Collection

Stage one. The data were collected in three stages. The first stage included administering the EL survey to the students that were granted parental/guardian consent. The purpose of this stage was to collect baseline data on the EL of students in the Art in the Afternoon program. EL was measured by awareness, attitude and actions according to the Campaign for Environmental Literacy's (2007) essential components of EL.

A consent letter was sent out to parents/guardians outlining the study and asking parental permission for their child to participate (See Appendix A). This letter included consent for the parents/guardians to participate as well. The letters were distributed during the hours when the program is in session and given directly to parents/guardians when they picked up their child/children. Parental/guardian signatures were required for students to participate in the data collection via surveys. Teachers verbally informed the students of the study during classroom time. If a parent/guardian did not allow their child to participate, these students were not

included in the data collection. Demographics were collected during the time of the initial surveys.

The researcher attended the Art in the Afternoon program during program hours and worked with students to complete the survey tool. The students completed the tool in a one-on-one session with the researcher. This was due to the young ages of the participants; some did not have adequate reading ability. The researcher read the statements on the survey aloud to the participants and then asked for the students to point to the smiley face that best described their feelings about the statement. The researcher then recorded each answer. The researcher administered the survey over several months as to allow for each participant to complete the tool.

The tool used statements from two surveys used and tested in prior studies. The Hard Bargain survey was utilized to measure students' attitudes toward nature and the environment at Hard Bargain Farm Environmental Center in Accokeek, MD (Campbell, 2013). The survey was created for a pre/post design study but for the nature of this investigation it was only administered to gain an understanding of the student's EL levels through awareness, attitudes and action (See Appendix B).

Sample questions from Hard Bargain Farm Environmental Center (Campbell, 2013)

- I like spending time outside.
- I prefer to spend my free time inside, not outside.
- I feel comfortable being outside.
- If I could, I would spend more time outside in the future.
- If I could, I would like to visit a river or go on a hike in the future.
- I try to reduce, reuse and recycle whenever possible.
- I think about how much trash I throw away.
- When I throw my trash away, I think about how it affects where I live.
- I am willing to pick up trash in my neighborhood.
- I am willing to get my friends to help pick up trash in my neighborhood.

The Thorn survey tool was developed for the Thorn Nature Experience in Boulder, CO. The original survey contained three main sections to better understand sense of place, willingness and interest in spending time in nature, participant's connection to nature and their interest Earth stewardship (Renga, 2012). Several questions from Section A, Part 1: Ecological Place Meaning which was developed based on a scale by Kudryavtsev, Krasny and Stedman (2012), was used in the survey. The final questions were selected from Section A, Part 2: Willingness/Interest in Spending Time in Nature (Renga, 2012). These questions addressed the awareness and attitudes components of EL.

Sample questions from the Thorn Nature Experience in Boulder, CO (Renga, 2012)

- My schoolyard is a place for exploring nature.
- My schoolyard is a place to watch birds and other animals.
- My schoolyard is a place where there are many kids of plants.
- My schoolyard is a place to learn about nature.
- My schoolyard is a place to enjoy nature's beauty.
- My schoolyard is a place to do nature art projects.
- I look forward to spending time in nature.
- I like exploring nature with my friends.
- I like going to parks or natural areas with my family.
- I like spending time outdoors by myself.

According to the Campaign for Environmental Literacy (2007), there are five essential components of EL- awareness, knowledge, attitudes, skills and action. The first survey (Hard Bargain) that questions were chosen from will provide the researchers with information on student's awareness, attitudes and action. The second survey (Thorn) addresses awareness and attitudes. For the purpose of this study, since knowledge is not a component addressed the afterschool program, the knowledge component was not measured. Grading knowledge would have greatly varied due to the wide range of ages and grade levels of the students in the afterschool program.

Each student rated each item on a Likert-type scale using faces that the students pointed at (Campbell, 2013; Likert, 1931). To calculate a score on the scale, each face was given a numerical number from 1 – 5 (left to right). Then a total score (sum of rating on each item) was calculated for each student. After the data was collected and scores calculated each student was assigned a group; based on the summative score (high EL score 110-81; middle EL score of 80-51; low EL score of 50-22).

Stage two. The second stage of the study was comprised of a parent/guardian survey. The purpose of this stage was to have baseline data on the EL of parents/guardians in the study.

The parents/guardians that gave consent, were given the 2000 National Environmental Education Training Foundation (NEETF) survey, which measured environmental attitudes, knowledge and action. This survey was created to explore the status of adult American's environmental knowledge in order to understand environmental literacy in the United States (Coyle, 2005). The survey was created by social scientist and educator, Lynn Musser. Musser designed questions about subjects that the public was likely to have heard about through the media, and pre-tested more than 50 such questions with focus groups to screen out confusion and bias (Coyle, 2005).

The survey administered for the purpose of this study was comprised of 16 questions (Appendix B). The survey questions was reviewed by a panel of experts, 3 environmental science professors, to determine if any of the items should be thrown out, or any added, as several years have passed since the creation of the NEETF survey. The survey was scored and each parent/guardian received a percentage score. The scores were compared to the national average score on the survey in order to distinguish a high or low score.

The survey was sent home to parents/guardians with an information/consent letter attached during student pick-up. Parents/guardians that gave consent completed the survey on their own time and delivered it to the Art in the Afternoon instructors. The surveys collected by the Art in the Afternoon instructors were placed in an envelope supplied by the researcher. The collected the surveys as they were completed.

Stage three. In stage three the researcher conducted interviews with the selected parents/guardians that completed the NEETF survey. The purpose of this stage was to gather parent/guardian perspectives on the impact of the Art in the Afternoon program on their child or children. The questions (Appendix C) ranged from program effects to general parental/guardian observations. Each question was created by the researcher for the purpose of drawing out information regarding parent/guardian observations of their student's personal experience within the program.

The parents/guardians completing the interview were selected using a stratified sequential purposeful sample, proportionate to the number of students per grade level and proportionate to the high, medium and low EL scores of students (Creswell, 2009). The proposed grid for selection of parents is provided below (Table 1). The interviews were conducted with a percentage of parents/guardians of family units that fell in each category.

Table 1

Sample Table: Group of family units based on student EL and parent/guardian EL

Students → **Parents ↓**	**High**	**Medium**	**Low**
High			
Low			

The researcher conducted the interviews at the Carver Center, which is home to the Art in the Afternoon program. The interviews were conducted individually when parents/guardians came to collect their child/children.

Data Analysis

Stage one: student survey. Each student rated each item on a Likert-type scale using faces (Likert, 1931). To calculate a score on the scale, each face was given a numerical number from 1 – 5. Negative statements were rescaled in order for the scores to correctly represent the student's feelings. For example, "I prefer to spend my time inside, not outside" would be rescale to give a correct representation of the students' attitude. A total scale score was given to each participant to determine high, med and low environmental literacy. The highest score on the scale could be 110 and the lowest 22. Therefore the range is 110 – 22. The scale was arithmetically divided into thirds to get the arbitrary scores for high, med and low EL. Therefore the arithmetically determined scores were ranked as follows: high EL-110-81, medium EL-80-51, low EL- 50-22.

Stage two: Parent/guardian survey. The parents/guardians that gave consent took the NEETF survey and were assigned a score based on percentage correct. Their scores were

compared to the national average (57.8%) in order to rank high EL or low EL. Since the scores were compared to the national average, the proposed high EL scores were a priori set as above 57.8% and the low scores were set a priori to be considered as any score below 57.8%.

After both parents/guardians and students completed the survey, the scores were used to group the participants to determine which parents to interview. By using a stratified sequential purposeful sample, the researcher attempted to have equal representation from each group (Creswell, 2009). Samples of high parent/ high student, low parent/high student, low student/high parent and low parent/low student were selected. The selected parents/guardians completed the parent/guardian interview with the researcher. An equal number of parents/guardians from each group were selected to interview with the researcher. An a priori % from each group was set at 50%.

Stage three: Parent/Guardian Interviews. The researcher interviewed the parents/guardians separately and recorded their answers. A representative sample from each group of parents/guardians was selected to complete the interviews based on the stratified sequential purposeful sample (Creswell, 2009). The interviews were conducted and recorded by the researcher. Descriptions from the interviews were analyzed, compared to the High and Low EL parent and student scores.

Data Analysis of Qualitative Data/Interviews

Emergent data was recorded and results were determined. The reoccurring themes were obtained from the interviews and coded to create categories. For example, "Art in the Afternoon has influenced my child to recycle" was be coded as RECY (recycling). To account for qualitative reliability, an intercoder was used (Creswell, 2009). Twenty percent of the data was coded by the intercoder and given to the researcher to account for the accuracy of the findings.

Results were then rank ordered by frequency mentioned. For example, if a parent/guardian was asked how Art in the Afternoon affected their child and they stated that the child often reused materials for another purpose, which would be recorded as REMA. This would be recorded as one REMA. Environmental themes and the frequency used were investigated for each questions in order to see if Art in the Afternoon had an effect on EL.

CHAPTER 4.

RESULTS

Demographics

Students and parents/guardians from Art in the Afternoon, an afterschool program located in Black Mountain, NC, were surveyed to investigate an afterschool program as a potential tool to impact students' environmental literacy. A total of 64 students attended the afterschool program during the time of the study. Of those students, some attended every day while others attended once or twice a week.

A convenience sample of 64 student surveys and 50 parent/guardian surveys were disseminated at the Art in the Afternoon program. Out of the 64 students attending the program, 60 students had parental/guardian consent and completed the survey orally with the researcher (n=60). One student did not complete the survey due being overly distracted during the interview. Three students did not complete the survey due to lack of consent or inability for the researcher to make contact with the students. Of the 60 students that did complete the survey, 26 were female (43%) and 34 were male (57%).

Out of the 50 parents/guardians with children attending Art in the Afternoon, 27 completed the surveys, providing a 54% response rate. Twenty parents/guardians gave consent for their children to be surveyed but did not complete the parent/guardian surveys themselves. Of the parents/guardians that did complete surveys, seven parents/guardians had two children attending the program and one parent/guardian had three children. For the purpose of this study, a family unit is described as one parent or guardian/one child. Parent/guardian gender was not identified on the surveys.

Student Surveys

Out of the 64 students attending Art in the Afternoon, 60 students completed the surveys orally with the researcher. The student surveys were scored in a summative/raw data format. The possible score for student's scores ranged from 110 – 22. The environmental literacy (EL) scores were broken down into the following categories: high EL score = 110-81; medium EL score = 80-51; low EL score = 50-22. The average score on the survey was 89 out of 110. Forty-seven students had a high EL score, while 14 students had a medium EL score (Figure 1). None of the students attending Art in the Afternoon scored in the low EL category. The average score for the female students was 91. The average score for the male students was 87 (Figure 2).

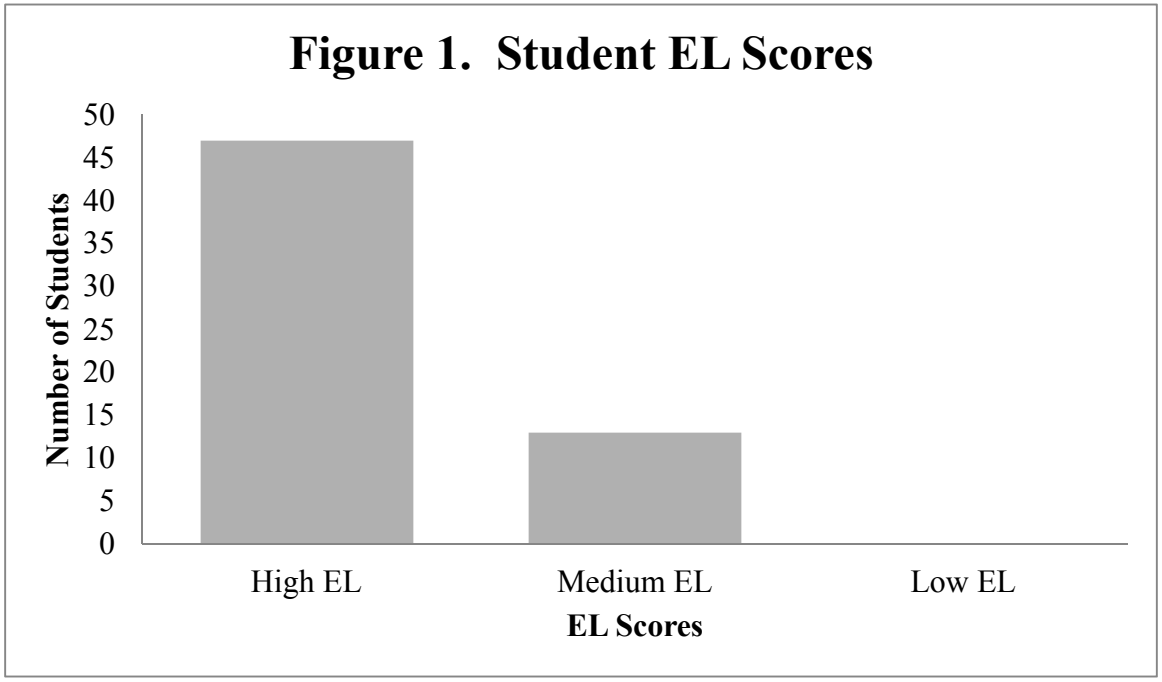

Figure 1. Student EL scores based on the survey results. Forty-seven students were considered high EL and 14 were considered medium EL.

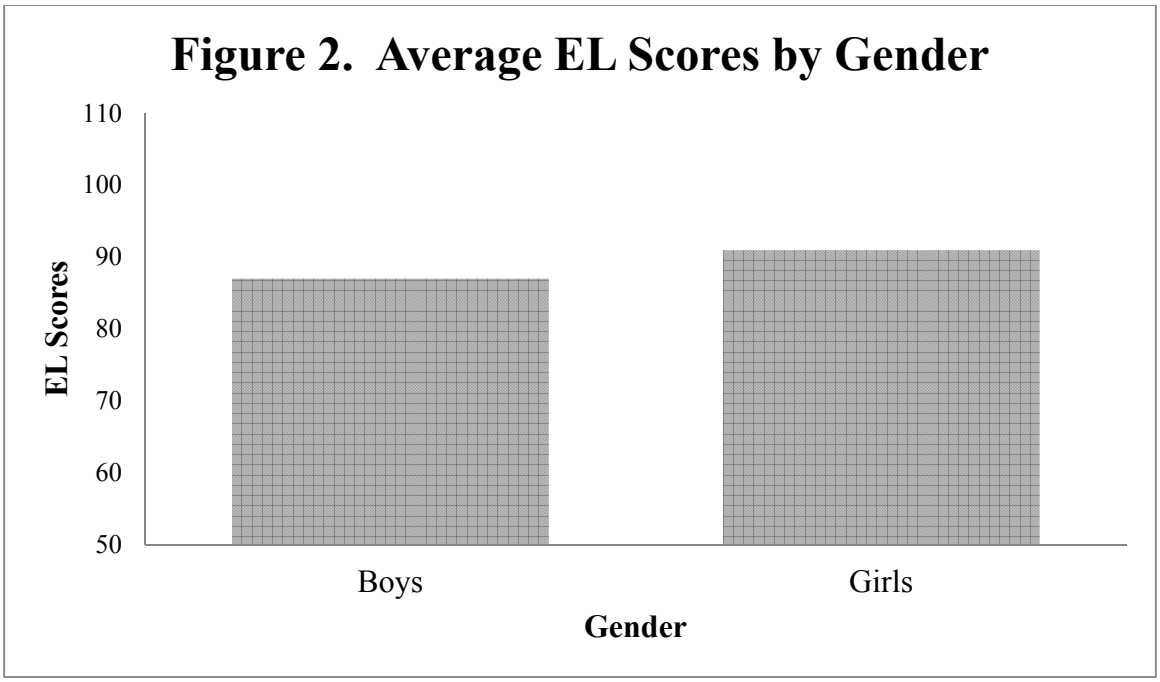

Figure 2. The scores ranged from 107 to 57. The average score for boys was 87 out of 110. The average score for girls was 91 out of 110.

The researcher investigated the number of years each student attended the program and compared the number of years to the student's score on the survey (Figure 3). The data were as follows: One student attended the program for six years and had a score of 106. The average score for the four students with 5 years in the program was 90. The average score for the four students with four years in the programs was 94. The average score for the 10 students with 3 years in the programs was 91. The average score for the 16 students with two years in the program was 88. Finally, the average score for the 25 students attending the program for first time was 87.

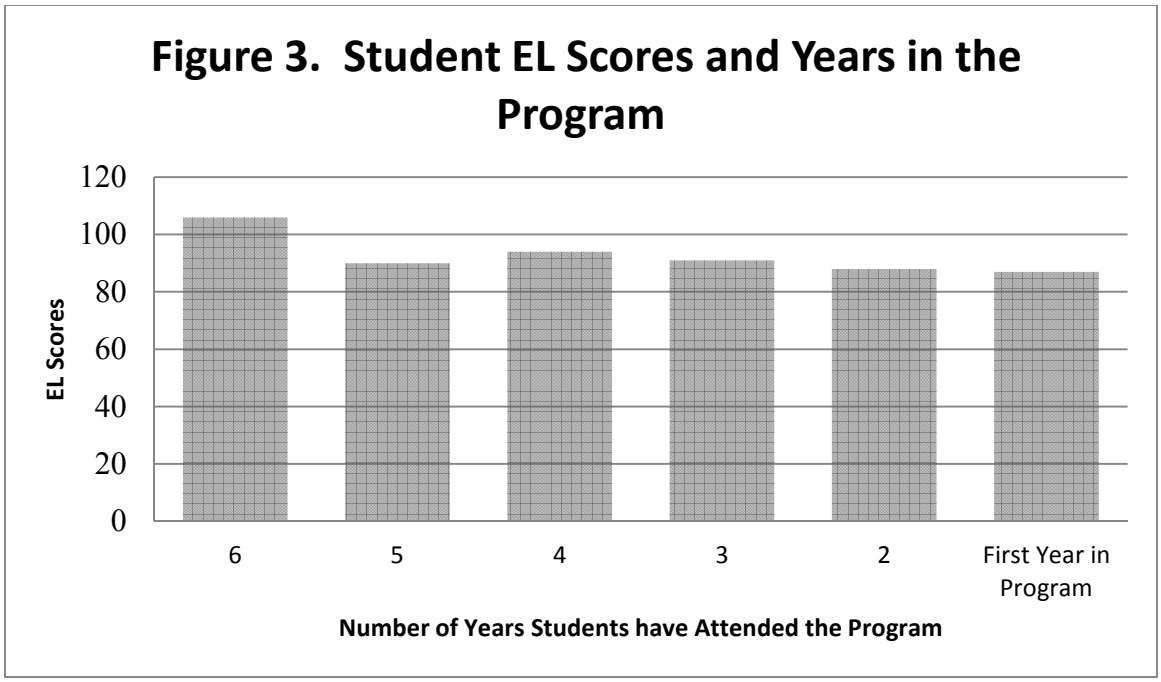

Figure 3. Represents the number of years the students have attended Art in the Afternoon and their scores on the EL survey.

Parent/Guardian Surveys

Out of the 50 parents/guardians with children attending Art in the Afternoon, 27 participated in the study. All of the parents/guardians that participated were considered high EL by the original scoring system (Coyle, 2005). The parent/ guardian survey was scored as a percentage in order to compare the results with the average NEETF score of 58%. However, the scores could not be compared because the lowest Art in the Afternoon parent/guardian score on the NEETF survey was 60%.

Therefore, for the purpose of this study, and because the average Art in the Afternoon parent/guardian score was 83% anything above 83% was considered higher EL and anything below 83% was considered lower EL. Therefore higher EL was considered to be 100% to 83% and lower EL was considered 82% to 60%. Sixteen parents/guardians that took the survey had a higher than average EL score (Figure 4). Eleven parents/guardians that took the survey had a

lower than average EL score. Although these scores are lower, they are still high compared to the average NEETF score.

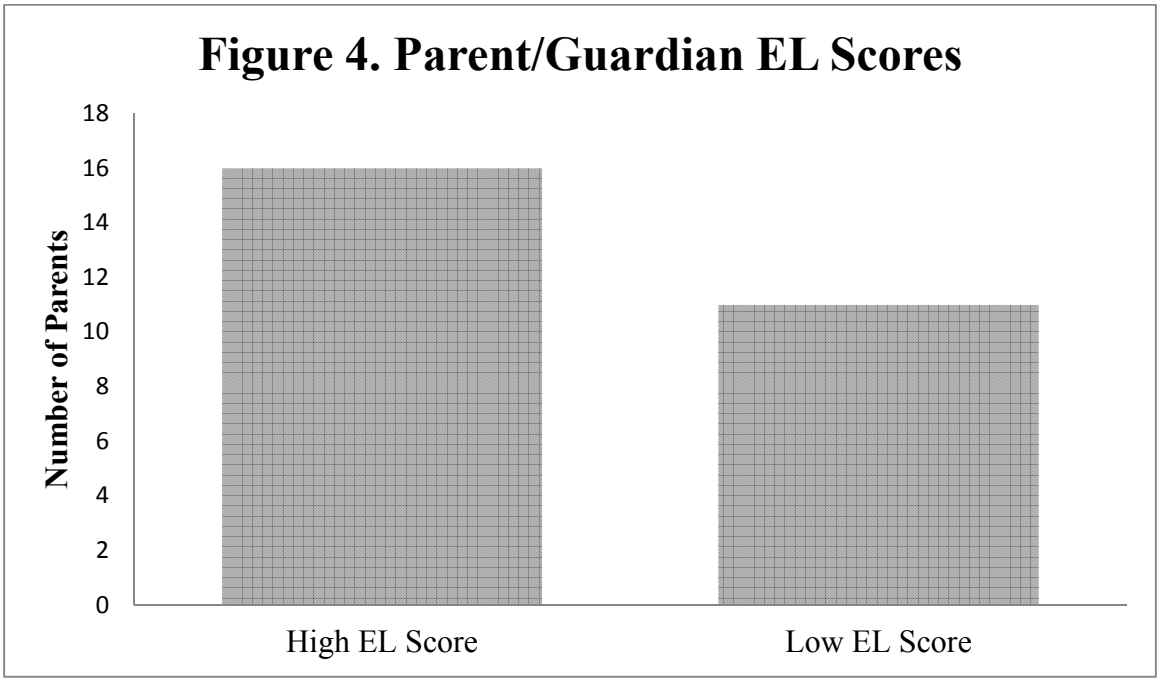

Figure 4. Represents the EL scores of the parents who participated in the survey.

Parent/Guardian Interviews

The parent/guardian and student scores were used to sort the participants to determine which parents/guardians would be interviewed, as shown in Table 2 below. By using a stratified purposeful sample, the researcher attempted to have equal representation from each group below (Creswell, 2009). A random sample of High parent or guardian/ High student (Group A), Low parent or guardian/High student (Group B), High parent or guardian/ Medium student (Group C) and Low parent or guardian/Medium student (Group D) were selected, so that 50% of the parents in each category were chosen. Fifty percent of Group A equaled six parent or guardian interviews. Fifty percent of Group B equaled seven parent or guardian interviews.

Fifty percent of Group C equaled three parent or guardian interviews. Since there was only one parent or guardian that sorted into Group D, 100% of Group D was selected and interviewed.

Table 2

Family Unit Rating Determination

	High Parent	**Low Parent**	**Total**
High Child	**GROUP A**	**GROUP B**	25 family units
	Total # of family units = 11	Total # of family units = 14	
Medium child	**GROUP C**	**GROUP D**	7 family units
	Total # of family units = 6	Total # of family units = 1	
TOTAL	**17 family units**	**15 family units**	**32 family units**

Note. A family unit equals a parent/guardian with a score of high EL or low EL and one child with a score of high or medium. Some parents/guardians have more than one child and therefore there are more family units than number of parents/guardians that completed the survey.

Six parents/guardians that completed the survey had two children attending the program. One parent/guardian that completed the survey had three children attending the program. Therefore, each parent/guardian with multiple children attending was counted as one unit for each child attending to equal 32 family units. Therefore those parent numbers were entered into the sample two or three times depending on the number of children they had enrolled in the program.

Parents/guardians gave several responses for each question. Each of the responses were coded and recorded. The researcher used an intercoder to cross-check the trustworthiness of the coding. After coding 20% of the data, there was an intercoder reliability rate of 87.5%.

The data were coded according to a series of key words. For the purpose of this study only the codes that fell under the ENVIRO theme were reported in the results as the other themes were not germane to this research. Other themes such as SOCIAL, ART and OTHER were recorded but not reported. For full survey results see Appendix E. The codes that fell under ENVIRO were listed in Table 3 below.

Table 3

Parent/Guardian Interview Data Summary

Code*	Description	Quest 2 *Parent Program Likes*	Quest 4 *Affects Child*	Quest 5 *Child Comments*	Quest 6 *Child Behavior*	Representative Quote
ENVIRO Total						
ODPL	Outdoor Play	6	5	1		"I love the physical activity the outside time offers"
REMA	Reusing Materials		2	2	7	"She makes art out of trash"
RECY	Recycling				3	"He recycles or asks what else he can do with trash"
COMP	Composting				1	"[Student] has seen composting at home, but now she is aware that it can be done other places as well"
DOTR	Doesn't want to throw items in trash		1	1	5	"Nothing is trash according to [student]"
TRAH	Trash Clean-up				2	"She cleans up trash when we walk in the woods"
EECM	EE Component			2		"He learned a lot from your [the researcher] programs"

Table 2. ***The codes** and their short descriptions are noted. **The number** represents the number of times the statement was discretely mentioned by one or more parents/guardians.

What are the qualities you like about Art in the Afternoon?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group (C) and the low parent/guardian/ low child group (D). There were a total of 46 codes assigned to the 17 parent/guardian responses.

The responses for each group are as follows: Two of the 18 responses were coded as ENVIRO in group A. Three out of the 19 responses were coded as ENVIRO in group B. In group C: Two of the seven responses were coded as ENVIRO. ODPL- specifically outdoor play was the only ENVIRO theme mentioned in all three groups. No ENVIRO themes were mentioned in group D.

Table 4

What are the qualities you like about Art in the Afternoon?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	All Groups
ENVIRO	1	3	2		6

How does Art in the Afternoon affect your child?

The 17 parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 41 codes assigned to the 17 parent/guardian responses.

Four out of the 14 responses were coded as ENVIRO in group A. ODPL-outdoor play, was mentioned once, REMA- reusing materials was mentioned twice and DOTR- not wanting to throw items away was mentioned once. Four out of the 15 responses were coded as ENVIRO in group B. All of which were ODPL- specifically outdoor play. Two of the 10 responses were coded as ENVIRO, both of which were ODPL- outdoor play. No ENVIRO themes were mentioned in group D.

Table 5

How does Art in the Afternoon affect your child?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ENVIRO	4	4	2		10

What are some general comments your child has made about Art in the Afternoon?

The 17 parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 26 codes assigned to the 17 parent/guardian responses.

Two out of the nine responses were coded as ENVIRO in group A. One being REMA- reusing materials and the other DOTR- not wanting to throw items away. Three out of the nine responses were coded as ENVIRO in group B. This included REMA- reusing materials, ODPL- specifically outdoor play and EECM- environmental education component. One out of the six responses was coded as ENVIRO in group C, which was EECM- environmental education component. No ENVIRO themes were mentioned in group D.

Table 6

What are some general comments your child has made about Art in the Afternoon?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ENV	2	3	1		6

Do you think there are any behaviors that your child exhibits that you think are influenced by Art in the Afternoon? If so, what are they?

The 17 parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 31 codes assigned to the 17 parent/guardian responses.

Eight out of the 12 responses were coded as ENVIRO in group A. REMA- reusing materials was mentioned three times, DOTR- not wanting to throw items away was mentioned twice, and RECY- recycling, COMP- composting and TRAH- trash clean-up were mentioned once. Ten out of the 15 responses were coded as ENVIRO in group B. REMA- reusing materials was mentioned four times, DOTR- not wanting to throw items away was mentioned three times, RECY- recycling was mentioned twice and TRAH- trash clean-up was mentioned once. No ENVIRO themes were mentioned in groups C and D.

Table 7

Do you think there are any behaviors that your child exhibits that you think are influenced by Art in the Afternoon? If so, what are they?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ENV	8	10			18

Do you think your child has done the following because of Art in the Afternoon?

Parents/guardians were asked if their child took the following actions because of Art in the Afternoon: Recycle at home, participate in clean-up days, reuse materials for another purpose, play outside and talk about the environment. Parents/guardians were asked to respond "yes", "no" or that the family was already taking the environmental action previously to their children's involvement with Art in the Afternoon. The table below (Table 8) shows the parent/guardian responses for each of the environmental actions.

Table 8

Student Actions at Home

	Yes	No	Family was doing already
Recycle at home	6		11
Participate in clean-up days	2	15	
Reusing materials for different purposes	17		
Play outside	6		11
Talk about the environment	14		3

CHAPTER 5.

DISCUSSION AND RECOMMENDATIONS

The purpose of this study was to look at an afterschool program as a potential tool to impact students' environmental literacy (EL). The question driving this research was: Does an environmentally conscious afterschool program impact students' environmental literacy?

Art in the Afternoon is an art-based afterschool program that was investigated in this study. While not specifically an environmental education program that focuses on *Excellence on Environmental Education: Guidelines for Learning* (NAAEE, 2010), this program offers outdoor play and is led by teachers who are civically and personally responsible towards the environment. Art in the Afternoon, although not overtly an EE program, has components that may affect EL.

Given the fact that the goal of EE is to create EL citizens (NAAEE, 2010; Stevenson, 2013), and Art in the Afternoon is taught by teachers who model EL, it was expected that students involved in Art in the Afternoon would have high EL scores when measured with an EL student survey and that parents would make statements that described the positive effect that Art in the Afternoon has on environmental behavior at home.

Student Surveys

Baseline data was gathered on students in the form of a survey that measured EL. The student survey results found that generally the longer the students attended the program the higher the EL scores were per student. There was one student who had attended the program for 6 years. This student scored 106 compared to the average score for first time students 87. While there was a discrepancy between 5 years in the program and 4 years in the program, the general trend was that the EL scores increased as the number of years attended increased. As Chawla

(2014) found, EE should have extended duration in order to be effective. Art in the Afternoon seemed to be more effective the longer students attended. However, there may be other variables that were not measured in this study that had a direct effect on the students, especially the one student who had been in the program for 6 years.

Parent/Guardian Surveys

It is possible that parents/guardians with high EL would have children with high EL. In this study, eleven parents/guardians with high EL scores had students with high EL scores. There were seven parent/guardians that scored high on the EL survey and their child/children scored in the medium range. According to these results, high EL parents/guardians may not always affect their children's EL. If this is the case there may be other factors that are affecting the EL of children (Stevenson et al, 2013). By finding out about the actions children take at home (recycling, reusing material, etc.), it may be possible that the students with high EL were actually affecting their parents/guardians.

Therefore, to further investigate the effects of Art in the Afternoon, the researcher categorized family units (students and parent or guardian) depending on their EL. The following categories were created: high parent or guardian/ high student, low parent or guardian/ high student, high parent or guardian medium student, low parent or guardian/ medium student.

Parent/Guardian Interviews

From the above mentioned groups, a random selection of parents/guardians was interviewed. Certain questions were asked of the parents/guardians, answers of most interest to this research were those that mentioned the impact of the program on behaviors. For example, one mother explained that, "when he [her child] looks at trash, he wonders what he can turn it into".

When asked about the qualities parents/guardians liked most about Art in the Afternoon, six out of the 17 parents/guardians mentioned outdoor play. It would be expected that if parents enroll students in an art program that the most important quality would be art, however the outdoor play, was second only to art. It appears that Art in the Afternoon encourages the students to get into nature and be creative. It is important to note that in this art program the students are required to play outside for at least one hour, rain or shine. It is possible that the Art in the Afternoon students had higher than average EL scores due to their time spent in nature during the program. Art in the Afternoon could possibly be these students only opportunity to spend unstructured time outdoors.

This is similar to what Louv (2005) and Chawla (1999) found, increased time in nature might increase the EL of students. A large portion of the Art in the Afternoon students scored high on the EL tool. The EL scores could potentially have been affected by the time in nature. More research would be needed to investigate afterschool programs and nature play. It was evident in the interviews that the parents/guardians were appreciative of the time spent outdoors. "I like how the teachers encourage playing outside even in bad weather" (High EL parent, personal communication, March 19, 2015).

Durlack and Weissberg's (2007) found that afterschool programs seem to have the power to change behavior. In this study, when parents/guardians were asked if Art in the Afternoon affected their children's behavior, some parents/guardians made statements that were coded as environmental themes. The parents/guardians believed some environmental behaviors exhibited by their children were influenced by Art in the Afternoon. For example, one parent/guardian explained to the researcher, "I have to hide things in order to throw them in the trash. He wants to keep everything and create new things" (High EL parent, personal communication, March 18,

2015). Another parent/guardian said, “She is always making art out of trash” (Low EL parent, personal communication, March 19, 2015).

Environmental themes were mentioned more during the question that asked about students’ behavior than when parents were asked any other question. The codes of reusing materials, not wanting to throw items in the trash, recycling, composting and trash clean-up were all mentioned. “[Student] has seen composting at home, but now she is aware that it can be done other places as well” (High EL parent, personal communication, March 17, 2015). Other than reusing materials, the EE component was mentioned by parents/guardians when asked about children’s’ general comments. “She often talked about your [the researcher] nature studies” (High EL parent, personal communication, March 17, 2015). (Note: short EE programs were added sporadically throughout the A in A program.) EE and hands-on learning experiences have been found to give students a greater appreciation for the environment and a heightened sense of stewardship (Dresner, 2002).

When the parents/guardians were presented with a list of potential behaviors that had been influenced by Art in the Afternoon, it appeared as if the program was affecting their child’s actions toward the environment. The following actions were presented to the parents/guardians: recycling at home, participating in clean-up days, reusing materials for another purpose, playing outside and talking about the environment. Parents/guardians were asked to respond “yes”, “no” or that the family was already taking the environmental action previously to their children’s involvement with Art in the Afternoon (Table 8). The researcher was interested if Art in the Afternoon program could have influenced certain behaviors observed at home.

Every parent/guardian, when asked to check “yes’ or “no”, responded “yes” that their child/children had reused materials for another purpose due to the influence of Art in the

Afternoon. Some parents/guardians added statements such as, "When we walk outside (the student) picks up handfuls of trash and puts them in his pocket. He wants to create things out of them. He does not see trash but treasures" (High EL parent, personal communication, March 18, 2015).

Differences found between Groups

During the comparison of the 4 groups: High parent or guardian/ High student (Group A), Low parent or guardian/High student (Group B), High parent or guardian/ Medium student (Group C) and Low parent or guardian/Medium student (Group D), there were several differences noted when looking into the responses of parents/guardians.

Low Parent/Guardian/Medium EL Students. Although there was only one family unit that scored low parent/guardian/ medium student, the parent/guardian never mentioned an environmental theme throughout the interview. It was unclear whether it was the low score of the parent, the medium score of the student or some other factor that affected the interview answers. Only when asked about specific environmental actions, did the parent/guardian refer to environmental themes. Instead, this parent/guardian focused on the art lessons and socialization.

According to the Campaign for Environmental Literacy (2007), there are five essential components of EL, one being awareness. It seemed as if this family unit was lacking the awareness component of EL. Due to the fact that there was only one family in this study that scored low parent/guardian/ medium student, further research would be needed to make inferences regarding the lack of awareness with low EL family units.

Medium EL Students. The medium EL students' main focus, according to their parents/guardians, was on the art. According to the student survey responses, many of these medium EL children did not enjoy time in nature. The medium EL students' connection with

nature seemed to be weaker than the students with high EL. These students EL scores were lower because of their responses to the outdoor components. Again, more research with larger numbers would need to be conducted to make these inferences.

The medium students, although their scores were lower, were still taking environmental action while at the program. Many of the medium EL students informed the researcher, during the student surveys that they recycle at the afterschool program. It is possible that they were modeling teacher behavior and following the rules of the afterschool program without knowing why these actions were important. According to NAAEE *Guidelines for Learning,* all strands which represent an aspect of EE should be mastered to become environmentally literate (NAAEE, 2010). This conclusion is similar to the Campaign for EL's (2007) theory that one must have a general awareness, before one can progresses to knowledge, attitudes, skills and finally action in order to demonstrate EL. Modeling environmental action without understanding may not be the most effective way of influencing EL (NAAEE, 2010; Campaign for Environmental Literacy, 2007).

High EL Students. The environmental themes of reusing materials and not wanting to throw items in the trash were reoccurring throughout the interviews with parents of high EL students. The awareness and action components with these children were noted by parents and said to be a direct result of attending Art in the Afternoon. Regardless of the parents score, these high EL students were described by their parents/guardians as taking environmental action. One mother said, "I watched (student) pick up trash while outside playing. He ran over to me and said, "Hey mom, look, art supplies" (High EL parent, personal communication, March 18, 2015).

When asked an open-ended question regarding behavior influenced by the afterschool program, it was interesting that the above-mentioned environmental themes were only discussed

by the parents/guardians with high EL students. The parents/guardians of medium EL students only mentioned the art themes or none at all. If a student scored high on the EL survey, it would be expected that the parent/guardian would observe positive environmental behavior. It was interesting that the parents/guardians of students who received medium EL scores did not describe positive environmental behavior in their child/children when asked the open-ended question regarding behavior.

Teacher Modeling. According to the *Guidelines for Learning* (NAAEE, 2010) environmental education should not be used to inculcate values or beliefs. Environmental educators have been viewed as environmentalists (Hug, 1977) and therefore dismissed by some. Hug (1977) explained that while many environmental educators are environmentalists, they use information and teaching methods to analyze the varied view points on the environment and encourage well informed decision making.

> The environmental educator is not the "mediator," "trade-off specialist" or "negotiator," but a developer of skills and an information analyst who prepares the people (from any segment of the population) who will participate in environmental decision making (Hug, 1977, p. 76).

It would appear that certain environmental actions are encouraged in Art in the Afternoon by the activities that are required. The afterschool program actively prepares students to take action and participate in positive environmental change. For example, the students compete in an art contest for a local environmental organization. The winner in 2015 was a student from the Art in the Afternoon afterschool program and the student's art work was turned into a t-shirt that was sold as a fundraiser for the environmental organization.

Encouraging these patterns of behavior seemed to impact EL of the Art in the Afternoon students. While the students participate in pro-environmental behaviors, it is possible that they

do not understand or are not aware of the importance of their pro-environmental behaviors. According to Simmons (1991), contributing factors to create responsible environmental behavior (REB) included knowledge, problem-solving skills and positive environmental attitudes. Simmons goes on to state that, to be a successful program environmental education program, the program that should address all contributing factors (Simmons, 1991). Modeling was somewhat effective, as seen in this study, but it may be more effective, if more facets of EE that lead to EL were included. Due to the fact that Art in the Afternoon is not an EE program, the teachers are not teaching all components, according to NAAEE, required to obtain EL.

According to the *Guidelines for Learning*, there are 4 strands, each of which represents an aspect of EE and its goal of EL (NAAEE, 2010). The strands can be utilized independently of one another, but to become an EL citizen all 4 strands should be mastered. The first three strands include, questioning, analysis and interpretation stills, knowledge of environmental processes and systems and the development of skills for understanding and addressing environmental issues. The final strand suggests development of personal and civic responsibility.

While Art in the Afternoon addresses personal and civic responsibility, the other strands are lacking from the program. Art in the Afternoon may be fostering pro-environmental behavior without giving the students an understanding of why these environmental tasks should be accomplished. Although there are many positive outcomes the full development of EL in students could be incomplete due to the missing EL/EE components.

Conclusion

This paper demonstrated that an enriched afterschool programs could have a positive effect on EL. Parsley (2013) found that when there is an academic goal in mind, afterschool programs have the power to obtain that goal and improve student learning. Art in the Afternoon has an educational component of art, but maybe only a peripheral focus on all the essential components of EE. This afterschool program seems to affect some aspects of EL, but could be more effective if EE components as described by the *Guidelines for Learning* (NAAEE, 2010) were added. Through freedom of curriculum and flexibility to encourage more hands-on learning, afterschool programs allow student to delve deeper into their subjects (Givens, 2013). Art in the Afternoon used their freedom to encourage positive environmental actions, primarily through modeling.

Limitations

Due to the investigation of only one program, the sample size was small and self-selected in scope. The location of the study could have impacted the data collected. Investigating several programs in different locations could offer different results.

The interviews were conducted as the parents/guardians were picking up their child/children from Art in the Afternoon. This could have affected the depth of the interview responses as some seemed rather shallow.

The researcher did not examine other outside influences on EL. Therefore, it was difficult to pin point that it was solely the Art in the Afternoon program that impacted students EL.

The researcher had previously worked for Art in the Afternoon as the environmental educator. It is possible that the students wanted to please the researcher and therefore offered answers that skewed their EL scores. In addition, parents also knew the researcher and could have adjusted their interviews to suit the researcher's interest.

It is also possible that the background of the researcher with Art in the Afternoon influenced the interpretation of the data. So as a safeguard against bias interpretation, an intercoder coded twenty percent of the data.

Recommendations for Future Research

There is much that remains to be studied with EL and afterschool programs. The following recommendations for future research should be evaluated.

1. Researchers could evaluate the components of afterschool programs that positively affect EL and create a "how to" guide for other afterschool program to model.
2. The influence of modeling was prevalent throughout this study. Modeling versus traditional EE methods could be evaluated.
3. This study focused on a wide range age range of elementary students. Similar research could be conducted with a variety of ages or focusing solely on one grade level might offer differing results.
4. Outside influences such as, positive outdoor experiences were not investigated in this research. Research could be conducted to address outside influences on EL.
5. This study opens up avenues to use an experimental design to investigate how other influences in afterschool programming could impact EL.
6. The researcher would suggest a larger study that encompassed several afterschool programs in multiple locations in different parts of the country or with differing socioeconomic groups.

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APPENDIX A

CONSENT FORM

CONSENT FORM

"An Investigation of an Environmentally Conscious Afterschool Program on Student's Environmental Literacy"

You are among a group of parents with students in the Art in the Afternoon program invited to participate in a study that will examine the impact of your child's experience in the Art in the Afternoon afterschool program. Please read this form and ask any questions that you many have before agreeing to be in the study.

The study is being conducted by Katharine "Kat" Scala enrolled in the Masters of Science in Environmental Education program at Montreat College.

Background Information:

The purpose of this study is to investigate the impacts of Art in the Afternoon afterschool program on the attending students.

Procedures:

Reading and signing this form, indicate that you are giving consent to the following things:

1. One parent or guardian in the household will complete the NEETF survey (attached) which will take approximately 10 minutes.

2. Agree, if needed, to participate in an interview. After the surveys are completed, a random sample of parents will be asked to interview with the researcher. The interview will be comprised of 7 questions and will take approximately 20 minutes to complete.

3. Allow your child or children to complete a survey regarding their environmental attitudes and behaviors one-on-one with the researcher while they are in the afterschool program. The survey is comprised of 22 questions and should take approximately 15 minutes to complete and the student will not miss out on any programs going on during the time it takes to complete the survey.

Risks and Benefits of the Study:

The risk in completing the survey and interview is that it will take your time to complete. I realize your time is valuable. The benefit of your participation is that you will be able to reflect on your child's experience in the Art in the Afternoon program.

Confidentiality:

The records of this study will be kept private in a locked file; only the researcher will have access to the information. To protect the anonymity of the participants, publications will not include any information that would make it possible to identify the subjects. Each family will be

assigned a number and the parent/guardian and child will use the same number, so that the student and parent/guardian answers can be matched. **In doing this, your name or your child's name will never be associated with your answers.** If selected to interview with the researcher, the interview may be tape recorded and will be transcribed for analysis. Katharine Scala will be the only person who will have access to the tapes and any other data collected. The tapes will be erased one year after completion of the study.

Voluntary Nature of the Study:

Participation in the study is completely voluntary. Your decision as to whether or not to participate will not affect your current or future relations with the Art in the Afternoon program or Montreat College. If you decide to participate, you are free to withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Katharine "Kat" Scala. You may ask any questions you have to the researcher by contacting her at 828-551-8456 or by email Katharine.scala@montreat.edu; or her advisor Dr. Dottie Shuman at 828-669-8011 ext. 3405 or at dshuman@montreat.edu

You will be given a copy of this form to keep for your records. If you agree to participate, please return this form and the survey (attached) to Stephanie or Amanda when you pick up your child from Art in the Afternoon.

Statement of Consent

I have read the information. I have asked questions and have received answers if needed. I consent to participate in the study.

_____ _____

Signature of Participant Date

I give my child consent to participate in the study

_____ _____

Signature of Parent/Guardian Date

_____ _____

Signature of Investigator Date

APPENDIX B

STUDENT SURVEY

Number:_____ Date:_____

Age:_____ Grade:_____

	No Way!	Not Really	I'm Not Sure	A little bit	Yes, A Lot!
1. I like spending time outside.					
2. I prefer to spend my free time inside, not outside.					
3. I feel comfortable being outside.					
4. If I could, I would spend more time outside in the future					
5. If I could, I would like to visit a river or go on a hike in the future.					
6. I try to reduce, reuse and recycle whenever possible.					
7. I encourage others to reduce, reuse and recycle.					
8. I think about how much trash I throw away.					
9. When I throw my trash away, I think about how it affects where I live.					
10. I am willing to pick up trash in my neighborhood.					
11. I am willing to get my friends to help pick up trash in my neighborhood.					
12. My schoolyard is a place for exploring nature.					
13. My schoolyard is a place to watch birds and other animals.					
14. My schoolyard is a place where there are many kinds of plants.					

15. My schoolyard is a place to find signs of life.					
16. My schoolyard is a place to learn about nature.					
17. My schoolyard is a place to enjoy nature's beauty.					
18. My schoolyard is a place to do nature art projects.					
19. I look forward to spending time in nature					
20. I like exploring nature with my friends.					
21. I like going to parks or natural areas with my family.					
22. I like spending time outdoors by myself.					

Adapted from:

Campbell, S. (2013) Pre/Post Survey to Measure Students' Attitudes toward Nature and the Environment. Retrieved from: http://civeco.files.wordpress.com/2013/10/2012-meeo-tools.pdf

Renga, K. (2012). After-school Program Student Survey. Retrieved from: http://civeco.files.wordpress.com/2013/10/2012-meeo-tools.pdf

APPENDIX C

PARENT/GUARDIAN SURVEY

Please take a few minutes to fill out the following survey. Your responses will assist research that will be investigating the power of afterschool programs to impact environmental literacy. As a reminder, your participation is voluntary and your responses are completely confidential. *Each family is assigned a number and the parent/guardian and child will use the same number, so that the student and parent/guardian answers can be matched.* ***In doing this, your name or your child's name will never be associated with your answers. Please begin by indicating the following:***

Number:_____

Age:_____

Please answer the following questions. Circle the correct answer.

1. There are many different kinds of animals and plants, and they live in many different types of environments. What is the word used to describe this idea? Is it…
a. Multiplicity
b. Biodiversity
c. Socio-economics
d. Evolution
e. Don't know

2. How is most of the electricity in the U.S. generated? Is it…
a. By burning oil, coal, and wood
b. With nuclear power
c. Through solar energy
d. At hydro-electric power plants
e. Don't know

3. What is the most common cause of pollution of streams, rivers, and oceans? Is it…
a. Dumping of garbage by cities
b. Surface water running off yards, city streets, paved lots, and farm fields
c. Trash washed into the ocean from beaches, or
d. Waste dumped by factories
e. Don't know

4. Which of the following is a renewable resource? Is it…
a. Oil
b. Iron ore
c. Trees, or
d. Coal
e. Don't know

5. Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us from? Is it …
a. Acid rain
b. Global warming
c. Sudden changes in temperature, or
d. Harmful, cancer-causing sunlight
e. Don't know

6. Where does most of the garbage in the U.S. end up? Is it in…
a. Oceans
b. Incinerators
c. Recycling centers, or
d. Landfills
e. Don't know

7. Which of the following household wastes is considered hazardous waste? Is it…
a. Plastic packaging
b. Glass
c. Batteries, or
d. Spoiled food
e. Don't know

8. What is the most common reason that an animal species becomes extinct? Is it because…
a. Pesticides are killing them
b. Their habitats are being destroyed by humans
c. There is too much hunting, or
d. There are climate changes that affect them
e. Don't know

9. Scientists have not determined the best solution for disposing of nuclear waste. In the U.S., what do we do with it now? Do we…
a. Use it as nuclear fuel
b. Sell it to other countries
c. Dump it in landfills, or
d. Store and monitor the waste
e. Don't know

10. What is the primary benefit of wetlands? Do they…
a. Promote flooding
b. Help clean the water before it enters lakes, streams, rivers, or oceans
c. Help keep the number of undesirable plants and animals low, or
d. Provide good sites for landfills
e. Don't know

11. Carbon monoxide is a major contributor to air pollution in the U.S. Which of the following is the biggest source of carbon monoxide? Is it…
a. Factories and businesses
b. People breathing
c. Motor vehicles, or
d. Tree

e. Don't know

12. What is the name of the primary federal agency that works to protect the environment? Is it the…
a. Environmental Protection Agency (the EPA)
b. Department of Health, Environment, and Safety (the DHES)
c. National Environmental Agency (the NEA), or

d. Federal Pollution Control Agency (the FPCA)
e. Don't know

13. When it is impossible to find a reasonable compromise between economic development and environmental protection, which do you usually believe is more important: Economical development or environmental protection? Please circle

Economic development

Environmental protection

Depends

Don't know

14. There are differing opinion about how far we've gone with environmental protection laws and regulations. At the present time, do you think environmental protection laws and regulations have gone too far, or not far enough, or have struck about the right balance? Please circle

Gone too far

Not far enough

Struck about the right balance

Don't know

15. Thinking about some specific areas, at the present time, do you think laws and regulations have gone too far, not far enough, or have struck about the right balance for each category? Please circle the answer that best supports your feelings.

a. Fighting air pollution

Gone too far Not far enough Right balance Don't know

b. Protection wild or natural areas

Gone too far Not far enough Right balance Don't know

c. Protecting endangered species of plants, animals and insects

Gone too far Not far enough Right balance Don't know

d. Protecting wetlands

Gone too far Not far enough Right balance Don't know

e. Fighting water pollution

Gone too far Not far enough Right balance Don't know

16. I would like to ask you about some things you may do in your day-to-day life. For each of the following things, would you please tell me whether you never do it, sometimes do it, or frequently do it. Please circle the correct answer.

a. Recycle

never do it sometimes do it frequently do it

b. Avoid using chemicals in your yard or garden

never do it sometimes do it frequently do it

c. Buy biodegradable or recyclable products

never do it sometimes do it frequently do it

d. Conserver water in your home and yard

never do it sometimes do it frequently do it

e. Turn off lights and electrical appliances when not in use

never do it sometimes do it frequently do it

f. Try to cut down on the amount of trash and garbage you create

never do it sometimes do it frequently do it

g. Use other types of transportation, such as biking or the bus, instead of driving your car

never do it sometimes do it frequently do it

h. Participate in a volunteer clean-up day

never do it sometimes do it frequently do it

APPENDIX D

PARENT/GUARDIAN INTERVIEW SCRIPT AND QUESTIONS

Hello, my name is Katharine Scala, a graduate student at Montreat College enrolled in the Masters of Science in Environmental Education. I would like to ask you a few questions regarding your child's experience in the Art in the Afternoon afterschool program. I wanted to remind you that each family will be assigned a number and the parent/guardian and child will use the same number, so that the student and parent/guardian answers can be matched. **In doing this, your name or your child's name will never be associated with your answers.**

This interview will be tape recorded and transcribed for analysis. I will be the only person who will have access to the tapes and any other data collected. The tapes will be erased one year after completion of the study.

The interview is comprised of 7 questions and should take approximately 15 minutes. I know your time is valuable and I can't thank you enough for taking the time to assist me with my research.

Parent/Guardian Interview

Number:_____

Date:_____

1. How long has your child attended the Art in the Afternoon program?

2. What are the qualities you like about Art in the Afternoon?

3. Are there any qualities that you don't like about the program?

4. How do you think Art in the Afternoon affects your child?

5. What are some general comments that your child has made about Art in the Afternoon?

6. Do you think there are any behaviors that your child exhibits that you think are influenced by Art in the Afternoon? If so, what are they?

7. Do you think your child has done the following because of Art in the Afternoon? Please answer yes or no.

Recycle at home yes no

Participate in clean-up days yes no

Reuse materials for another purpose yes no

Play outside yes no

Talk about caring for the environment yes no

Is there anything else you would like to tell me about Art in the Afternoon?

That concludes our interview. Again, thank you for your time.

APENDIX E

COMPLETE STUDY RESULTS

Table 2

Parent/Guardian Interview Data Summary- Question 2-6 and comments

Code*	Description	Quest 2 *Parent Program Likes*	Quest 3 *Parent program Dislikes*	Quest 4 *Effects Child*	Quest 5 *Child Comments*	Quest 6 *Child Behavior*	Last Quest *Other comments*
ART Total							
ARTL	Art Lesson	10		2	7	1	
DART	Exposure to Art	4		3	1		
ARSH	Art Show	1		2			
DEAR	Development as an artist			4		1	
HOME	Bring art ideas home			1		4	
IMAG	Art boosts Imagination			1			
SOCIAL Total							
SOCL	Socialization	4		11	4	1	1
PLAY	Play time	2			2		
DIFA	Exposure to children of different ages	2		3		2	
ENVIRO Total							
ODPL	Outdoor Play	6		5	1		1
REMA	Reusing Materials			2	2	7	
RECY	Recycling					3	
COMP	Composting					1	
DOTR	Doesn't want to throw items in			1	1	5	

	trash						
TRAH	Trash Clean-up					2	
EECM	EE Component				2		
OTHER Total							
FLEX	Flexibility	4		1			
INEX	Inexpensive	2					1
TEAC	Teachers	3			1		1
COMM	Communication	2	2				
STRT	Structure of Program	3	2				
POSA	Positive Afterschool Experience		3		1		8
FACL	Facilities		2				
LOCA	Location		2				
HDON	Hands-On	1					
HEEA	Healthy Eating						1
DISP	Discipline Style	1		1		1	1
ENEL	Enriched Learning Experience	1					1
NONE/NO	No Response or None		9		3	3	8

Table 2. ***The codes** and their short descriptions are noted. **The number** represents the number of times the statement was discretely mentioned by one or more parents/guardians.

What are the qualities you like about Art in the Afternoon?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group (C) and the low parent/guardian/ low child group (D). There were a total of 46 codes assigned to the 17 parent/guardian responses.

In group A: Out of the 18 coded responses for question one, six were coded as OTHER, which included FLEX- flexibility, INEX- inexpensive, TEAC- teachers, DISP- discipline, HDON- hands-on and ENLE- enriched learning experience. Five were coded as ART, which included ARTL- art lesson, ARSH- art show and DART-exposure to art that is different than what is offered in public school. Five were coded as SOCIAL, which included SOCL- socialization, PLAY- play other than outdoors. Two out of the 18 coded responses were coded as ENVIRO, which included ODPL- specifically outdoor play.

In group B: Eight out of the 19 responses were coded as ART, which included, ARTL- art lesson and DART-exposure to art that is different than what is offered in public school. Eight out of the 19 responses were coded in the OTHER, which included TEAC- teachers, STRT- structure of program and FLEX- flexibility. Three out of the 19 responses were coded as ENVIRO, which included ODPL- specifically outdoor play.

In group C: Three of the seven responses were coded as OTHER, which included INEX- inexpensive, FLEX- flexibility, TEAC- teachers. Two of the seven responses were coded as ART, which included ARTL- art lessons. Two of the seven responses were coded as ENVIRO, which included ODPL- outdoor play.

In group D: Both of the two responses were coded as SOCIAL, which included PLAY and SOCL.

Table 7

Question 2. What are the qualities you like about Art in the Afternoon?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	All Groups
ART	7	8	2		17
SOCIAL	6			2	8
OTHER	6	8	3		17
ENV	1	3	2		6

Note. 17 parent responses that represent 46 codes. *only one parent or guardian

Are there any qualities that you don't like about the program?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 17 codes assigned to the 17 parent/guardian responses.

In group A: Four out of the six responses were coded as NO. One out of the six responds was coded as LOCA- location. One out of the six responds was coded as FACL- facility.

In group B: Three out of the seven responses were coded as NO. Two out of the seven responses were coded as COMM- communication. One out of the seven responses was coded as STRT- structure of program and one out of the six responses was coded as FACL- facility.

In group C: Two out of the three responses were coded as NO. One of the three responses was coded as LOCA- location.

In group D: The only response was STRT- structure of the program.

Table 8

Question 3. Are there any qualities that you don't like about the program?

	Group A High p or g/ high child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	All Groups
NO	4	3	2		9
LOCA	1		1		2
FACL	1	1			2
STRT		1		1	2
COMM		2			2

Note. 17 parent responses that represent 17 codes

How does Art in the Afternoon affect your child?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 41 codes assigned to the 17 parent/guardian responses.

In group A: Four out of the 14 responses were coded as ENVIRO, which included ODPL-outdoor play, REMA- reusing materials and DOTR- not wanting to throw items away. Four out of the 14 responses were coded as SOCIAL, which included SOCL- socialization and DIFA- exposure to children of different ages. Four out of the 14 responses were coded as OTHER, which included POSA- positive afterschool experience, FLEX- flexibility and DISP- discipline. Two out of the 14 responses were coded as ART, which included IMAG- art to boost imagination and DEAR- development as an artist.

In group B: Six out of the 15 responses were coded as ART, which included IMAG- art to boost imagination, DART- exposure to art that is different than what is offered in public

school, ARSH- art show, ARTL- art lessons and DEAR- development as an artist. Five out of the 15 responses were coded as SOCIAL, which included SOCL- socialization and DIFA- exposure to children of different ages. Four out of the 15 responses were coded as ENVIRO, which included ODPL- specifically outdoor play.

In group C: Four out of the 10 responses were coded as SOCIAL which included SOCL- socialization and DIFA- exposure to children of different ages. Three of the responses were coded as ART which included HOME- bringing art concepts home, ARTL- art lesson and DART--exposure to art that is different than what is offered in public school. Two of the 10 responses were coded as ENVIRO, which included ODPL- outdoor play. One of the responses was coded as OTHER, which included POAS- positive afterschool experience.

In group D: One of the two responses was coded as SOCIAL, which included SOCL- socialization and the other response was coded as ART, which included DEAR- development as an artist.

Table 9

Question 4. How does Art in the Afternoon affect your child?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ART	2	6	3	1	12
SOCIAL	4	5	4	1	14
OTHER	4		1		5
ENVIRO	4	4	2		10

Note. 17 parent responses that represent 41 codes

What are some general comments your child has made about Art in the Afternoon?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 26 codes assigned to the 17 parent/guardian responses.

In group A: Three out of the nine responses were coded as SOCIAL, which included PLAY- play not specific to the outdoors and SOCL- socialization. Three out of the nine responses were coded as ART, which included ARTL- art lessons. Two out of the nine responses were coded as ENVIRO, which included REMA- reusing materials and DOTR- not wanting to throw items away. One out of the nine responses was coded as OTHER, which included POSA- positive afterschool experience.

In group B: Three out of the nine responses were coded as ENVIRO, which included REMA- reusing materials, ODPL- specifically outdoor play and EECM- environmental education component. Three out of the nine responses were coded as OTHER, which included NONE and POSA- positive afterschool experience. Two out of the nine responses were coded as ART, which included ARTL- art lessons and DART--exposure to art that is different than what is offered in public school. One out of the nine responses was coded as SOCIAL, which included SOCL- socialization.

In group C: Two of the six responses were coded as ART, which included ARTL- art lessons. Two of the six responses was coded as OTHER, which included NONE and TEAC- teachers. One out of the six responses was coded as ENVIRO, which included EECM-

environmental education component. One out of the six responses was coded as SOCL- socialization.

In group D: one of the two responses was coded as SOCIAL, which included SOCL- socialization and the other response was coded as ART, which included ARTL- art lessons.

Table 10

Question 5. What are some general comments your child has made about Art in the Afternoon?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ART	3	2	2	1	8
SOCIAL	3	1	1	1	6
OTHER	1	3	2		6
ENV	2	3	1		6

Note. 17 parent responses that represent 26 codes

Do you think there are any behaviors that your child exhibits that you think are influenced by Art in the Afternoon? If so, what are they?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 31 codes assigned to the 17 parent/guardian responses.

In group A: Eight out of the 12 responses were coded as ENVIRO, which included REMA- reusing materials and DOTR- not wanting to throw items away, RECY- recycling, COMP- composting and TRAH- trash clean-up. Two out of the 12 responses were coded as OTHER, which included NONE and DISP- discipline. One out of the 12 responses was coded as

SOCIAL, which included SOCL- socialization. One out of the 12 responses was coded as ART, which included HOME- bringing art concepts home.

In group B: Ten out of the 15 responses were coded as ENVIRO, which included REMA- reusing materials, DOTR- not wanting to throw items away, RECY- recycling and TRAH- trash clean-up. Three out of the 15 responses were coded as ART, which included HOME- bringing art concepts home. Two out of the 15 responses were coded as SOCIAL, which included DIFA-exposure to children of different age groups.

In group C: Two out of the three responses were coded as OTHER, which included NONE. One out of the three responses was coded as ART, which included DEAR- development as an artist.

In group D: The only response was ARTL- art lessons.

Table 11

Question 6. Do you think there are any behaviors that your child exhibits that you think are influenced by Art in the Afternoon? If so, what are they?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ART	1	3	1	1	6
SOCIAL	1	2			3
OTHER	2		2		4
ENV	8	10			18

Note. 17 parent responses that represent 31 codes

Do you think your child has done the following because of Art in the Afternoon?

Parents/guardians were asked if their child took the following actions because of Art in the Afternoon: Recycle at home, participate in clean-up days, reuse materials for another purpose, play outside and talk about the environment.

Table 12

Student Actions at Home

	Yes	No	Were doing already
Recycle at home	6		11
Participate in clean-up days	2	15	
Reusing materials for different purposes	17		
Play outside	6		11
Talk about the environment	14		3

Is there anything else you would like to tell me about Art in the Afternoon?

The seventeen parent responses to the this question were analyzed using the a priori categories, so that the high parent or guardian/ high child group (A), was analyzed separately from the low parent or guardian/ high child group (B), the high parent or guardian/ low child group(C) and the low parent/guardian/ low child group (D). There were a total of 23 codes assigned to the 17 parent/guardian responses.

In group A: All of the seven responses were coded as OTHER, which included NO, POSA- positive afterschool experience and ENLE- enriched learning experience.

In group B: All of the 10 responses were coded as OTHER, which included NO, POSA- positive afterschool experience, INEX- inexpensive, TEAC- teachers and HEET- promote healthy eating.

In group C: Three out of the five responses were coded as OTHER, which included NO and DISP- discipline. One out of the five responses was coded as ENVIRO, which included ODPL- specifically outdoor play. One out of the five responses was coded as SOCL- socialization.

In group D: The only response was coded as OTHER, which included POAS- positive afterschool experience.

Table 13

Question 8. Is there anything else you would like to tell me about Art in the Afternoon?

	Group A High p or g/ High child	Group B Low p or g High child	Group C High p or g Medium child	Group D* Low p or g Medium child	Total
ART					
SOCIAL			1		1
OTHER	7	10	3	1	21
ENV			1		1

Note. 17 parent responses that represent 23 codes