

I. INTRODUCTION

In the late 1990s, a seminal report entitled “Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning” (Closing the Gap Study) was published following increased support for environmental-based education programs as a basis for improving student learning and education.¹ Although this was not the first study of its type, it stands as one of the most comprehensive, detailing the marked success of forty schools using environmental-based programs to motivate student interest and improve academic achievement.² However, despite the results of this study and others, environmental education methods are still not wholly embraced as fundamental to a child’s education and continue to be secondary to the demands of a student’s formal “education.”³ Further, these programs are often viewed as having many barriers to implementation and therefore not realistic for most schools. Environmental education programs are an asset to student learning and development and the barriers that keep these programs from being utilized nation-wide as a tenant of a quality education can be overcome using a variety of approaches.

Part II of this paper will discuss the definition of environmental education, its history, and its development.⁴ Then, Part III will discuss the importance of environment education programs for student academic and emotional development and provide examples of successful environmental education programs.⁵ Finally, Part IV will discuss the obstacles to the effective implementation of environmental education programs and proposed solutions or strategies to help schools overcome these barriers.⁶

II. BACKGROUND

A. *Environmental Education Defined*

One of the difficulties of gaining nationwide-wide acceptance of the importance of environmental education in schools is its lack of a singular definition.⁷ Due to the nature of the of the topic, environmental education is fluid in the sense that it is ever changing as society and values of society change, as the political climate vacillates, as technology advances, populations expand, and as the issues it seeks to address are revealed or resolved.⁸ It is multi-disciplinary, multi-faceted and multi-dimensional.

¹ GERALD A. LIEBERMAN & LINDA L. HOODY, CLOSING THE ACHIEVEMENT GAP: USING THE ENVIRONMENT AS AN INTEGRATING CONTEXT FOR LEARNING 3 (Science Wizards 1998).

² The National Environmental Education & Training Foundation, *Environment-based Education: Creating High Performance Schools and Students*, available at <http://www.neefusa.org/pdf/NEETF8400.pdf> (September 2000) [hereinafter NEE].

³ JOY A. PALMER, ENVIRONMENTAL EDUCATION IN THE 21ST CENTURY: THEORY, PRACTICE, PROGRESS AND PROMISE xi (Routledge 1998).

⁴ See *infra* Part II (discussing the differing definitions of environmental education and the history of environmental education initiatives in the U.S. and abroad).

⁵ See *infra* Part III (discussing the value of environmental education programs for integrated student learning and multiple successful environmental education programs across the U.S.).

⁶ See *infra* Part IV (discussing many of the barriers to full acceptance of environmental education programs at every school in the country and proposals as to how these obstacles can be overcome).

⁷ Terry Rachael Adams, *Overcoming Barriers to Teaching Action-Based Environmental Education: A Multiple Case Study of Teachers in the Public School Classroom*, <http://digitalcommons.wku.edu/theses/1230> (2013).

⁸ Palmer, *supra* note 3, at 1.

The Environmental Protection Agency (EPA) has defined environmental education as a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment.⁹ The North American Association for Environmental Education (NAEE) defines environmental education as teaching children and adults how to learn about and investigate their environment and how to make intelligent, informed decisions about how it can be taken care of.¹⁰ Additionally, the Colorado Alliance for Environmental Education (CAEE) views environmental education to be a life-long process that increases awareness about the environment and its systems, while developing critical-thinking skills that enable responsible decision making and allows for opportunities to apply those skills.¹¹ The CAEE further breaks down these categories by defining “good education” and “civic responsibility” as it applies to environmental education. The CAEE views environmental education as a “good education” as it is interdisciplinary, learner-centered instruction, emphasizing critical thinking skills, and has the ability to address multiple intelligences and learning styles.¹² It also views environmental education as more than just an education, but an opportunity to foster a connection to the community and engender civic responsibility by understanding the implications of one’s actions and thinking critically about choices in order to make responsible decisions.¹³ Finally, for a more holistic view, the Closing the Gap Study looks at environmental education as environment-based learning that is not just studying the environment or focusing on environmental awareness but rather the opportunity to use the school’s surroundings and community as a framework within which students can construct their own learning.¹⁴ The Closing the Gap Study defines the environment-based learning model as employing a comprehensive focus and framework in all areas including: general disciplinary knowledge, thinking and problem-solving skills, basic life skills like cooperation and interpersonal communications, and understanding and appreciation for the environment.¹⁵

No matter how fluid the nature of environmental education and its definition is, the basic concept is clear: environmental education seeks to educate students on the importance of their environment and communities, as well as develop essential skills for the student’s future like critical-thinking, civic responsibility, problem solving, and a personal ownership of their surroundings.

B. The History and Development of Environmental Education

Although the term “environmental education” did not appear until the mid-1960s, the influence of great eighteenth- and nineteenth-century thinkers, writers, and educators contributed

⁹ *What is Environmental Education?*, United States Environmental Protection Agency, available at <http://www2.epa.gov/education/what-environmental-education> (last visited Apr. 30, 2015).

¹⁰ *What is Environmental Education*, North American Association for Environmental Education, available at <https://www.naaee.net/what-is-ee> (last visited Apr. 30, 2015).

¹¹ *What is Environmental Education?*, Colorado Alliance for Environmental Education, <https://www.caee.org/what-environmental-education> (last visited Apr. 30, 2015) [hereinafter CAEE].

¹² CAEE, *supra* note 11. See also, Lieberman, *supra* note 1, at 28 (discussing how the study found that the benefits of environmental education include better performance on standardized tests, reduced discipline problems, increased enthusiasm for learning, and greater pride and ownership in accomplishments).

¹³ CAEE, *supra* note 11.

¹⁴ Lieberman, *supra* note 1, at 16.

¹⁵ *Id.*

to early environmental thought and practice.¹⁶ It is widely believed that the founding of environmental education may be attributed to a Scottish professor of botany, Sir Patrick Geddes (1854-1933) for his discovery of the link between the quality of the environment and the quality of education and his pioneering instructional methods that brought learners into direct contact with the environment.¹⁷ In 1902, the first School of Nature Study Union was founded in the United Kingdom and by the 1940s there began a rural studies movement, which developed into the present day National Association for Environmental Education in 1960.¹⁸ Further, the World Conservation Union (IUCN) was established in 1949 as an international union of all organizations concerned with conservation and in 1965 a meeting of the IUCN called for the environmental education programs in schools.¹⁹ At the 1972 United Nations Conference on the Human Environment (Stockholm Conference), the need for environmental education was further endorsed and its international status and importance greatly enhanced. From this conference, the United Nations Environment Programme (UNEP) was created and they, along with the United Nations Educational, Scientific, and Cultural Organisation (UNESCO), founded the International Environmental Education Programme (IEEP). IEEP produced the first intergovernmental statement on environmental education and listed key aims, objectives, concepts and guiding principals, and was the first time environmental education gained attention from the world at large.²⁰

The 1972 Stockholm Conference set the stage for greater awareness of the need to advance environmental education but there were two subsequent conferences that were seminal events for the furtherance of environmental education initiatives.²¹ First, the International Workshop on Environmental Education in Yugoslavia in 1975 resulted in what is now known as The Belgrade Charter.²² It was built on the original structure of the Stockholm Conference declaration and proposed what is the most widely accepted definition of environmental education.²³ Second, the world's first Intergovernmental Conference on Environmental Education held in Georgia, USSR in 1977 produced The Tbilisi Declaration, which codified environmental education as an international enterprise.²⁴ The Tbilisi Declaration still remains, in many ways, the definitive statement on what environmental education is and should be.²⁵

¹⁶ See Palmer, *supra* note 3, at 4 (referencing Goethe, Rousseau Humbolt, Haeckle, Froebel, Dewey and Montessori as among these influential persons).

¹⁷ See Palmer, *supra* note 3, at 4 (discussing the Outlook Tower Center established by Geddes which is viewed as the first "field" studies center).

¹⁸ Palmer, *supra* note 3, at 4.

¹⁹ *Id.*

²⁰ Robert L. Carter and Bora Simmons, *The History and Philosophy of Environmental Education*, available at http://niu.edu/~carter/courses/520/Carter_Simmons.pdf (last visited May 1, 2015).

²¹ Carter, *supra* note 20, at 8.

²² *Id.*

²³ *Id.* Defining environmental education as "[a] process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones." UNESCO-UNEP 1976).

²⁴ *Id.*

²⁵ *Id.* at 8-9 (explaining the goals of the declaration: (a) to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas; (b) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; (c) to create new patterns of behavior of individuals, groups and society as a whole towards the environment (UNESCO 1978)).

The twentieth century was not as kind to the development of the environmental education initiative. With the ushering in of the Reagan era, a great deal of environmental education infrastructure was eliminated through the Omnibus Budget Reconciliation Act and there grew an apparent indifference to environmental quality and literacy in the United States.²⁶ Further, there was a large effort by many to support large, consumptive, extractive, and pollution-producing businesses in lieu of environmental advances or protections.²⁷ Through the Clinton administration views of the importance of environmental education continued to fluctuate greatly, but the twentieth century did produce the National Project for Excellence in Environmental Education which provides the guidelines for the development and assessment of environmental education materials, as well as benchmarks for practitioner and student knowledge on environmental topics.²⁸ Further, the National Environmental Education Act was passed in 1990 to reestablish the Office of Environmental Education inside the U.S. Environmental Protection Agency.²⁹ Additionally, the importance of environmental education was still widely recognized and supported abroad, as seen by the 1992 Earth Summit in Brazil, which outlined mandates for education for sustainable development and was agreed to by 120 delegates and heads of state from 170 countries around the world.³⁰

The twenty-first century has continued largely on the same negative theme. There have been failed attempts to completely reinstate the National Environmental Education Act after its authorization expired in 1996 and it continues on through annual appropriations bills.³¹ Also, The No Child Left Behind Act was signed into law, which wholly ignored environmental education. Further, due to the strict standardized testing requirements of The No Child Left Behind Act, many teachers have also been forced to abandon what environmental education programs they did have to focus on state tests.³² In response, certain members of congress introduced the No Child Left Inside Act to include environmental education programs in The No Child Left Behind Act.³³ The No Child Left Inside Act currently has a fifty million-person support group³⁴ and reiterates what we knew as far back as the early 1900s – that environmental education should be embraced as part of a student’s core education.

III. DISCUSSION

A. *The Importance Environmental Education Programs*

America has been working to address the issue of creating more effective schools, but current statistics show that there is still much progress to be made on the way to becoming a

²⁶ *Id.* at 9.

²⁷ *Id.*

²⁸ *Id.* at 11.

²⁹ Update on the National Environmental Education Act of 1990, American Geological Institute, <http://www.agiweb.org/gap/legis106/nea106.html> (last visited May 1 2015).

³⁰ Martha C. Monroe and Marianne E. Krasny, *Across the Spectrum: Resources for Environmental Educators*, available at http://www.naaee.net/sites/default/files/publications/eebook/EEeBook_download.pdf (last visited May 1, 2015).

³¹ Carter, *supra* note 20, at 11. The National Environmental Education Act currently survives on funding through annual appropriations bills. *Id.*

³² Vanessa Bullwinkle, *Environmental Education and the No Child Left Behind Act*, Project Learning Tree, <https://www.plt.org/environmental-education-and-the-no-child-left-behind-act> (Winter 2008).

³³ *Id.*

³⁴ *Id.*

more competent and literate society.³⁵ School reform calls for well-educated individuals who have a deep and abiding knowledge of the world in which they live and society is asking for citizens who are prepared to take active roles in their communities.³⁶ Environmental education programs are well suited to achieving these goals and furthering school reform as it creates active and engaged students, preparing citizens to live and work in the 21st century.³⁷

Environmental education programs are important as they expose students to different learning styles and environments, which have lasting positive effects on students' overall education and social and emotional intelligence. By providing a comprehensive educational framework, instead of traditional compartmentalized education approaches, environmental education significantly improves student performance throughout the curriculum and enriches the overall school experience.³⁸

Environmental education programs employ natural and socio-cultural environments as the context for learning, while taking into account the "best practices" of successful educators. It combines these approaches in a way that breaks down traditional barriers between disciplines, provides hands-on learning experiences, often through problem-solving and project-based activities.³⁹ Programs rely on team teaching, adapt to individual students and their unique skills and abilities and develop knowledge, understanding, and appreciation for the environment, community and natural surrounding.⁴⁰ This is important because even though environmental education programs are located in diverse natural and community settings and differ in how they are designed, they all have one thing in common: attempting to provide students with the opportunity to connect and integrate what they are learning to their surroundings.⁴¹

Evidence gathered from surveys of schools implementing environmental education programs in schools of all different socio-economic and cultural backgrounds indicate that students learn more effectively in an environment-based context than in the traditional educational framework.⁴² The widely observed benefits of using the environment as an integrated context for learning include: better performance on standardized measures of academic achievement in reading, writing, math, science and social studies, reduced discipline and classroom management problems, increased engagement and enthusiasm for learning, and greater pride and ownership in student's accomplishments.⁴³ The results and benefits of all of the programs studied are impressive and encouraging, and as America continues to search for effective ways to improve the quality of education children receive in both public and private schools environmental education programs may provide a resounding answer.

B. Successful U.S. Environmental Education Programs

The 1998 Closing the Gap Study was one of the largest and most comprehensive studies of the impact of environmental education on students. To conduct the study the State Education and Environment Roundtable – a cooperative endeavor of twelve state education agencies –

³⁵ NEE, *supra* note 2, at 3.

³⁶ *Id.*

³⁷ NEE, *supra* note 2, at 3.

³⁸ Lieberman, *supra* note 1, at 8.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.* at 8.

⁴² *Id.*; NEE, *supra* note 2, at 17-41.

⁴³ Lieberman, *supra* note 1, at 8.

looked at the academic and behavioral results of forty schools within twelve states.⁴⁴ The principle criteria examined were: degree of integration of the environment across the curriculum, student involvement in projects and problem-solving, extent of team teaching, and program longevity.⁴⁵ Also, demographic and socio-economic factors were considered, such as school setting, population of the area, and income levels in the community.⁴⁶ Although no two programs analyzed in the Closing the Gap Study were alike, a few examples of some of the programs surveyed include:

Huntington Area Middle School STREMS Program: located in a rural-area middle school, this program is an integrated-interdisciplinary approach to learning that includes “field” experiences like learning math skills by collecting data in a nearby stream or working on language arts by writing letters or opinion pieces to newspapers, elected officials or government agencies. This program also gets the parents of students involved by having them take a hands-on approach to their child’s learning, either participating in the project directly or supporting students in the community at group presentations or conferences.

Clay County High School: this school in southeastern Kentucky sits on ninety acres of fertile soil, river, and large wooded areas. Here, only four of every ten students go on to higher education and only one finishes that training. The Clay County program integrates simple projects using the schools grounds like plant identification, soil testing, water quality testing, nature trail hikes, archeological digs, and group log cabin construction. The programs also centers around bringing together mainstream and special needs programs for better relationships among all students, most of whom would not had the chance to otherwise interact.

Chariton Middle School: this Iowa middle school was built in a field surrounded by black soil and to remedy the deserted area the school decided to create a program that was designed to promote student’s take-charge attitudes and hands-on learning experiences. Students visit local nurseries, and plant and grow gardens and vegetables in the school fields. Local experts from forestry and conservation come to speak and the students participate in cross-disciplinary projects like a science class profiling a stream and a math class measuring its flow. Further, the school utilizes a team teaching strategy for interdisciplinary instruction where the environment is often the focus.

Taylor County High School: this program in Florida decide to focus on students with the highest dropout rate from traditional high school programs, where consistently up to 40 percent of entering ninth graders failed to graduate. The Environmental Academy now boasts only one to two dropouts per year. Teachers work as a team and are committed to the student’s education, meeting every week to discuss projects, or problems in the program. They also team-teach all four grade levels in a respective discipline to maintain continuity, and develop relationships. Projects include longitudinal studies of the local river, partnering with the Game and Fresh Water Fish Commission, and fieldwork.

Hollywood Elementary: this program is located in the Chesapeake Bay and started as a initiative to turn the school’s campus into a recycling center. The campus now represents a sort-of living lab including a nature trail, butterfly garden, a forest habitat for migrating birds, and a drainage pond as a natural wetland. Each of the development projects sought to utilize the

⁴⁴ See generally, Lieberman, *supra* note 1 (discussing the elements and findings of the study).

⁴⁵ Lieberman, *supra* note 1, at 11.

⁴⁶ *Id.*

student's innate attraction to the natural world while providing a unique opportunity to combine traditional subjects in a meaningful whole.⁴⁷

What the Closing the Gap Study found from surveying each of these unique school programs were student bodies that had a stronger sense of pride and ownership in their accomplishments, greater enthusiasm, interpersonal skills, engagement, self-control and discipline, as well as increased success in the following areas: higher GPA and test scores, improved reading, writing and speaking, improved understanding of mathematical concepts, a better understanding of science and the ability to apply it to the real world, and a greater comprehension of socio-cultural systems.⁴⁸

In 2000, to highlight the importance of environmental education in mainstream school curriculum, The National Environmental Education & Training Foundation (NEETF) also looked at the following examples of successful environmental education programs:

Isaac Dickson Elementary School: this is an urban school located in Ashville, North Carolina which developed three programs designed to facilitate creative learning and understanding. The Gardening/Science Club which meets one afternoon a week to discuss a specific environmental concept and conduct a corresponding project. The Magic Program, where a garden educator works with students to learn about nutrition and growing and studying food. Finally, the Nature Trail program is committed to restoring and developing the local nature trail.

Condit Elementary School: part of the Houston Independent School District, the Nature at Your Doorstep program is a skill-based curriculum rooted in scientific methods where students become "scientists" by reading about and researching topics such as habitat, biodiversity, trees or food webs. Students are required to develop questions and collect data and then learn how to analyze it. Every week the students explore a new problem such as whether trees are good habitats for animals.

Pine Jog Environmental Education Center: located in West Palm Beach, this program focuses on the following components: commitment to incorporating environmental education into all activities and curriculum, having student field experiences in natural settings, professional development for teachers in environmental content and teaching strategies, and teacher development of multi-disciplinary instructional units with the environment as a unifying theme.

The NEETF survey expanded on many of the same results found in the Closing the Gap Study, showing that the use of the environment is remarkably effective at achieving national educational goals and serving the needs of individual students, as well as creating motivation in students and teachers, fostering positive collaborative learning environments, facilitating the ability to make connections across disciplines, and the opportunity to balance a variety of perspectives.⁴⁹ These two studies, and others not included in the effort to be concise, show the success of environmental education programs across the U.S. and the importance of these types of programs. They also reveal that there is not one "right" way to implement environmental education programs, and that what is important is being open to working with the resources schools have in their community in order to create hands-on, environmental opportunities.

IV. PROPOSAL

⁴⁷ *Id.* at 94-105.

⁴⁸ *Id.* at 27-79.

⁴⁹ NEE, *supra* note 2, at 17-41.

A. Challenges Facing Environmental Education Programs

Key challenges to progress in the area of environmental education include issues of teachers not having enough time or lacking knowledge and desire to learn, programs requiring better, further funding, greater focus on standardized testing as a measure of student success, lack of organization and designated leadership, the need for greater commitment to programs from school boards and districts, and access to more enhanced training.⁵⁰ Further, many of these teachers, administrators, school board members, and persons responsible for the school curriculum remain largely unaware of the power of the environmental education approach.⁵¹ Largely, these barriers to mainstreaming environmental education programs can be divided up into two categories: internal and external barriers.

Internal barriers are specific barriers to the individual teacher or instructor and include a teacher's perceived lack of competency and pedagogical knowledge, as well as factors that affect teacher attitudes such as their individual values, beliefs and experiences.⁵² Teacher attitudes about the environment, as well as numerous personal experiences and influences such as political affiliation, parental influence, and past negative experiences in nature can affect whether or not they will teach environmental issues.⁵³

Further, teachers may also lack knowledge or training in environmental topics and issues leaving them feeling less confident about their ability to successfully run an environmental education program.⁵⁴ A study of teachers and environmental education programs in 2002 focused on the relationship between content knowledge, pedagogical knowledge, and the implementation of environmental programs.⁵⁵ The teachers observed reported feeling overwhelmed by their lack of knowledge pertaining to the environmental topic, and also indicated that the program required a paradigm shift from traditional teaching methods they found to be challenging.⁵⁶ Additionally, the teachers found transposing their role of director to more of a facilitator difficult and struggled to shift from teacher-centered instruction to student-centered learning.⁵⁷

External barriers are those outside obstacles to teaching and learning. Lack of resources affect a school's ability to take on environmental programs as the quality and availability of instructional materials play a key role in the accuracy and value of the instruction.⁵⁸ Also, the quality and consistency of the type of materials available to schools can be a deterrent as some widely available resources are factually or conceptually incorrect, grossly misleading, deeply biased, or incorrectly integrated, which may lead to incorrect understandings of the environment and the issues themselves.⁵⁹ Also, accountability standards and current models of quantitatively-measured learning marginalize the value of all other learning that would not necessarily be

⁵⁰ PAUL CHAPMAN, ENVIRONMENTAL EDUCATION AND SUSTAINABILITY IN U.S. PUBLIC SCHOOLS 3 (Inverness Associates 2014).

⁵¹ NEE, *supra* note 2, at 7.

⁵² Adams, *supra* note 7, at 12.

⁵³ *Id.*

⁵⁴ *Id.* at 13-14.

⁵⁵ *Id.* at 15-16.

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.* at 19.

⁵⁹ *Id.* at 20.

discerned using standardized test practices.⁶⁰ Often, funding for schools are based on statistical-based criteria and pose a barrier to school programs that must perform well on standardized tests as the overall curriculum must be weighed against this pressure.⁶¹ Another barrier to implementing environmental education programs is lack of priority given to the subject matter or lack of support from leaders.⁶² Where mandated curriculum does not endorse or prioritize environmental education or there is a lack of administrative support, teachers are much less likely to incorporate these programs into their teaching.⁶³ Finally, lack of time and ability to prepare such programs is likely the greatest factor stopping teachers from implementing environmental education programs effectively into their classroom.⁶⁴ First, time is needed to develop a comprehensive, usable curriculum with specific objectives and goals.⁶⁵ Second, time is needed to prepare materials and lesson plans.⁶⁶ Third, there is the problem of finding actual class time for environmental education, especially when weighed against demands like performance on mandated standardized testing.⁶⁷

There are many strains on schools and their choices regarding how best to educate their students. Many schools and administrators may know of the importance of using the environment as an integrated context for learning but struggle to overcome financial or other restraints. However, there are a variety of resources and solutions to help aid in the full integration of environmental education programs in all schools.

B. Proposed Solutions to Implementing Environmental Education Programs

While there is a growing push for the implementation of environmental education across the nation, barriers ranging from lack of support to teacher confidence and time still prevent full acceptance and implementation. However, environmental education programs are essential to student education and development and these obstacles can be overcome with a combination of solutions at the school and administrative level, as well as the continued pursuit of state and federal support. Though there is no silver bullet to creating a successful environmental education program, there are a number of different resources and suggested possibilities to help bring environmental education experiences to all students.

First, it is important for educators to embrace the development of environmental programming, as they are the essential element to a positive and rewarding experience for the students. It is essential to start by allowing teachers to become educated about environmental education and its benefits themselves, giving them the opportunity to understand the need for change by showing them its value first hand. Raising awareness of outdoor possibilities among teachers to help them see the connection between the school and formal environmental educational outcomes will give educators the room they need to embrace an environmental

⁶⁰ *Id.* at 21.

⁶¹ *Id.*

⁶² Erin Westmoreland-King, *The implementation of environmental education programs on school grounds in pre-K-12 schools in Colorado: From gardens to solar energy*, University of Colorado Denver, available at <http://www.ucdenver.edu/academics/colleges/SPA/capstone/Documents/Capstone%20Example%20Westmoreland-King.pdf> (Apr. 29, 2012).

⁶³ Westmoreland-King, *supra* note 62, at 11-12.

⁶⁴ Sam H. Ham, *Barriers to Environmental Education*, *The Journal of Environmental Education* 17, 17-18 (1988).

⁶⁵ Ham, *supra* note 64, at 17.

⁶⁶ *Id.*

⁶⁷ *Id.*

education program on their own terms. An excellent way to do this is by taking teachers through a day or two worth of programming as if the teachers were the students during professional development days. Giving the teachers the opportunity to enjoy themselves and get involved in hands-on learning in an active setting will allow them to experience first-hand the value of an environmental education program. Additionally, in order to combat the common view that there is not enough school time to for an environmental education program, teachers should be shown how to approach and view environmental education not as another thing to fit in, but as a way to enhance traditional teaching and learning that will directly improve performance in areas like valuable standardized testing, social development, and academic confidence.⁶⁸

Once teachers' enthusiasm and support has been raised for including environmental education into the curriculum, the next step is to professionally train the teachers on topics in their specialty that can be integrated into a hand-on learning experience and on how to facilitate and develop these opportunities for students. For example, showing the math teacher how math can be applied to things like charting the flow of a local river. This type of training will help teachers gain the confidence they need to begin creating their own curriculum packages and programs. Additionally, teachers should be granted the autonomy they need from the administration to work together in designing the courses and material in order to give the teaching team a sense of ownership over the program.⁶⁹

Second, there are a few ways to address the issue of lack of resources or funding starting with ensuring schools have a dedicated and enthusiastic teaching staff. Teachers who are invigorated and excited about creating these types of experience for their students will naturally be hungry for more opportunities to develop and grow environmental education programs. Schools can then support one or a group of teachers who have a passion for environmental education by allowing extra work-study or paid development hours for time spent working on procuring funding for the program through written grants, community fund-raising initiatives, and partnering with local community organizations.⁷⁰ These may be untapped resources for funding or support that the school or administrators may not otherwise have the time or ability to reach out to during regular school hours. For example, there may be funding for groups working to convert their buildings to solely solar energy. Here, the school could create a program committed to achieving this goal by building and installing solar panels, compositing and other projects, which would allow them to qualify for the funding. Or, there may be a local community group who provides resources for local water study and clean up or forestry preservation. Creating environmental education programs around these resources may help soak up the additional funds needed to run a successful program.

Additionally, the dedicated teacher team can also spend time recruiting parents and volunteers to help facilitate the program to ensure its ease of execution and to garner support and participation from the community as a whole. Parents could be utilized to help supervise projects and move kids from place to place quickly to improve efficiency and keep everything on a timely schedule. Finally, this group of committed teachers can also work to provide further evidence that environmental education is worth the time, money, and effort in their schools.⁷¹ To garner support of the program and convince reluctant teachers and administrators of the benefits, this team could compile resources to show that programs have directly lead to improved test

⁶⁸ Westmoreland-King, *supra* note 62, at 11-12.

⁶⁹ *Id.*

⁷⁰ *Id.* at 22-23.

⁷¹ *Id.* at 13.

scores, student behavior and development, and learning.⁷² All of these initiatives will help to ensure that lack of funding or resources will not stall an environmental education program from being created.

Finally, outside of the schools, pursuing continued support for environmental education at the state and federal level can help ensure that school districts are able to get the means they need to continue this type of programming. Lack of resources is a major barrier to many schools implementing environmental education programs, but even this barrier can be reduced by open dialogue among government leaders of the importance of using government funds for these programs. This is particularly important today where many schools lack the definite resources to even pay for base-educational needs like supplies or teacher salaries.⁷³ Supporting and electing both local and federal officials who know the value of investing in environmental learning opportunities, like those who support the No Child Left Inside act, will help to keep the importance of these programs relevant and critical when governments are evaluating their budgets and bottom lines.

V. CONCLUSION

Environmental educational opportunities for students are invaluable as they have the ability to achieve and exceed many traditional educational goals for students through hands-on learning and activity. These programs have been proven to raise test scores, improve overall academic achievement, enthusiasm and engagement, increase student cohesion and classroom control, and develop students' interpersonal and critical thinking skills. Although barriers to implementing environmental education programs exist, many of these barriers can be largely overcome by developing teacher interest, confidence, and education, as well as pursuing funding and program support through grants, local community groups, and seeking greater backing in state and federal governments. As such, every child in America should have access to the invaluable learning experiences and development provided through environmental education programs.

⁷² *Id.*

⁷³ *Id.* at 22-23.