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Incorporating Environmental Education into an Urban After-School Program in New York City

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This study examines the integration of environmental education (EE) into an after-school program in the Bronx borough of New York City. In this qualitative case study, focus group interviews were conducted to first determine parent and educator interest in and barriers to participation in nature programs and incorporation of EE into curriculum. Interest level was universally high and based on numerous motivations including a desire to foster appreciation for nature, perceiving EE as a tool for engaging students with science and linking back to family heritage in the Dominican Republic. Findings also revealed that some of the barriers to incorporating EE were perceived barriers that could be overcome. A four-part EE training series was conducted with the after-school staff and evaluations were completed following each workshop. Staff showed significant confidence and ability to teach EE after the training sessions and were motivated to continue with the EE focus due in part to positive observed student outcomes and parent feedback. A final focus group with both the after-school staff and parents indicated strong support for continuation of EE for the following school year.

Key words: informal education, urban environmental education, environmental education, nature

Introduction

Awareness of environmental issues has grown tremendously over the last decade as modern science and a more globally conscious population continues to enlighten to the connection between a healthy planet and livelihoods of people everywhere. For decades that connection has arguably been undermined by population growth, urbanization and land area loss, creating a potential divide between people and the natural environment. Through contact with and learning about natural areas we can begin to mend this disconnection and restore our balance with nature. Environmental education (EE) has the potential to facilitate experiences that lead to this connection.

Exposure to nature, either through structured EE programs or unstructured play, has many benefits. Yet despite these benefits, many barriers exist for integrating EE into formal and informal educational settings remain. Research has recently suggested that a trend is emerging in which barriers are more prevalent and therefore fewer children experience nature directly (Clements, 2004; Singer, Singer, D'Agostino & DeLong, 2009).

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One common reason for children and families not engaging in outdoor activities is a perceived lack of time due to the greater stresses of society. Society in the United States has seen an increase in demands on the family. With parents working full time, more than 14 million children are on their own after-school and 6.5 million are in after-school care programs (Earle, 2009). After-school programs provide an important opportunity for children to complete homework and have the potential to support and enhance what youth learn in the formal K-12 classroom, even leading to higher levels of academic achievement (Viadero, 2007). With an increasing need for after-school care, there is an unprecedented opportunity for educators in these settings to integrate EE and reach vast numbers of children annually. Further, after-school programs lend themselves to informal, experiential approaches and opportunities to develop well-designed hands-on projects and program activities, all of which are characteristics well-aligned with EE (Weisburd, 2005).

Another reason for lack of exposure to natural areas stems from a shift towards more urbanized living in contemporary society (Satterthwaite, 2000). With a greater portion of the population living in urban environments, experiences in natural areas are limited due to the lack of green and natural spaces in many cities (Verheij, Maas & Groenewegen, 2008). Although substantial challenges can arise to expose urban youth to the natural environment, many innovative and plausible methods have been and continue to be developed as a means to overcome these barriers.

Statement of Purpose

As part of a project sponsored by the Western Association of Fish and Wildlife Agencies (WAFWA), Colorado State University (CSU) researchers partnered with six state wildlife agencies to build EE programs that build on motivations of parents and educators and address barriers faced by these same populations. In this study, the researchers use a case study approach to examine an after-school program in New York City. The guiding research questions were:

- What is the instructors' interest in nature lessons (EE) in a highly urban after school program?
- What is the parental interest in nature lessons (EE) in a highly urban after school program?
- What are the barriers to nature education in an urban-based after-school program?
- How can EE be effectively integrated in the after school program?

For purposes of this paper, EE is defined using the International Union for the Conservation of Nature's language of EE as "*the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among men, his culture and his biophysical surroundings.*"

Literature Review

Benefits of Environmental Education

Previous research has revealed many benefits of EE in a variety of settings such as classrooms, nature centers, residential camps and others. Research shows that 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). An additional benefit of EE is increased student engagement, enthusiasm, interest, and knowledge (Christenson, 2004; Dresner,

2002; Ernst, 2007; Glenn, 2000; Lieberman & Hoody, 1998). Lieberman and Hoody (1998) found that in schools that integrated EE, students gained knowledge more effectively, retained it longer, showed increased critical thinking and problem solving skills and became enthusiastic, self-motivated learners.

Another outcome of EE is its positive effect on environmental stewardship. While definitions of and theoretical understandings about EE do not explicitly cite experiences in nature as a requirement for a program or lesson to be considered "EE," such experiences are often included in EE programs. Research has consistently shown that positive experiences in nature as a child help foster a connection to the natural world and lead to environmental stewardship as adults (Chawla, 1999; Palmer, 1993; Palmer, Suggate, Bajd, & Tsaliki, 1998). Chawla's (1999) study revealed that direct experience with nature as a child through lessons passed on by a prominent adult, inspiring teachers, and memorable field trips can have a significant influence on an individual's environmental attitudes and behaviors as well.

Motivations to Utilize EE

Minimal prior research exists that investigates parents' motivations for EE experiences. A few studies have shown parents' attitudes toward the environment play an important role in children's attitudes (Lob, 1992; Reid, 1999; Wilson, 1993). Reid (1999) also found that parents' involvement with and support of their children's EE programs at school may enhance both the programs and the parents' attitudes toward the environment. Another study showed that in general, parents believed science to be an important topic in school and were supportive of more opportunities for students to learn science (Coyle, 2005).

There are many reasons educators are motivated to use EE. One important motivation is an educator's own ethic toward environmental stewardship which can inspire him/her to teach environmental topics (Lamb & Bruyere, 2009). Other cited reasons for interest in integrating EE include the desire to encourage youth to respect the natural environment, providing opportunities for professional growth, the challenge of learning new subject matter, strengthening teaching skills and the flexibility to try new things (Ernst, 2007; Lieberman & Hoody, 1998). Research shows educators using EE report a greater enthusiasm and revitalization in their teaching (Christenson, 2004; Dresner, 2002; Ernst, 2007; Lieberman & Hoody, 1998). Ninety-five percent of the teachers interviewed in Lieberman and Hoody's (1998) study expressed rejuvenation in their teaching and some participants regarded environmental concepts and teaching strategies as a highlight of their teaching career.

In a study conducted by Ernst (2007), results concluded that an opportunity to affect environmental literacy, knowledge, skills and sensitivity are among the most influential reasons why teachers persist in incorporating environmental topics in their lessons. A study conducted by Middlestadt, Ledsky and Sanchack (1999) showed that many teachers incorporated EE because they believed it was necessary for their students to understand the need to be responsible caretakers of the environment prepared to protect and preserve it for the future. Teachers from Lieberman and Hoody's (1998) study report that through using EE, students were able to better understand the connection between the natural world and socio-cultural systems.

Previous studies also suggested that training provides significant motivation to incorporate EE into curricula (Dresner, 2002; Kim & Fortner, 2006; Ham, Rellergert-Taylor, & Krumpe, 1988). In a study by Dresner (2002), the majority of teachers who participated in an EE training program reported increased enthusiasm from their students and in turn an increased motivation to continue implementing environmentally-based field projects in the future. Ninety percent of the teachers reported putting into practice or improving upon a field ecology project at

or nearby their school as a result of the training. The training improved teachers' knowledge, skills, and confidence in implementing environmental based field projects.

Barriers to the Integration of EE

Ham and Sewing (1988) provided the initial foundation of literature on barriers to EE more than 20 years ago; the literature today reveals many of the same general findings. In their work, Ham and Sewing categorized the barriers to EE into four major groups: conceptual, logistical, educational and attitudinal.

Conceptual barriers. According to Ham and Sewing (1988), conceptual barriers are the are a by-product of the lack of consensus about the definitions, goals and principles of EE. These inconsistencies and its role in education make it difficult to implement and incorporate into the school curriculum. Ham and Sewing (1988) found that most educators tended to view EE as falling primarily within the scope of science, and few incorporated EE into other aspects of the curriculum. Research reveals that this conceptual barrier is perpetuated by the logistical barrier that the majority of EE materials available to teachers are science-based (Ham & Sewing, 1988; Kim & Fortner, 2006; Wade, 1996).

A second conceptual barrier is teachers' fear-based perceptions of nature (Simmons, 1998). Simmons interviewed teachers from the urban Chicago area, focusing on the perceived barriers to using natural settings as an educational medium. Although the deep woods and natural water areas were perceived as being the most appropriate place for EE, these locations were also associated with many hazards and safety concerns. Teachers' fear of getting lost, encountering dangerous animals or poisonous plants, and distance from help in case of an emergency were significant concerns with natural settings. Concern for safety was also noted in the urban setting. Lastly, the Simmons study also revealed that some teachers felt that nearby outdoor locations such as urban nature and county parks were not appropriate or viable places to teach EE because of the misconception that these settings are not natural and therefore do not represent "nature".

A third conceptual barrier emerged from research by Middlestadt et al. (1999) from surveys sent to teachers already using EE in their lessons. Though these teachers saw few barriers and disadvantages to teaching EE, 28% feared that environmental issues of high magnitude or severe consequences could seriously upset or overwhelm students, causing them to "become disillusioned, emotionally upset, feel helpless, worry that there were no solutions, become negative towards EE, or feel unhappy or confused" (p.15).

Logistical barriers. A great deal of literature identifies *time* as a strong barrier to EE in schools (Benetti & Marcelo de Carvalho, 2002; Christenson, 2004; Ham & Sewing, 1988; Kim & Fortner, 2006; Lamb & Bruyere, 2009; Mckeown-Ice, 2000). Lack of planning time, actual time with the students, and time to fit EE into an already demanding curriculum all ranked high on teachers' reasoning for not using EE in their lessons in a number of studies. In several studies, teachers noted that busy schedules made planning time so scarce that developing new curriculum or methods for incorporating EE into existing lessons was simply not feasible (Benetti & Marcelo de Carvalho, 2002; Christenson, 2004; Kim &Fortner, 2006; Ham & Sewing, 1988; Lamb & Bruyere, 2009; Mckeown-Ice, 2000).

A second logistical barrier is a lack of funding for field trips and materials (Benetti & Marcelo de Carvalho, 2002; Ernst, 2007; Ham & Sewing, 1988; Middlestadt et al., 1999; Mayeno, 2000). In a study conducted by Mayeno (2000), teachers expressed they would be five times more likely to participate in environmental programs outside of class if there was more

funding available, especially for transportation and program costs. This is similar to a finding by other researchers in which educators cited a lack of access to outdoor spaces as a barrier (see *Benetti & Marcelo de Carvalho, 2002* and *Simmons, 1998*). Ham and Sewing (1998) relate this finding to a conceptual barrier by educators who perceive EE as an activity that requires going off-site, as opposed to an activity that can occur on the school grounds. Benetti and Marcelo de Carvalho (2002) found that additional funding concerns included lack of support for EE materials such as activity books, textbooks, videos, laboratory equipment and tools for exploration like magnifying glasses, binoculars and microscopes.

Educational barriers. Prior research also indicates that educators may not have sufficient ecological knowledge and training to effectively use EE in their teaching (Cutter-Mckenzie & Smith, 2003). This lack of knowledge and subsequent lack of confidence on the part of the teachers is a barrier to EE mentioned in numerous other studies (e.g., Cutter-Mckenzie & Smith, 2003; Ernst, 2007). The insufficient knowledge and misconceptions about EE can be partially attributed to a deficiency in training and workshops designed to inform educators how to integrate EE in their curriculum (Cutter-Mckenzie & Smith, 2003; Ernst, 2007).

Attitudinal barriers. The final barrier category addresses a more fundamental limitation in which some educators may simply feel EE is not appropriate for their instructional setting or not an effective topic for teaching. This barrier was initially cited in Ham & Sewing (1988) but researchers in this study found minimal literature to suggest this is a major barrier for educators.

Methods

This research utilized an action research approach to investigate and build capacity within an after-school program located in the Bronx borough of New York City. For this study, action research was selected because of its dual goal to address a challenge identified by the practitioner (i.e., how to integrate EE in an urban after-school program) while also furthering a goal of EE and social science research. The researchers collaborated with members of the program with the shared goal to change the program in a desirable direction. The members of the programs (i.e., coordinators, instructors) and the researchers collaboratively defined the program, methods and interpretation of results.

The after-school program served 140 students in first through eighth grades, with one lead and one assistant instructor per grade level (18 individuals in total). The program is offered in the same school building the students attend during the school day, for three hours each day, five days per week throughout the school year. Students were enrolled ahead of time by their families and committed to the program for the entire school year. Specific classes in the program included up to 20 other individuals from the same grade level. The program schedule included time for homework and tutoring, recreation and academic enrichment in a variety of subject areas such as science, language arts and math. During this research, a theme of conservation was integrated throughout the year and was most evident during the academic enrichment portion of the day. For example, students would read or write stories with a conservation topic, go outside to identify birds in the schoolyard, or conduct research and write posters about an environmental topic.

A majority of the school community is of Dominican descent; a portion of the students' parents speak little or minimal English and remain highly integrated in a Dominican culture. The neighborhood is in a highly urban area with limited natural green spaces. The instructors for the after-school program were paid employees and few had any formal training in EE; many had at

least some post-secondary education, but in a variety of disciplines. Many of the instructors were from the same part of New York City as the students.

Over the course of 18 months the program invested in building capacity to deliver EE at all grade levels. This included a series of three full day training sessions about EE principles and best practices; role-modeling of numerous EE activities; and curriculum development for EE content that ensured lessons followed EE principles of excellence such as those related to age-appropriateness and place-based learning. The specific data collection steps in this research included pre and post focus groups with the after school instructors and parents of participating school children, and evaluations by staff following each of the three training sessions.

Focus Groups

Four focus group interviews were conducted: two with parents and two with the after school program instructors. The first for each group occurred pre-program and consisted of a series of questions intended to determine interest in nature and science in general, interest in programs about nature and science for their children/students, and barriers to participation in more nature-based programs or curriculum. Discussions were moderated by one researcher while other researchers were present for observation and note-taking. Parents (n=19) and instructors (n=13) participated in separate focus groups.

A second focus group was conducted post-program with each group to assess the lessons learned and outcomes of the program. Questions posed to the parents (n=23) were intended to ascertain the level of awareness the parents had of the changes in the program, whether they noticed behavioral changes in their children, and whether changes were being made at home in response to the children's learning. Specific questions asked of the instructors (n=14) addressed the types of activities and EE they had incorporated into their program since the initial focus groups, which activities and themes worked the best and received the most interest from the students, and what they intended to do to continue expanding the use of EE in the curriculum in the future.

Staff Training

After the pre-program focus groups were transcribed and analyzed, results were used to develop three full day training sessions for the instructors implemented over the course of eight months. The first training included development of an EE activities guide book and best practices designed specifically for the instructors at the Bronx site with content focused on adaptations and behaviors of birds, including species migration patterns between New York and the Dominican Republic. A second training occurred three months later and consisted of role modeling five EE activities followed by discussions of how those activities could support curriculum in other subjects. The activities included dissecting owl pellets, making wildlife plaster tracks, pressing flowers, building birds' nests from materials gathered around the school grounds, and viewing insects through a magnified viewer. A third training three months later consisted of three additional activities: tree coring, fish prints, and water quality testing, followed by a facilitated planning session to allow the instructors to develop their individual EE curriculum for the 14-week Spring term. Instructors were asked to complete quantitative evaluations of each training in which they assessed the value of each component and activity of the training session.

Data Analysis

Focus groups. Transcriptions from the pre-program focus groups (n=18 for parents, 12 for instructors) about interest in and barriers to nature programs were analyzed and open-coded to

identify major themes. The themes were compared with notes from the note-takers present for the discussion. When coding transcripts, researchers used a set of themes generated from prior research including the four barrier types from Ham and Sewing (1988) to EE. An open coding analysis of the final focus groups was conducted by reviewing researchers' notes, listening to the audio recordings of the interviews multiple times to search for common themes, and discussing results with other researchers.

Training. Evaluation of the three training sessions consisted of short open-ended survey questions, a four-point scale where instructors gave feedback on the different activities rated "not at all valuable", "somewhat valuable", "very valuable", and "extremely valuable." Responses were reviewed to assess the instructors' interest level in the material, which activities they felt were most helpful and applicable, and what changes they anticipated in their curriculum to integrate EE. Due to the small sample size of the instructors (18), simple descriptive statistics were generated for the scale items, and an open coding of the open-ended responses was conducted in which answers were simply compiled.

Findings

The results of this case study revealed three key findings. 1) Parents' and instructors' interest in EE for their students was high and based on a number of motivations. 2) Perceived barriers for the instructors to incorporating EE were consistent with prior research, especially related to *time, funding,* and *resources*. 3) The training and subsequent incorporation of EE activities into the program were effective in creating positive change in the instructors, students and parents.

Key Finding 1: Interest by Parents and Instructors in Nature and EE Programs was High

Parents were overwhelmingly interested in EE programs for their children and there was consensus among instructors in wanting to integrate EE into their lessons. Individuals from both groups expressed a desire for the students to be exposed to nature for a variety of reasons, including to connect back to family heritage (P = parent; I=instructor):

> P: … (In Dominican Republic) we have a lot of trees, a lot of parks so you're like 'oh I'm in paradise', because you cannot see that here at all. There it's all the time, flowers, um the parks are always like green, and he loved that, he loved that.

> P: When we go back and visit family I want my child to explore the spaces there like I did when I was a kid, and not to be afraid of nature. That would be like not being from there at all.

There was much agreement and nodding of heads by other parents in the focus group when these comments were made.

Another common motivation shared by parents was a desire for children to gain more knowledge and a stronger understanding of as well as respect for the natural world. Parents felt that by visiting natural places their children would garner a sense of compassion, caring, and respect for nature.

> P: …besides learning about nature and seeing what nature is about, but also learning how to take care of things that are in their surroundings, to learn where a tree comes from, also an animal… to be kind and gentle to things in their surroundings because …they could learn how to love trees, how to love animals, and not destroy what's their surroundings…

Similar sentiments were shared by the after-school instructors as far as their motivations for integrating EE in their time with the students, including reconnecting students with their heritage and encouraging appreciation of the natural world.

> I: I like teaching science and conservation because I grew up in the Dominican Republic, very close to the river, playing with animals, with mud and stuff like that… and I think it's important for the kids to learn to have fun is not to be in front of a TV or video games… there are many things out there that nature can offer them, to learn, and at the same time have fun.

> I: They get to appreciate the water, the freshness, the animals They get to realize that trees, that every living thing has feelings, even if it's a tree, it grows… everything has a story, how it's growing different because the water going or the sun is shining from that way, the angle, there are so many different things.

Instructors were also motivated to integrate EE into their curriculum as a means to invigorate instruction and engage students in science which they felt can be difficult to do.

> I: I think that some kids that age think that science is boring, and if you can introduce it through nature…I know that kids love to be outdoors, playing and they are very observant of things and if you can introduce science through [nature] that would be great, because that would, you know, make them, get them interested in science.

Key Finding 2: Perceived Barriers for Instructors to Integrating EE were Consistent with Prior Research

Time was a major barrier mentioned by many of the instructors; it was lack of planning time and more notably, actual time with the students that they perceived as obstacles to incorporating EE. When asked what limits the use of EE in their lessons, many immediately and fervently said "time!" simultaneously. There was much agreement that they simply did not have enough time with the students to take them to interesting outdoor places.

> I: Time! Most of us have other jobs or are going to school. We get here and the kids are coming just after that, so there's no time to plan or to do something new.

> I: I guess if worked out something with the principal, we could pull the kids out earlier (to go on a field trip), and then still be back by 6 o'clock and there shouldn't be any problems with that.

Even if they could be afforded the time to take students to other locations to do EE, *lack of funding* was expressed as another obstacle:

> I: Yeah, maybe extra funding for all the programs that lets you go on trips like the Bronx Zoo, and expose the kids to the environment there. Or maybe like, going outdoors to the suburbs, or botanical gardens.

Many of these statements revealed another barrier, which is a perception that EE is generally something that occurs in an outdoor or off-site setting. Though not expressly voiced, the

consensus by instructors appeared to be that EE was something that occurred mostly in nature and not in the classroom. Therefore, lack of natural places to take the students due to their urban location was considered a barrier to utilizing EE. This was expressed in a comparison between an outdoor camp that some instructors visited with their students in upstate New York and the city:

> I: We were with the fortunate kids that got to go to Goshen last year, and they got to realize, like, what's the difference between the atmosphere here and the city where we have a lot of pollution and the fresh air out there, and it's so different because your lungs feel different, and you're more energized. They got to also got to really see what a pond is. You don't see those around here. What you see are ditches.

Key Finding 3: EE Training had a Positive Effect on Instructors and Resulted in Favorable Outcomes on Students and Parents

Data from training evaluations. Following analysis of the initial focus groups, training sessions were developed that built on the instructors' and parents' motivations as well as addressed the real and perceived barriers. This included the first training that included a workbook of activities about birds that either migrated between Dominican Republic and the state of New York or species that could be found in both locations. The first training also addressed environmental education principles of excellence, such as David Sobel's (1996) "no tragedies before fourth grade" rule of thumb for avoiding content associated with environmental problems (e.g., loss of species, climate change) and the North American Association for Environmental Education's guidelines for excellence.

The second training provided five activities for instructors to try, and then a brainstorming session for how those activities could be incorporated into their curriculum. For example, the instructors made wildlife plaster tracks, and then given time and guidance to determine how to integrate that activity into their plans, including ideas for how to combine the activity with other subjects. The third training included three more activities followed by a longer period for planning curriculum. Overall, the goals of the training was to show how EE could be conducted on-site, leverage the connections and lineage to the Dominican Republic, and provide facilitated planning sessions.

In the written evaluations of each training session, instructors were asked to rate the value of each part of each training on a four-point scale. In every instance, the planning segments were universally rated as the most valuable. Role-modeling and practicing activities were also considered highly valuable, and no training component was rated as having little or no value. This is reiterated in the following open-ended comments:

> I: We had time to actually look at what's coming in a few months & be more organized with our work. I had a chance to learn new, different, & exciting activities that I can present to the students.

> I: The planning. I like to think ahead and make sure I'm prepared for everything I'm gonna do. So, I can go home and I'm "Oh, what am I gonna do next week" and I already have it planned out. And it makes me feel more confident.

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Data from final focus groups. The final focus group interviews revealed a significant change in awareness and pursuit of knowledge pertaining to nature and environmental issues

amongst instructors, students and parents. Comments made by instructors and parents even suggest that positive changes in environmental behavior occurred as well, an unanticipated outcome so early in the program. Both instructors and parents expressed strong support for the increased incorporation of EE in the curriculum and were very pleased with the reaction of the students.

Parental focus groups. Though parents expressed an unawareness of many of the specific activities about nature and science during the program year, they did express that they noticed a change in their child's awareness toward nature and environmental issues, and that awareness was trickling into the home. Parents also expressed joy in watching this change and interest in science and nature take place in their children.

> P: (*Spanish translator*) He's been observing that his child now cares for nature, that his child gets the opportunity in this program to approach nature more, to see nature, and he noticed that his kid is now very concerned. He brought home a plant and said 'please take care of it, water it.' So he sees the difference, the caring, that his child was never like that, so he notices the difference. He notices a change in attitude, that it has nothing to do with age.

> P: Makes them more aware, like when we go shopping, she's like, "Mom, this is recyclable" or "This is made from recycled stuff."

This awareness translated into changes in behavior on the part of both the students and their parents. The concern for the environment expressed by the children resulted in some new actions on the part of the parents, such as beginning to recycle, not littering, being more conscious of water use, and even making more of an effort to take their children to the park. Parents expressed that because their children had taken an interest, they in turn had become more aware of topics they had not been previously.

> P: (*Spanish translator*) He said he takes his kid out to the park more frequently.
> P: (*Spanish translator*) She reuses water bottles. She is not letting the water run as much.

One participant was emphatic about how his daughter's interest in nature and science had caused him to be more aware of things he had never thought about before and even got him to attend the focus group meeting to talk about it, something he never would have considered in the past.

> P: They force you to do stuff you never were interested in and thought you would do. I never thought I would be sitting here!

Instructors. The final focus group interview with the instructors revealed a significant change, both in their conservation program and their attitude toward the barriers they had expressed at the onset of the study. The staff had incorporated a great deal of what they had learned in the training into their curriculum, implementing a variety of new activities.

> I: We've actually used a lot of the conservation activities and what they seem to like most about it is the hands-on activities. That's how I know they learned because they actually enjoyed it.

The instructors continuously voiced appreciation for the training throughout the study. When prompted in the final focus group interview to share their thoughts on what outcomes of the training they found most valuable, the following comments received the most consensus:

> I: I feel that the kids actually enjoy it this time a lot more. Maybe because you touched on the fact that you have to make sure they care first, you know, we went through the empathy, the caring ideas. I tried to touch on that and it works… so I tried to implement that and I noticed it works. The kids were focused and they actually care and they enjoy what they're doing.
>
> I: I agree with that connection. Also, connecting them to their home, to where their family is from, that helped me a lot too. Making that connection helps because then they're like "I have seen that bird before, like in my grandmother's backyard." Or something like that.

Many instructors also mentioned an increased confidence in their ability to teach about science and nature. There was a lot of agreement that the training gave them the basic tools with which to start an EE component to their program and the confidence to be successful.

> I: I feel more prepared. In the beginning I was like oh my all this science. I mean, I would do science, but it's not really a subject I love. So doing all these hands-on activities makes *me* enjoy it more, and so now I feel more confident.
>
> I: I agree. I feel ready. With all the workshops, trainings, I feel we have a lot of resources. I feel we have the help that we need. I feel more confident.

Instructors felt that they were capable of effective EE instruction in their urban classroom environment, though many educators still voiced that direct experience in nature would be better. Lack of funding for zoos, the aquarium, etc., as well as lack of access to natural places was still expressed as a barrier:

> I: We have been trying to go to the aquarium. The time is ok because they give us more through the school, but the money. Close to $1000 for the 40 kids just for the bus.

Despite these barriers, instructors recognized the progress they had made over the year and were genuinely enthusiastic about the potential to expand upon their EE curriculum in the future.

Discussion

The main purpose of this project was to determine and increase the capacity of an urban after-school program to incorporate EE into its curriculum as well as assess what methods were most effective at accomplishing this goal. It was necessary to first determine the interest in and barriers amongst the instructors and parents of the students to incorporating EE into the after-school curriculum. Findings suggest that despite barriers such as lack of time, funding, and outdoor spaces, effective EE is possible in an urban after-school program if motivation and interest is high amongst the instructors and parents of the students. Capitalizing upon this interest by providing the basic tools for EE can sufficiently jumpstart an effective conservation and nature program.

Based on the findings during this study, a number of essential elements to integrating EE in this after-school program in the Bronx emerged. First, genuine interest in having the students exposed to nature and natural science is essential on the part of the instructors and parents. Having this support provides the basis from which to build an effective EE program, and is consistent with Ernst's (2007) prior work that most educators incorporate EE because it's important to them personally.

The high levels of interest in teaching about the natural world among instructors and parents had a strong root in the culture and origin of the community. As previously mentioned, a significant portion of the school community came from the Dominican Republic, a Caribbean island with an abundance of protected areas and natural beauty; this had an obvious impact on the participants' attitude toward nature and is a unique finding in this study in terms of instructors' and parental motivation for EE.

A second important element of the success in this program was training that addressed misperceptions about EE, or what Ham and Sewing (1998) labeled a *conceptual barrier*. The training in this case study showed instructors numerous EE activities that could be done on-site in their classroom, playground, or gymnasium. This then addressed another perceived practical barrier, that there was not enough funding to do quality EE. Through the realization that EE can be taught in the classroom with minimal supplies, the staff overcame this sentiment.

The funding for this research did provide funds for some field trips to local attractions such as zoos, museums, and parks. In the pre-program focus groups, they cited time and funding as major barriers to EE because they had neither to do field trips. In the final focus group instructors never commented about the trips in great depth when discussing their activities of the year.

It was also important to ensure that the educators understand that incorporating EE into their lessons does not require an excessive amount of time. Instead, it requires learning a new activity (e.g., making wildlife plaster tracks, coring a tree on the playground) and then thinking creatively about how that activity could be integrated.

Conclusion

Much of the discussion about why children are less connected to and knowledgeable about nature is framed around lack of green spaces and the high demands on educators. In this study, the researchers showed that even in a highly urban setting (i.e., the Bronx) and with instructors that initially felt they had minimal capacity to deliver EE due to time, youth can be successfully engaged with learning about the environment. This was accomplished by building on the motivations of parents and instructors to conduct a series of experiential (i.e., practicing activities) and planning-based training sessions that also addressed barriers.

While the findings of this case study can be extended only to the specific site in the Bronx where the research was conducted, it may provide value to other urban locations in terms of giving afterschool practitioners a place from which to begin their EE integration efforts. In this research, the motivations and barriers of parents and instructors were assessed and compared to prior research, training sessions were developed that built on the themes expressed by parents and instructors, the sessions were assessed to determine the most valuable aspects, and focus groups where completed to evaluate the outcomes and capacity-building. This approach can be easily replicated. This basic method was supported in this research by promising findings in which parents and instructors were highly interested in EE, strategies to overcome barriers were identified (e.g., training for instructors) and implemented, and evaluation showed changes in how parents and instructors' beliefs (e.g., that EE must occur outdoors) and behaviors.

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Çevre eğitimini New York şehrindeki Kentsel Okul sonrası programa dâhil etme

Bu çalışma New York Şehri Bronxtaki okul sonrası programına çevre eğitimin entegrasyonunu incelemektedir. Bu nitel olay çalışmasında ebeveyn ve eğitmen ilgisini belirlemek ve müfredata çevre eğitiminin entegrasyonuna yapılamasına yönelik engelleri tespit etmek amacı ile odak grup görüşmeleri yapılmıştır. İlgi düzeyi yüksekti ve doğaya minnettarlık isteği çok sayıda motive eden faktörle dayanarak çevre eğitim, öğrencilerin fen eğitimi ile meşgul olasında ve Dominik Cumhuriyetinde aile mirasına geri bağlanmaya bir vesile olarak kavrandığını gösteriyordu. Bulgular ayrıca çevre eğitiminin entegrasyonunu önleyen zorlukların üstesinden gelinebileceğini de gösterdi. Okul sonrası çalışanı ile Dört aşamalı bir çevre eğitimi serisi gerçekleştirildi ve değerlendirmeler her çalıştay sonrası yapıldı. Çalışanlar, öğretim süreci sonarında anlamlı bir kendine güven ve çevre eğitimi öğretim becerisi gösterdiler ve olumlu gözlenmiş öğrenci ürünleri ve ebeveyn geri bildirimleri ile de motive edildiler. Hem okul sonrası çalışan hem de ebeveynleri içeren Bir final odak grubu, gelecek öğretim yılında çevre eğitiminin kullanımı için kuvvetli bir destek ortaya koydular.

Anahtar kelimeler: Informal eğitim, Kentsel çevre eğitimi, çevre eğitimi, doğa