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**BENEFITS OF IMPLEMENTING ENVIRONMENTAL EDUCATION IN LOW-
INCOME ELEMENTARY SCHOOLS**

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LS 400 Senior Capstone

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Capstone Advisor: Dr. Paoze Thao

Abstract

This senior capstone research analyzes and discusses the benefits of environmental education on low-income elementary schools. As environmental sustainability has become an important topic in today's society, it is vital that students have the knowledge and resources to become activists in their community. Through the use of literature review on the history of environmental education, the state standards, and interview with teachers and survey with students in the Monterey County, incorporating environmental education programs will benefit low income elementary school students.

Keywords: environmental education, benefits, low-income

Capstone Advisor: Dr. Paoze Thao

Benefits of Implementing Environmental Education in Low-Income Elementary Schools

Introduction and Background

The need for environmental awareness and sustainability are concepts that are obligatory in today's society, especially for citizens of California. In 2014, the governor of California, Jerry Brown Jr., declared a state of emergency due to the extreme drought that plagued the state (Brown Jr., 2010). California is heavily dependent on the environment for its economy, which has become the 5th largest economy in the world, and the country's top agricultural supplier. California depends on the environment to support its production of almost half of US-grown fruits, nuts, and vegetables (California Department of Food and Agriculture, 2015). The environment is critical for the economy, food production, and society, so it is important that the younger generations are learning productive ways to help preserve it. This is why it is vital that primary schools in Monterey County begin implementing environmental education in the curricula, primarily in low-income schools.

Environmental education has become increasingly rare in low-income public-school classrooms. This disappearance creates a priority among students and teachers to be exposed to environmental literacy and sustainability practices which need to be established in low-income elementary schools. The lack of environmental experience among children in low-income areas has created a nature-deficit between the haves and the have nots. It is important that teachers are empowered to work collaboratively with each other and administrators to create an integrated classroom curriculum that seeks to include environmental education. According to Hart and Nolan (1999), the public school system has to continually be evaluated to accommodate new teaching methods, such as environmental education, so that resources can be established to support teachers and benefit students. Throughout its history, environmental education has

struggled to break through into the mainstream curriculum of many low-income public schools, so I think that the continuous reevaluation of educational structures is vital. This research project will provide data that states the benefits of environmental education on low-income students, a look into successful environmental education programs, and how to support teachers when approaching the implementation of this education in classrooms.

The purpose of education is to create active and productive members of society who can implement change. Environmental education is a complex subject that involves life-long learning that can help individuals develop an understanding of the complexity of the natural world and the environmental issues that affect it. The purpose of environmental education is to recognize values and concepts to develop skills to understand the connection between humans and nature (Hammond, 1997). Most children only receive informal education when it comes to the environment, but it is important that they also receive this education in formal settings like classrooms, so they are being taught by informed professionals who encourage them to critically think about their experiences. Getting children outside can improve their mental and physical health while also helping them achieve academic success.

My research will analyze and discuss the various benefits of environmental education on low-income students in Monterey County. The primary question I will be addressing is: *How does implementing environmental education program in schools benefit low-income elementary school students?* This question will be followed by my secondary question; *What does research say about the benefits of implementing an environmental education program for low-income elementary students?* “An understanding of environmental attitudes is crucial because they are a precursor to pro-environmental behavior, which is the ultimate goal of environmental education” (Rickinson, 2001, p. 221). Throughout this research paper, I will discuss the many benefits of

environmental education in primary schools, while also touching on the pro-environmental behavior that students will develop throughout the learning of this education. Within the context of my primary research question, I hope to also address my other secondary questions which include *What are the goals and components or elements of effective environmental education programs? In other words, how do their curricula look like? Are there benefits of implementing an environmental education program for low-income elementary students? If there are, how do they benefit students socially? Are there schools in the Monterey area that currently implement environmental education programs in their curricula? If they do, how do teachers incorporate them in their curricula and teach them to low-income elementary students across the curriculum? What will empower teachers to adopt environmental education programs into their curricula?* I chose these questions to focus on for my research because I wanted to understand the components that are needed for an effective environmental education program, and I wanted to explore different low-income schools in the Monterey area that could be used as an effective example. I also wanted to uncover if teachers in the area were comfortable and knowledgeable about this type of education. The focus of my questions would lead me to understand the benefits of environmental education on students in low-income schools.

I decided to focus on environmental education for my Capstone research because I have experienced first-hand the disadvantages that low-income students face regarding environmental education in Monterey County. I have performed service learning in Title 1 schools in the Seaside area as well as at charter schools. Through my experience, I have noticed that students who attend Title 1 schools are not receiving the same education in terms of the environment as their peers that attend schools that have more funding. I have discovered that lower income schools have very little outside time and that teachers often use outdoor restriction policies when

students are displaying behavioral issues. As a future educator, I hope to instill pro-environmental education and awareness of environmental issues within the students of my classroom. Neighborhoods, communities, and society as a whole benefit from having an environmentally conscious generation of students who want to work towards becoming social activists. Environmental education can help students develop leadership skills and the capability to take action in school and society. Due to the nature deficit that is facing many students in low-income schools, I believe that this issue needs to be addressed in Monterey County.

Literature Review

In an attempt to answer the primary and secondary research questions that were proposed above, an in-depth literature review is required. The introduction and background provided an overview of the reasons why environmental education is necessary for low-income primary school classrooms. For example, improving academic achievement, improving student health, and improving focus and cognition (Project Learning Tree, 2019). The in-depth literature review will attempt to expand on the background, history, and components of curriculum and pedagogy of environmental education, as well as how state standards and No Child Left Behind affected environmental education.

There are numerous benefits for the implementation of an environmental education curriculum in early childhood education; however, this type of education is not a priority in most schools across the United States, and in many schools it is nonexistent. Although many people from the public; teachers, students, state officials, and parents understand that they are living in a time where they need to be learning ways to live a sustainable life, they do not have the tools or information to make conscious environmental decisions in a time that requires them to do so. Before understanding the benefits, curriculum goals and components, and the educational impact

on children from environmental education, it is necessary to understand the history of this specific type of learning.

History of Environmental Education

An urgency to consciously think about the environment and how humans impact it might be talked about more often in the current times, but it is not a new educational subject.

Environmental education has been around for a very long time, but this form of education continues to be seen as an unimportant subject. “Environmental education is an emerging field, albeit one that has been around for over forty years” (Stevenson, Brody, Dillon, & Wals, 2013, p. 9). The disregard for environmental education in classrooms across the United States is partly due to an anti-environmental movement established during the 1980s (Bodzin, Klein, & Weaver, 2010). The negative views surrounding environmental awareness and education that were propagandized throughout the country remain in the minds of Americans today. Beginning with the Reagan administration; and the election of George H.W. Bush in 1988, including environmental education in public classrooms proved difficult for many districts (Bodzin et al, 2010). During this time of discontent for environmental education, the implementation in classrooms stalled because it was not receiving the attention of the government or state officials.

Environmental Education in Early Childhood Education

“A widening circle of researchers believes that the loss of natural habitat, or the disconnection from nature even when it is available, has enormous implications for human health and child development” (Louv, 2008, p. 43). The ability for students to connect with nature provides them with an opportunity to develop skills that they can not learn in the classroom due to the unique opportunities to learn through first-hand experiences that are provided outside. Exposure to natural play areas where students have an opportunity to connect with nature

enhances their ability to think creatively and develop social skills. According to Louv (2008), children who had opportunities to engage in natural play areas were more creative and inventive, and they emerged as leaders among their peers. The study by Louv (2008) suggests that children who have more time outside in natural play areas display leadership roles; and thus, they would exhibit these qualities later on in their academic and future careers.

Pedagogy/ Curriculum

There are a number of ways to include environmental education in the primary school curriculum. Various studies have revealed the effective implementation of environmental education into the mainstream curriculum, but the willingness of teachers and the schools are needed. Above, the history of environmental education was examined. Now, this research paper will include evidence that substantiates the need for the inclusion of environmental education in primary school classrooms, and how to incorporate it into classrooms. In today's society, many children are becoming accustomed to hearing about the negative impact that humans have on the environment, but if they do not develop their own feelings and experiences regarding the environment it will be difficult for children to develop a connection to nature. It should be a responsibility of teachers to create interest within their students regarding the environment. Therefore, teachers should be learning new practices and methods to incorporate environmental education into their classroom curriculum. The best way to incorporate environmental education is by incorporating it into other subjects. Bodzin et al (2010) states that exposure to the environment can improve student's academic development by reinforcing scientific inquiry, arithmetic, and improving language arts through writing and speaking. The issue of environmental education in primary school classrooms is how to successfully add this type of education into the mainstream curriculum.

State Standards for Environmental Education

State standards are a reality for every public school in the United States. State standards are an important part of a child's education because they provide the foundation of what students should know before continuing on to the next grade level. California has created an outline of how to accomplish environmental literacy in California public schools, and this will enable individuals to contribute to a future that is sustainable, equitable, and prosperous (California Department of Public Instruction, 2015). California's economy and the citizens who reside within this state are dependent on the environment for various reasons, and this is why it is vital to create standards to foster environmental literacy among students and teachers. The Project Learning Tree has created a kindergarten through 8th-grade environmental activity guide that will enable students and teachers to successfully meet common core standards for English language arts and literacy as well as mathematics. If standards are being used in the correct way, environmental education can be used to create meaningful learning for all students involved. It is important for teachers to understand that standards outline what students should understand, but not how a teacher should instruct. Encouraging students to analyze the different interactions between nature and events or presenting scientific data after first-hand experience with nature will help students meet English language arts and literacy common core standards (Common Core State Standards Initiative, 2017). It is possible for students to interact with nature while maintaining their ability to meet state standards. There is great importance to make environmental literacy a primary part of the curriculum in kindergarten through twelfth-grade education in the state of California.

No Child Left Behind

Once the No Child Left Behind Act (hereafter NCLB) was enacted in 2001, a public school's federal funding depended on how well a school performed on high-stakes state standardized tests. This changed the curriculum dynamic in most schools throughout the country. Instead of focusing on subjects such as art, music, or environmental literacy; teachers, and administrators focused solely on passing these high-stakes tests. The threat of federal cuts to funding due to a school's failure to maintain their annual yearly progress (AYP), creates tension within the school that left little time for other types of education. Environmental education became less of a priority in the public education system. According to Gruenewald and Manteaw (2007), educational leaders and teachers felt the pressure of accountability. If they wanted this type of education in their classrooms, they needed to display data that this type of education can measure students learning in standard content areas. This is an issue within the public education system because although environmental education will benefit students across content standards, it should not be viewed as a priority solely through the lens of meeting standards. Environmental education is an important aspect of a child's education exclusively on its own.

Methods and Procedures

Before beginning to invest my time into a research topic, I met with Dr. Thao to discuss, refine, and focus a topic of interest of mine that I could use to write a thorough research paper on. With the assistance of Dr. Thao, I was able to develop my primary research question as well as five secondary research questions that functioned as guidelines for my research moving forward. The first step of my research was performing extensive research by analyzing peer-reviewed scholarly journals and literature related to my topic of interest. I decided early on in my examination process that I would need to collect field-research to fully develop thorough research.

Participants

In order to truly understand the benefits of environmental education on low-income schools, it was needed to enter classrooms and speak to teachers and students about their perspectives and experiences with this type of education. The foundation of this research focuses on Monterey County for the field of study because I have extensive experience working in various schools in this district, and I have made connections that have enabled me to collect meaningful data. I used two populations for my research, teachers, and students. I chose these two populations because students are impacted the most by the quality of education they are receiving, and it is vital that teachers are knowledgeable and comfortable about the type of education they are giving to students. Four teachers were interviewed from separate schools; two of the teachers were from Title 1 elementary schools and had very little environmental education experience or knowledge, and the last two teachers were from different elementary schools that had successful environmental education programs. I completed three email interviews and one in-person interview that lasted between 20-25 minutes.

Teacher 1: Teacher at an arts school – experienced environmental education teacher

Teacher 2: Teacher at a Title 1 school – little experience in environmental education

Teacher 3: Teacher at a Title 1 school – some familiarity with environmental education

Teacher 4: Teacher at charter school – runs a successful environmental education program

Surveys were distributed to twenty-five teachers at a Title 1 school in the area that did not have any program associated with environmental education. I implemented a lesson plan in a fourth-grade classroom at a Title 1 school and distributed an anonymous survey to twenty-four students. Surveying children about their interest, experiences, and knowledge about environmental education is an important aspect of this research. The purpose of the teacher

interviews, teacher, and student surveys was to determine if the individuals who are currently in classrooms today feel that there are benefits to implementing environmental education in primary schools.

Materials

The first step of the research process was to conduct interviews with teachers that had varying degrees of experience in environmental education in elementary schools in Monterey County. There were ten interview questions for the teachers with little environmental education experience (SEE APPENDIX 2). A separate set of nine interview questions were created for the teachers that were experienced in teaching environmental education (SEE APPENDIX 1). The interview questions for the teachers with little experience teaching environmental education focused more on their capability and comfortability teaching environmental education to students, while the interview questions for the experienced teachers focused on the components that factor into a successful environmental education program. In order to create a larger data pool from the perspectives of teachers, an anonymous teacher survey was generated and was distributed to twenty-five teachers at a Title 1 primary school that does not have any environmental education (SEE APPENDIX 3). The anonymous surveys were sent using Google survey through a compiled list of teacher emails. The survey contained a five-point Likert-type scale ranging from strongly disagree to strongly agree to contain fourteen questions. The purpose of this survey was to gain a deeper understanding of the various perspectives of teachers that teach at a primary school level, and their interest in environmental education.

The other population that needed to be examined for the purpose of this research were elementary students. The implementation of environmental education into classrooms will affect them, and it is important to gather data about their experience with nature and their interest in

this type of education. I created a lesson plan using state environmental education standard, and I facilitated this lesson plan to a fourth-grade class of twenty-four students (SEE APPENDIX 4). My lesson plan focused on moving children outside of the classroom and into an open-air environment. I began by teaching them the importance of trees, and then we traveled outside to sustainably collect sticks and leaves to create individual trees in recycled paper. The objective of the lesson is to encourage students to explore learning outside of the classroom as well as foster a sense of caring for the environment. After the lesson, I presented each student with a paper copy of an anonymous survey that had ten questions based on a nominal YES/NO scale (SEE APPENDIX 5). The intent behind the anonymous surveys was to evaluate their interest and accessibility regarding environmental education.

Procedures

The different approaches to data collection that I used were amassed in various ways. The teacher interviews were collected both in person and through email. Due to conflicting schedules, only one interview was conducted in person. Through the email interviews, the interview questions were sent to three teachers, and they promptly sent back their responses. The in-person interview was conducted at an elementary school in Monterey County. This interview lasted 20-25 minutes, and it greatly helped the collection of research detailing the benefits of implementing environmental education in low-income elementary schools. Each interviewee was briefed prior to the interview that their names would not be included in the final research product, and each interviewee signed a consent form. A principal at a Title 1 elementary school in Monterey County was willing to send out an anonymous survey to teachers. Through this contact, the anonymous teacher Google survey was included in the school's monthly online newsletter. The student surveys were distributed in a different way than the teacher surveys. I

dispersed the student surveys while I was visiting a fourth-grade classroom to demonstrate an environmental education lesson plan.

Results, Findings, and Discussion

After analyzing various forms of literature and performing various methods of in-field research including teacher interviews, teacher surveys, and student surveys, sufficient data has been collected to answer the primary and secondary questions. The perspectives of teachers who had varying experiences with environmental education, as well as the opinions from Title I teachers and students, provided different opinions on this education field. Throughout the results, findings, and discussion section, an in-depth analysis of the in-field research will be examined to determine if the data collected through the methods and procedures provided evidence that environmental education benefits low-income primary school students.

The collective data that has been discovered gives information regarding the benefits of implementing environmental education in low-income primary school classrooms. This research paper will discuss what the goals and components of effective environmental education look like, how environmental education benefits students socially, how pre-service education should educate teachers, and what it will take for schools to adopt environmental education programs into their curriculum. My teacher interviews and teacher surveys allowed me to answer my secondary research questions, as well as the student surveys that were collected. All the data that was accumulated resulted in the proven benefits of environmental education in primary school classrooms.

What does research say about the benefits of implementing environmental education program for low-income elementary students?

Low-income students do not have the same accessibility to the outdoors as students in higher income areas. It is important that low-income students are receiving the same opportunities and experiencing the same environmental education that other students are. Lieberman and Hoody (1998) state that performance on standardized tests in reading, writing, math, and science improved through access to environmental education as well as an increase in the enthusiasm for learning. This will be beneficial to students at low-income schools because if they are performing better on standardized tests, then the school will receive more federal funding. Teacher 4 stated an in-depth analysis of how environmental education benefits low-income primary school students, “In my experience, students that speak English as a second language will often find it easier to talk and ask questions while working on an outside project in a small group. I have also found that students having a difficult time at home or that suffer from anxiety find that working in the garden can ease some of the stress they feel” (Teacher 4, Personal Communication, 28 April 2019). This insight is important to examine because many low-income students come from homes that are toxic, and this can lead to elevated stress levels. Due to these elevated stress levels, it is important to look at the stress relief that environmental programs such as gardens produce for low-income students. Teacher 4 also touched on the comfortability that English language learners (ELLs) feel when they are participating in an outdoor project to raise their hand and ask questions. According to Sugarman and Geary (2018), 40% of ELLs born to native-born families are considered low-income. Due to ELL students being a large demographic in low-income schools, it is important that schools are providing students with opportunities to participate in outdoor projects. Environmental education can improve the quality of life for low-income students by providing them with enriched education that could cause them to begin to become active members of their community. According to

Parlo and Butler (2007), there is a positive correlation between environmental education and academic achievement because students are able to make real-world connections to their study material. The public education system today lacks opportunities for students to use first-hand experiences as a way to learn the common core curriculum. Many low-income schools are in Urban environments, and this type of setting has its own specific issues regarding the natural environment. Environmental activists and educators in urban cities need to support students who are facing poverty and social inequity. Russ and Krasny (2017) outline the specific aspects that urban environmental educators need to include in a low-income school in the city. This outline includes individual learning, the formation of social ties, engagement in stewardship, and policy action. The interview with Teacher 3 confirmed the benefits of environmental education for low-income elementary students (SEE APPENDIX 2). Making connections with nature at a young age is very beneficial for students of low-income urban environments because they experience less anxiety and feel more comfortable in the classroom. If children are exposed to nature at an early age, they are more likely to be connected to it as they grow and contribute to their community. Children with a connection to nature can grow up to be activists and do positive things for the environment (Teacher 3, Personal Communication, 12 March 2019).

What are the goals and components or elements of effective environmental education programs?

In other words, how do their curricula look like?

Teacher 1 had insight into what they think is the most important elements of an effective environmental education program. During the interview with the experienced teacher (SEE APPENDIX 1), Teacher 1 discussed awareness, action, and the understanding of concepts as dependent qualities. “Stewardship is something that is necessary, like awareness and learning, and you can do that through experience. It's got to be an action, and that can simulate the

concept” (Teacher 1, Personal Communication, 5 March 2019). To raise awareness among students’, teachers also need to be aware of all the components and benefits of environmental education. The supervision of experienced staff is vital for an effective environmental education program. A passionate teacher who is able to make meaningful connections, and effectively communicates with students is essential in an early childhood environmental education program. If a teacher is able to demonstrate to the students why stewardship of the environment is important, this knowledge and enthusiasm will be passed on to the students at an early age. Teacher 4 stated “Some of the essential things to include are structured project time, free exploration time, hikes, quiet observation time, reflection time, and time to record/ collect things in their science notebooks” (Teacher 4, Personal Communication, 28 April 2019). If this human-environment connection is meaningful enough to the students, they will remember this as they develop, especially if the teacher was able to make a more personal connection with the students. According to the research by Wells, Myers, & Todd (2015), the controlled trial of implementing a garden at low-income elementary schools proved that science knowledge increased among students. Through research analysis, it has been proven that hands-on activities that facilitate active learning should be components in an effective environmental education program.

Are there benefits of implementing an environmental education program for low-income elementary students? If there are, how do they benefit students socially?

Based on the analysis of literature and in-field research, it has been proven that environmental education has numerous benefits for primary school students. Teacher 2, one of the teachers who does not have a lot of experience with environmental education, discussed in depth how environmental education benefits students culturally and socially. She had years of

experience working in a school that embraced the Waldorf philosophy but is now working at a Title I school in Monterey County. She discussed some of the differences between the two schools, and one of these includes access to the environment. Teacher 2 discusses that many Title I schools lack the funding to incorporate environmental education, and if they do, they allocate those funds to different programs. Through her experience, she states, “Children who have access to the environment inquire more about environmental occurrences, and they show more interest in learning. Children also have the opportunity to form social bonds with each other” (Teacher 2, Personal Communication, 12 March 2019). This supports the claim regarding how environmental education benefits students socially. By providing students with an opportunity to form bonds, they will see developmental growth. Chawla (1998) found that there was a correlation between environmental experiences in early childhood and activism later in life. The concern for the environment and the need for action is growing in today’s society, and this is why more people, including teachers, are pushing for environmental education in classrooms. The next generation will need to be encouraged to promote activism regarding the environment. Based on a survey that I distributed to a group of Title I teachers, 42% of the data pool strongly agrees that teachers should encourage students to develop a feeling of concern for the environment (SEE APPENDIX 3). That same survey showed that 57% of this specific group of teachers also agreed that environmental education could benefit students socially. Teacher 4 states that students that have trouble connecting to peers often find social barriers easier to cross when they are in the garden working on a project together; therefore, environmental education projects help students develop social bonds with each other. (Teacher 4, Personal Communication, 28 April 2019). Through this research, I have found that there are different ways that access to environmental education can benefit a student socially.

Are there schools in the Monterey area that currently implement environmental education programs in their curricula? If they do, how do teachers incorporate them in their curricula and teach them to low-income elementary students across the curriculum?

While conducting research about successful environmental education programs throughout Monterey County, I found that there is a lack of this type of education in low-income primary schools. The schools in this area that value stewardship, sustainability, and education are mostly located in high-income areas such as Carmel, California. My research has found that there is a gap in low-income areas regarding environmental education. While researching environmental education programs in the Title I schools of Monterey County, I found one school that has just recently incorporated a successful garden project at the elementary school. The garden that was implemented at MLK School of the Arts Elementary in Seaside was created to enhance student awareness and promote sustainability. They decided to incorporate a garden and an art mural in the front lawn of the school. This environmental awareness project is intended to incorporate STEM subjects into learning such as science, math, and engineering, but it also encourages student involvement. By creating hands-on experiences that will enable students to become active participants of their education. Teacher 1 discusses the different ways she incorporates environmental education throughout Monterey County stating, “Gardens at schools and also growing plants in their classrooms. I started seeing a real difference between like school districts like Carmel and Pacific Grove and very wealthy school districts who had more. These areas have more affluent kids with fewer problems coming in. They kept smaller class sizes, and they did environmental type things” (Teacher 1, Personal Communication, March 5). Her statement about the increase of classroom size reiterates the effects of No Child Left Behind on environmental education in classrooms. It has become increasingly difficult for teachers to

implement different curriculum into their classes if they are already required to do so much to achieve state test level standards. Most of the school sustainability programs in Monterey County are not in low-income schools. This can cause an inequitable education for many students.

What will empower teachers to adopt environmental education programs into their curricula?

To answer the research question, the research performed attempted to focus on the education of pre-service teachers. An efficient environmental program requires educators to feel empowered through their own education. Discovered through my survey questions, 57.1% of teachers examined were neutral regarding their knowledge about environmental education (SEE APPENDIX 3). Although they did not feel inadequate to incorporate this subject into their curriculum, they also did not feel confident about doing so. An effective environmental education program needs to have confident, well-informed teachers to be successful. That same survey provided data regarding preservice teacher courses regarding environmental education, and it found that 28.6% of teachers surveyed believed that preservice teachers should learn methods to effectively teach environmental education (SEE APPENDIX 3). Environmental education is not seen as part of the mainstream school curriculum, so teachers do not prioritize this specific learning area. Due to this, there is a lack of policy guidelines regarding effective pre-service teaching (Bodzin et al, 2010). Pre-service teachers should explore different education models that will enable them to effectively teach environmental education to low-income primary school children.

Discussion

Through literature analysis and in-field research, it has been proven that environmental education is incredibly beneficial for elementary school students primarily for ones who attend low-income schools. This specific learning has unique active-based learning where students have

the freedom to develop their own autonomy, and the ability to discover connections with nature. Research has proven that successful environmental education programs have physical and cognitive benefits for school-aged children. Students who are exposed to this type of education create stronger relationships with their classmates, school, and community. These students are also more likely to be engaged in their education than students who are denied this exposure. This type of education also teaches sustainable methods and encourages active participation in social activism. It is unfortunate that many low-income elementary schools do not value the numerous benefits that environmental education offers students. It is difficult for low-income schools to allocate funds for outdoor education opportunities, but through this research, I hope that it is understood that environmental education can occur anywhere. The most important aspect of environmental education is for the students to get outside so they can begin meaningful learning through the process of first-hand experience.

Problems and Limitations

At the beginning of the in-field research process, it was intended to interview five teachers throughout Monterey County. I was unable to achieve five teacher interviews; however, it was possible to successfully implement the data from four teacher interviews. Another issue that I faced was the limited number of teacher's surveys that I received. I sent out twenty-five surveys to teachers at a Title 1 school, but only received seven responses in return. A limitation during this research was the realization that many low-income schools did not have the funds to implement effective, established environmental education programs. The timeframe given for this research was also seen as a limitation because to achieve thorough, accurate research, a longer timeframe would have been beneficial. The scope of my research was also limited because the focus was solely on Monterey County.

Recommendation

It is beneficial to students and teachers in Monterey County that California is a progressive state regarding environmental education and sustainability methods. I would recommend that low-income primary schools create a partnership with charities and nonprofit ecological groups that would be willing to assist and fund environmental programs in schools that could not afford it. Secondly, I would suggest that teachers focus on continuing their education regarding successful environmental curricula. It is vital to the success of an environmental program that teachers are confident and knowledgeable about the subject. Schools should also provide teachers and students with the resources to succeed in new educational programs that are implemented at schools, such as an environmental education program.

Conclusion

Through literature analysis and in-field research, it has been determined that environmental education has numerous benefits on the development of students in low-income elementary schools. The connections that students will create between themselves and their environment through schooling will enable them to become active members of their community and their education. These methods of research have been effective in answering the primary research question which is *How does implementing environmental education program in schools benefit low-income elementary school students?* Through literature analysis and in-field research, I found that “Promoting positive environmental experiences in the early grades supports both cognitive (knowledge) and affective (attitudes) domains” (Hammond, 1997, p.9). Environmental education has benefits in regard to the cognitive development of students, but it also helps students lead more active lifestyles. Opportunities to get outside and learn about the environment

through the first-hand experience has been diminishing in primary schools all across the United States.

One of the greatest benefits of environmental education on a student's learning is the ability to connect with natural elements. Through this connection, children working/playing outside in the garden, in the park, or in the forest, gain a better understanding of how things grow, how their body works, are often more at ease to ask questions. The data that was collected from the student surveys proved that 90% of students wanted to spend more time outside, and they had an interest in helping the environment (SEE APPENDIX 5). Children learn in different ways when they are exposed to nature, and this can improve their learning and social awareness in more ways than one. Meaningful learning occurs when children have a sense of discovery, and this allows for the development of an emotional connection with the natural world (Bento and Dias, 2017). By creating an emotional connection with nature, students began to care about the issues that are affecting the environment, and they are more likely to become activists and active members of their communities. Developing an ethic towards the environment is an important understanding that primary school students should obtain.

Based on the research presented, it has been proven that not only do students have an interest in learning about the environment but so do teachers. As educators and proponents of student success, it is our responsibility to encourage students to become enthusiastic about their education and becoming active members of their community. By encouraging students to become active community members, they will gain experience as activists working collaboratively with others while also expressing their creativity. To create environmentally conscious students, it is vital that teachers are knowledgeable about environmental education and confident about instilling sustainability practices within students. Low-income schools do not

always have the funds to support environmental education programs, but there are ways that these types of programs can reach low-income students. By requesting assistance from charities and nonprofit groups as well as providing the necessary resources to obtain these types of programs in low-income schools is a method that could provide these students with this type of education.

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Appendix 1: Experienced Teacher Interview Questions

1. Can you tell me a little bit about what the purpose of this program is?
2. Tell us about what you do with Return of the Natives?
3. What kind of students do you typically work with?
4. Do you believe early childhood is a critical time for children to connect with nature? If so, why?
5. What are the essential things to include in an early childhood environmental education program?
6. Why do you think we should teach children about the environment?
7. What are some of the goals or components of implementing effective environmental education curriculum?
8. Do you think environmental education benefits students culturally, socially, or economically? If so, how?
9. What is the end objective of teaching these students about the environment?

Appendix 2: Inexperienced Teacher Interview Questions

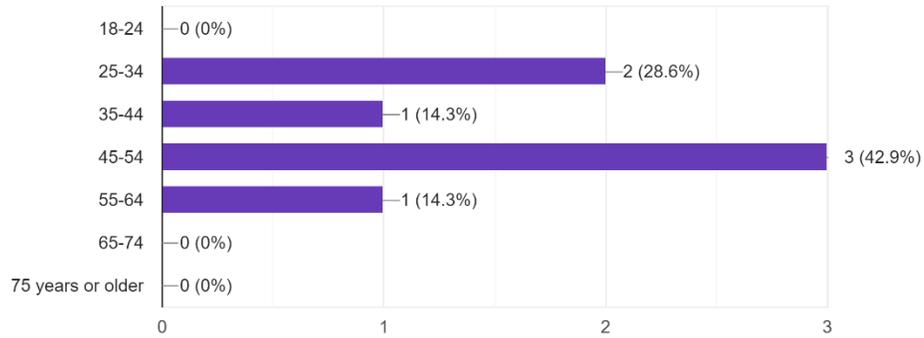
1. Do you currently have integrated environmental education in your classroom or school?
2. Do you believe early childhood is a critical time for children to connect with nature? If so, why?
3. What are the essential things to include in an early childhood environmental education program?
4. How do you convince administrators that children need regular contact with nature and that providing opportunities can assist curriculum goals?
5. What are some of the goals or components of implementing effective environmental education curriculum?
6. Do you think environmental education benefits students culturally, socially, or economically? If so, how?
7. What are the major challenges facing the incorporation of environmental education in early childhood education?
8. Do you think that environmental education should be a priority in primary school classrooms?
9. Do you think children should have opportunities to work with the environment during school time? Do you think that would be beneficial?
10. Do you feel comfortable teaching environmental education to students? If not, what would help you feel comfortable teaching this subject?

Appendix 3: Teacher Survey Questions

1. Age:

Age:

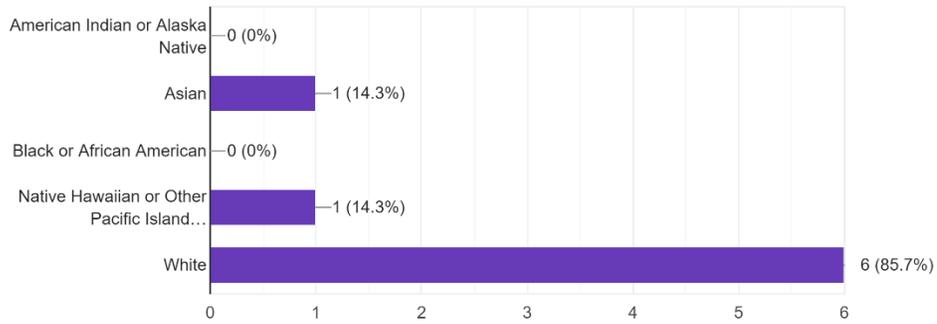
7 responses



2. Ethnicity:

Ethnicity:

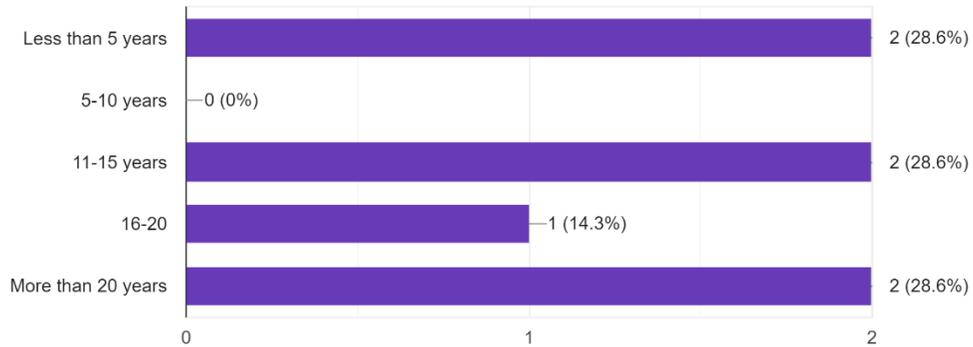
7 responses



3. Teaching Experience:

Teaching Experience:

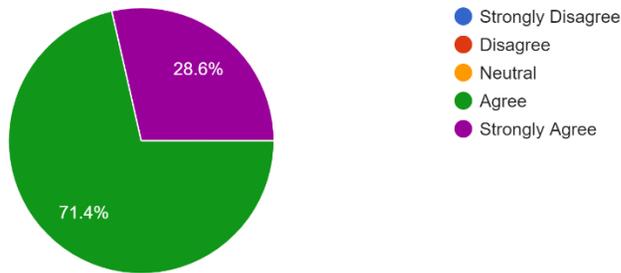
7 responses



4. Environmental education should be considered a priority in primary school education.

Environmental education should be considered a priority in primary school education.

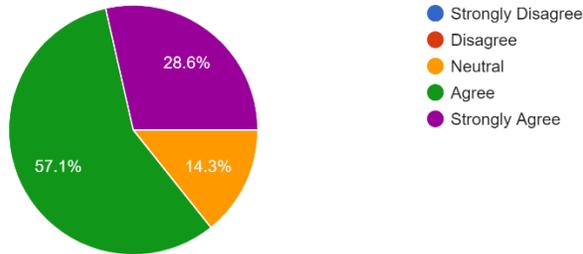
7 responses



5. Students should have opportunities to work with the environment during school time.

Students should have opportunities to work with the environment during school time.

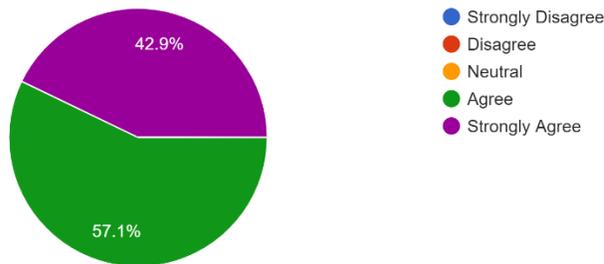
7 responses



6. Teachers should encourage students to develop a feeling of concern for the environment.

Teachers should encourage students to develop a feeling of concern for the environment.

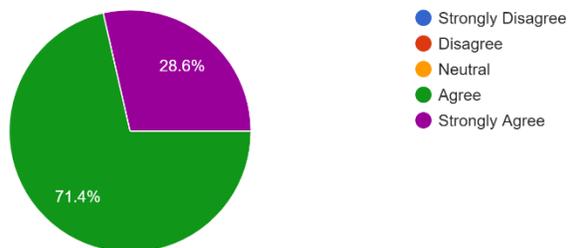
7 responses



7. I believe that it is important to integrate environmental education in common curriculum.

I believe that it is important to integrate environmental education in common curriculum.

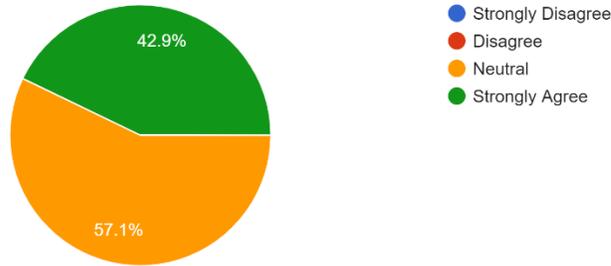
7 responses



8. I am knowledgeable about environmental education and I feel confident about effectively teaching environmental education to students.

I am knowledgeable about environmental education and I feel confident about effectively teaching environmental education to students.

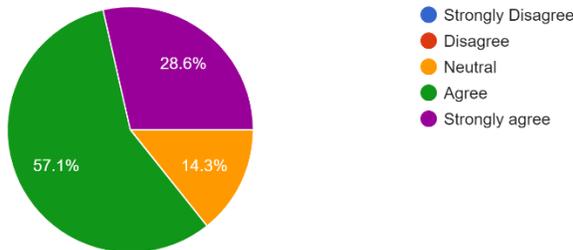
7 responses



9. Preservice teachers should take courses that teach them methods to teach environmental education curriculum.

Preservice teachers should take courses that teach them methods to teach environmental education curriculum.

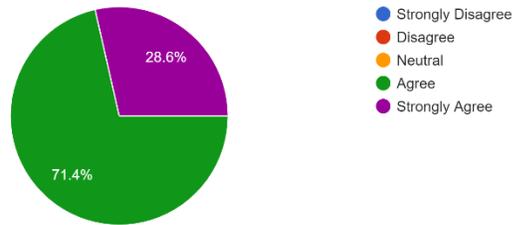
7 responses



10. I would be willing to work with environmental programs that are established at the school.

I would be willing to work with environmental programs that are established at the school.

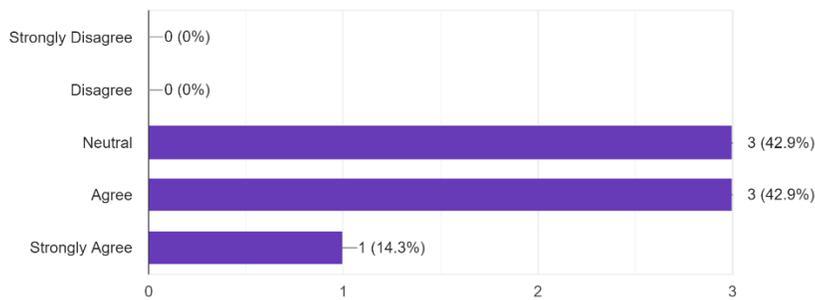
7 responses



11. I believe that environmental education influences students to become social activists.

I believe that environmental education influences students to become social activists.

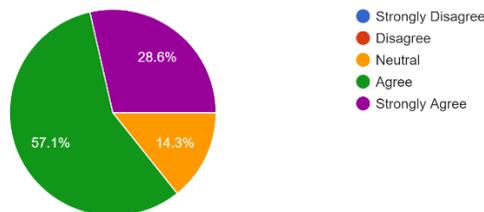
7 responses



12. I believe that environmental education benefits students culturally and socially.

I believe that environmental education benefits students culturally and socially.

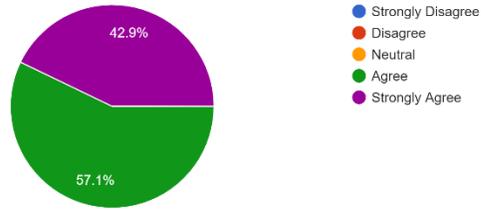
7 responses



13. I believe that students should have opportunities to learn about environmental issues and sustainable strategies.

I believe that students should have opportunities to learn about environmental issues and sustainable strategies.

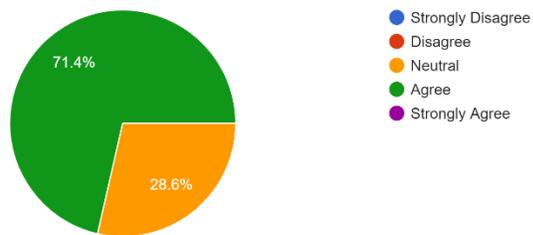
7 responses



14. Through environmental education, students will become active members of their community

Through environmental education, students will become active members of their community.

7 responses



Appendix 4: Student Lesson Plan

Title: The Importance of Trees

Time: 60 minutes

Subjects: Language Arts, Science, Visual Arts

Objectives:

- Listen to gain knowledge and share information and perform a task (relating to parts of trees and uses of parts of trees).
- Draw conclusions using picture clues, story text and prior knowledge. Identify the different parts of plants and the purposes they serve.

Standards:

Language Arts Standard 8: Use listening and speaking strategies for different purposes.

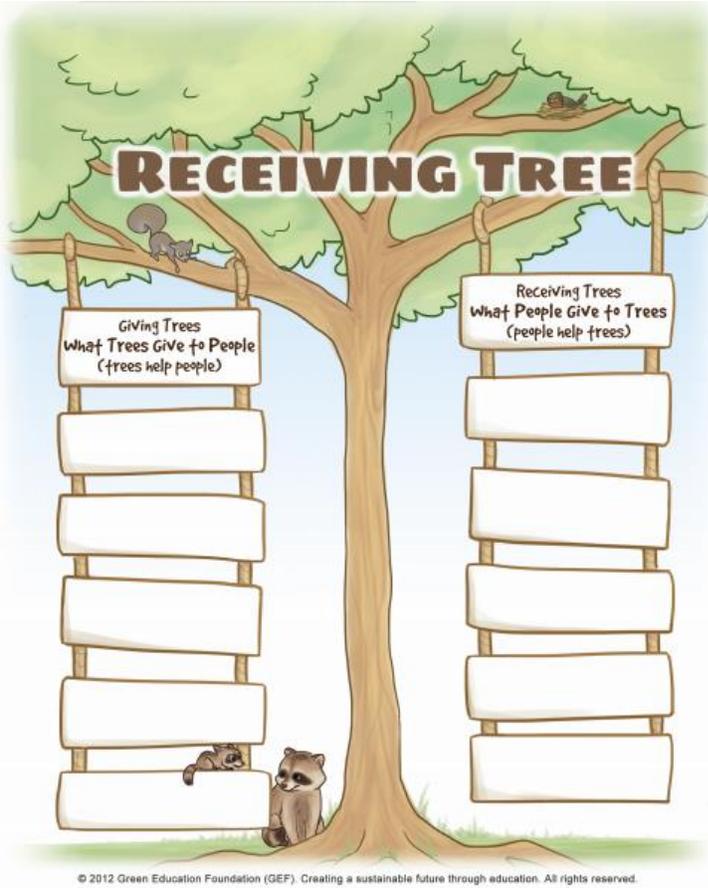
Science Standard 14: Understands how human actions modify the physical environment.

Visual Arts Standard 4: Identify how selected principles of design are used in a work of art and how they affect personal responses to and evaluation of the work of art.

Warm Up Activity:

A reading of “The Giving Tree” by Shel Silverstein. After the reading, the students will discuss why trees are here, why we need them, and how humans affect trees.

Each student will receive a worksheet to fill out. I will explain that the worksheets are printed on recyclable material. I will show them where to find label on product that says it has been recycled or can be recycled.



Main Activity:

The students will each receive a blank tree template. We will go outside to find sticks and leaves that are on the ground to add to our blank tree. I will explain to the students that we are sustainably gathering this material.



Cool Down:

The students will present their trees and explain one new thing they learned that day.

Appendix 5: Student Survey Questions

1. I feel close to nature.
YES NO
2. Spending time in nature is important to me.
YES NO
3. I like learning about nature.
YES NO
4. I like doing experiments.
YES NO
5. I like going outside.
YES NO
6. Nature makes me happy.
YES NO
7. I understand some issues that are happening in the environment.
YES NO
8. I want to help the environment.
YES NO
9. I want to learn more about the environment.
YES NO
10. I believe in helping the environment.
YES NO