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EnvironMentors: Mentoring At-Risk High School Students through University Partnerships

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Informal place-based environmental education is a proven approach for increasing environmental awareness for students in urban cities. This article describes and qualitatively evaluates the first two academic years of the EnvironMentors program at Louisiana State University (LSU-EM), which is part of a national network of EnvironMentors programs. Despite its short history, LSU-EM has already proven successful as an after-school science, technology, engineering, and mathematics (STEM) mentoring and college-access program predicated on a nearby campus and community partnerships. LSU-EM partners with the Gaining Early Awareness and Readiness for Undergraduate Programs (Gear Up) in the College of Education and the Louisiana Sea Grant program for support and to foster the relationships among scientists, educators, and high school students. Each high school student is paired with two science mentors from the university. Students and their mentors spend the school year conducting an environmental science-based research project to be presented at the LSU-EM Science Fair. Program evaluations indicated students enjoyed forming a bond with their mentors, increased their environmental awareness, and had a better understanding of the scientific method after participating in LSU-EM. Mentors improved their science communication skills, benefited personally by giving back to the community, and took pride in their student's work. Program success was also measured based on the number of students completing their EnvironMentors projects, graduating high school and enrolling in postsecondary educational institutions.

Keywords: Environmental education, mentoring, urban environmental education, STEM education, collaborative.

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INTRODUCTION

Environmental education, whether classroom-based or informal, is imperative to foster an environmentally literate society and a workforce that can solve current and future environmental issues (Hungerford & Volk, 1990; PCAST, 2010). Environmental education is inherently interdisciplinary and teaching the subject has been shown to increase student aptitude in the four areas of science, technology, engineering and mathematics (STEM) education as well as increase critical thinking and reading skills (Athman & Monroe, 2001; Bartosh, Tudor, Ferguson, & Taylor, 2006; Ernst, 2007; Ernst & Monroe, 2004; Lieberman & Hoody, 1998; Powers, 2004). Currently, forty-six of the fifty states in the United States have adopted environmental literacy plans that will provide formal classroom-based environmental education in the public school system[1]. Even in the states with plans, teaching environmental education in the classroom is often at the discretion of the teacher or becomes a low priority when adequate yearly progress standards must be met (Benetti & Marcelo de Carvalho, 2002; Gruenewald, 2003; C. Kim & Fortner, 2006; J. S. Kim & Sunderman, 2005). The state of Louisiana is currently working towards adopting the Louisiana Environmental Literacy Plan to increase the exposure students have to environmental education in the classroom.

When classroom-based environmental education is not available, students should have access to informal environmental education activities. Informal environmental education programs provide students opportunities to gain knowledge and awareness of natural environments, participate in active, outdoor learning, and contribute to personal growth (Louv, 2008).

EnvironMentors is one such program that provides students with informal environmental education experiences outside the traditional classroom. EnvironMentors was founded on the principles of place-based learning as well as student-scientist mentoring partnerships. Studies have shown great success in place-based environmental education when students are immersed in the outdoors, including their local and natural environments (Ham, Rellergert-Taylor, & Krumpe, 1988; Ham & Sewing, 1988; Stevenson, 2007). In addition to increasing environmental awareness, the method also promotes inquiry-based learning and hands-on experiences (Haines & Kilpatrick, 2007; Smith, 2007, 2012; Von Secker, 2004). Environmental education experiences can also be enhanced when students are allowed to collaborate with scientists and become scientists themselves (Donahue, Lewis, Price, & Schmidt, 1998). Students also tend to take ownership of and are more engaged in a project when they are allowed to make key decisions, such as the topic of study (Blumenfeld et al., 1991). When students are more engaged they also become more self-motivated and invested in the outcome of the project.

EnvironMentors: Program Overview. EnvironMentors was founded in 1992 in Washington, DC, USA as an outreach program for underserved students, to promote interest in the sciences and environmental stewardship. The National Council for Science and the Environment (NCSE) has sponsored the nationwide program since 2006 with the goal to engage students in STEM fields to create a competent and diverse future workforce. EnvironMentors provides high school students with environmental science education, mentoring relationships, and college access. In 2011, the national (United States) network of EnvironMentors chapters was composed of one chapter in Washington, DC and eleven university-based chapters located across the United States. NCSE provides financial support to each new chapter as well as program support throughout each year in the form of Coordinator and Mentor manuals, monthly phone calls and webinars, a private online social-networking community, and an annual site visit.

The Louisiana State University (LSU) chapter of EnvironMentors (LSU-EM), now entering its fifth year, was established in 2010 and is housed in LSU's School of the Coast and Environment (SCE). LSU-EM shares the same mission as the National EnvironMentors program: to mentor and motivate high school students who are under-represented in the sciences by planning and conducting environmental research and acquiring skills that allow them to build careers and become more active stewards in their communities. LSU-EM also strives to meet the following goals:

- Conceptualize and conduct an environmental science-themed research project with a mentor for presentation at the spring science fair.
- Increase environmental literacy and awareness by focusing on environmental issues facing Louisiana and the coastal Gulf of Mexico through inquiry-based learning.
- Increase college awareness by exposing students to a university environment and STEM fields, and providing a one-on-one mentoring experience with academic graduate students, faculty and staff.

In a practical sense, LSU-EM strives to see that each of its students first successfully completes the requirements for a high school diploma. It also aims to enhance interest and proficiency in STEM topics. Finally, considerable

effort is made not only to increase awareness about the opportunities they have to pursue higher education, but also to ensure that they apply to a community college or 4-year college, and seek financial aid.

LSU-EM utilizes an afterschool club model that meets weekly on the LSU campus[2]. The club model provides flexibility for a place-based learning program, exposing students to the outdoors and university science laboratories. EnvironMentors is a rigorous yearlong program that requires a fair amount of work by the students and staff. Students do not receive any school credit for participating, and the ultimate incentive is an all-expenses paid trip to Washington, DC to participate in the National EnvironMentors Science Fair. The top three winners from each of the university-based chapters compete for scholarship money at the National EnvironMentors Science Fair each May.

The LSU-EM staff consists of a Chapter Director, who oversees the program, and two Coordinators, who manage the program and conduct the day-to-day operations. Mentors are upper-level undergraduate students, graduate students, and faculty or staff members who volunteer their time to the program. Potential mentors were initially hesitant to make a yearlong commitment to the program given their own research agendas, teaching and class schedules. To alleviate this issue, mentors are offered the option of team mentoring in pairs and a flexible mentoring hour (see *Program Details*). This attribute, while not a common feature of mentoring programs, has proven very successful. Providing mentors with flexibility greatly increased their participation in the program and has been something that the students also seem to appreciate. As of the program's second year, mentors are also able to receive one graduate-level credit hour for mentoring in the EnvironMentors program.

University Campus and Community Partnerships. To promote college access, LSU-EM meets on the LSU campus, whereby the high school students gain access to undergraduate and graduate students, faculty and staff and experience an academic atmosphere on a university campus. In addition to becoming familiar with a large research university, the students also participate in a field trip to the local community college for a tour and presentation by an admissions counselor.

To foster program success, LSU-EM formed partnerships with existing organizations and programs at LSU (Figure 1). One of the major hurdles in the East Baton Rouge Parish (EBRP) school system is gaining access to the public schools and forming a relationship with a school's administration and faculty. To identify and find a partner with an EBRP high school, LSU-EM partnered with the LSU Gaining Early Awareness and Readiness for Undergraduate Program (Gear Up) in the College of Education. Gear Up works with students from EBRP's academically challenged schools.

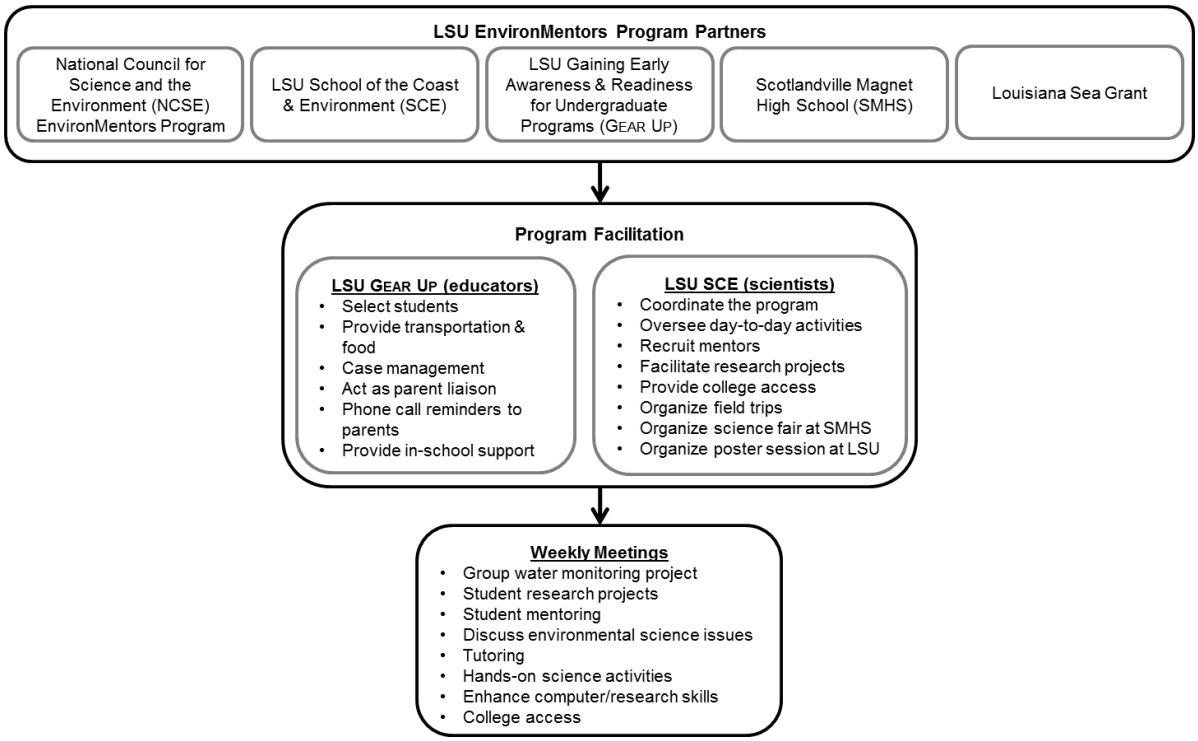

Figure 1: LSU EnvironMentors program conceptual framework, from the program partners to the structure of the weekly meetings.

All Gear Up students qualify for free and reduced lunch[3], and are considered at-risk for not graduating high school. Gear Up's goals are to:

- Increase academic performance and preparation for postsecondary education.
- Increase the rate of high school graduation and participation in postsecondary education.
- Increase the educational expectations for participating students and family knowledge of postsecondary education options, preparation, and functioning.

LSU Gear Up is unique among the national network of Gear Up programs in that it utilizes a case-management structure, following cohorts of students from grades 7-12. Gear Up employs full time social workers in the schools to track students' daily progress and to provide any additional support students may need. Gear Up has built relationships with the local public high schools and gained the trust of the teachers and administration, which proved invaluable to those founding the LSU-EM program.

With the advisement of Gear Up, LSU-EM partnered with Scotlandville Magnet High School (SMHS)[4]. SMHS has both a competitive entry magnet program and a traditional neighborhood school. Because students in the magnet program are already exposed to supplementary STEM activities, LSU-EM recruits students from the traditional school for EnvironMentors. A science teacher from SMHS also volunteered to accept the role as Lead Teacher and be a liaison between LSU-EM and SMHS. The Lead Teacher is involved in selecting students to participate in the program, and also attends the weekly meetings and field trips.

Gear Up provides door-to-door transportation for its students to events and afterschool tutoring, as well as afterschool snacks to ensure high participation rates in their programs. Gear Up allows LSU-EM to utilize its existing system of vans and drivers to transport the students from the high school to the LSU campus and then each student is driven to their respective home after meetings. Most LSU-EM students did not have a driver's license or vehicle, which would have otherwise prevented them from attending the university program.

Another vital aspect of EnvironMentors is that there is no fee associated with student participation. The NCSE provides each university chapter with annual operating funds, and the LSU-EM staff secures additional funds for field trips and outdoor experiences. LSU-EM has also formed a partnership with Louisiana Sea Grant[5] for financial support. Education and outreach falls within the purview of Sea Grant's mission, and the administration recognized the significance of the EnvironMentors program to the local community. The Louisiana Sea Grant staff also participates in various activities during the school year, including chaperoning field trips and judging the LSU-EM Science Fair.

Cross-campus partnerships are also being developed by virtue of the diversity of mentors LSU-EM attracts. Mentors play a critically important role in LSU-EM and have brought graduate students and faculty together from diverse departments. Scientists and researchers who may not normally interact are meeting and conversing at LSU-EM events. The relationships developing among mentors across campus was not an explicit goal of LSU-EM, but has proved to be one of the many added benefits the program has seen. The diverse group of mentors also benefits the high school students by exposing them to a wide range of scientific fields and broadens the range of possible science fair project topics.

METHODS

Program Details. Throughout the school year, students spend three hours every Monday afternoon on the LSU campus. The first hour is spent as a group performing science activities or conducting a water-monitoring project. The student-mentor pairs then meet during one of the following two hours. The mentors choose which time slot works best for them and can switch hours as needed throughout the year. Students work on their projects during the hour with their mentor. Coordinators provide weekly to-do lists for the students and mentors to aid in successfully finishing their science projects on time. During the other hour, students work on their projects independently, participate in hands-on science activities, or work on college and scholarship applications, under the guidance of the Coordinators.

Mentoring, i.e., the student-scientist partnership, is the core component of EnvironMentors and weekly meetings provide the time for a mentor-student relationship to form. The mentors act as advisors for the students' research projects, working together to engage in and employ the scientific method. The student-mentor teams develop an idea, form a hypothesis, design their experiment, analyze the data, write a research paper, and create a poster presentation. It is extremely important that the projects are student-driven, so that each student maintains interest, enthusiasm, and ownership for their projects during the year.

Upon project completion, the students create professional-quality scientific posters, and present their research projects to professionals and judges at the LSU-EM Science Fair. The science fair is held at the high school to allow

the students' peers, families and friends to attend the event and to show support for the students. The students are judged on the quality of their work as well as their ability to articulate their research and answer judges' questions. Following the science fair, the students display their posters and communicate their results to graduate students, faculty and staff at LSU during an afternoon poster session.

To reinforce the steps of the scientific method, LSU-EM staff, mentors, and students participate in a project to monitor the water quality of a campus stream. The group project emphasizes the scientific method, promotes teamwork, and the use of scientific equipment and terminology. The Coordinators also implement kinesthetic learning methods to develop hands-on teaching activities that continually engage the students in the learning process while promoting scientific concepts.

To encourage consistent attendance and excitement in the program the Coordinators provide incentives. Incentives include trips to the campus coffee and ice cream shops, attendance of LSU sporting events, science-themed holiday parties, and field trips. Inquiry-based field trips play a key role in the students' experiences. The culminating field trip is to the Louisiana Universities Marine Consortium marine laboratory, located on the coast of the U.S. Gulf of Mexico. Besides experiencing their first night away from home in a college dormitory, it is oftentimes a student's first trip aboard a boat. LSU-EM charters the Research Vessel *Acadiana* for a trip into the coastal bays to collect plankton, fish, crustaceans, and water quality data. The students are able to visit the estuary they learned about over the course of the year and better understand the environmental importance of coastal marshes, including its essential role as a nursery ground for seafood they enjoy.

Program Evaluation. Several feedback mechanisms were employed to evaluate the first two years of the program's success and determine if the chapter goals were met. During the first year, a short, three question post-program evaluation survey was given to both the mentors and students. They were asked to rank the following statements using a scale from strongly agree to strongly disagree: 1) I enjoyed participating in EnvironMentors; 2) I enjoyed working with my mentor/mentee; and 3) I enjoyed the field trips, and provide written feedback for each question. Mentors were also invited to participate in a focus group held by the Coordinators to gather additional feedback. Averages were taken of the ranked answers and transcripts from the mentor focus group were open-coded.

The evaluation methods were modified during the second year. The new evaluations prompted students to provide written feedback to four questions: 1) What did EnvironMentors mean to you? Why did you decide to participate in the program?; 2) What was your favorite thing about EnvironMentors? What was your least favorite thing?; 3) What did you learn from EnvironMentors?; and 4) Do you have any suggestions to improve the program? Students who participated in both years of the program were also asked why they joined again for the second year. Due to scheduling logistics a focus group was not held for the mentors. The mentors were asked to provide written feedback to 15 questions (See appendix for a full list mentor survey questions). All of the program evaluation written-responses were open-coded to identify recurring themes among answers.

The students' successes at the National Science Fair and their enrollment in postsecondary education were also seen as measures of program success. In addition to the LSU chapter evaluation, Colorado State University conducts surveys and focus groups to evaluate EnvironMentors programs nationwide (results not presented).

RESULTS

The results from the program evaluation reveal three key findings. 1) Students succeeded in completing the program, their high school curricula, and are enrolling in postsecondary education institutions. 2) Students enjoyed the program, were exposed to new experiences, and showed an increased interest level in the environmental sciences and postsecondary education. 3) Mentors found the program to be a rewarding experience, improved their scientific communication skills, and enjoyed the opportunity to share their knowledge with the students.

Key Finding 1: Students succeeded in completing the program and are enrolling in postsecondary education institutions.

In the program's first year, 11 students successfully completed their projects, and 4 withdrew from LSU-EM during the course of the year for a variety of reasons, mostly family-related, such as caring for siblings or other family members. All 18 students completed their projects and competed in the LSU-EM Science Fair in the program's second year. Twenty-three of the 25 students who completed the LSU-EM program have completed high school (92%), which is higher than SMHS's 2012 graduation rate of 72%, and is significantly higher than the long term graduation rate for Louisiana high schools[6]. Twenty-one of these LSU-EM alumni are currently enrolled in

postsecondary education and two others have joined the U.S. Army National Guard with plans to attend college in the future.

The survey results highlight the importance of LSU-EM in college preparation. Students mentioned that LSU-EM provided them with "access to college level opportunities (my school wasn't preparing me)," and exposed them to "college level work, [with the opportunity to] design and implement my own experiment." One student also felt more confident in their laboratory skills, commenting "When I have to do a lab for college I'll be one step ahead."

National Science Fair. The LSU-EM chapter, and especially those students who competed at the National EnvironMentors Science Fair, was bolstered by success at the fair. Out of the five LSU-EM students who competed in the 2011 national fair, two students won top awards and college scholarship money. This success in the inaugural year emphasized that the students were gaining valuable applied scientific research experience, learning the scientific concepts and could effectively communicate their research at the national level.

In 2012, three students competed in the National Fair and one earned the top prize of *Emerging Environmental Leader*, accompanied by a $10,000 scholarship. Only students who participate in EnvironMentors for at least two years and enroll in postsecondary school are eligible for this prize.

Key Finding 2: Students enjoyed the program by working with mentors, were exposed to new experiences, and showed an increased knowledge of the environmental sciences.

Year 1 evaluations. Nine students completed the post-program survey first year (academic year 2010-2011). The average score for each question was 1.1 (i.e., 1=strongly agree), suggesting that overall they enjoyed participating in the program (Table 1). Written responses also reinforced the positive feedback from the survey, e.g., "I liked everything, the experiences, the mentors, the samples and field trips," "Hands-on activities and field trips [are what] I liked," and "I like when we spend time with our mentor." The field trips, which were used as group incentives, were also enjoyed by the students (Table 1).

When asked what they liked about working with their mentor on a research project, one student wrote, "My mentor put [scientific vocabulary] in terms I could understand" and another comment stressed the importance of the student-led research projects, "It was fun because I picked my topic." Students also learned time management

Table 1. Results from the first year's (2010-2011) student post-program survey (n=9). Students ranked the answer from 1 (strongly agree) to 5 (strongly disagree). The average score is given in parentheses and the percent of students who mentioned a particular written response is also provided.

Statement/Question	Percent who mentioned the phrase
I enjoyed participating in EnvironMentors. What did you like best?	
(Average = 1.1)	
Field trips	67%
Real environmental experiences	33%
Hands-on activities	33%
I enjoyed working with my mentor on the science fair project.	
(Average=1.1)	
It was fun	44%
Learned more about things I like	33%
I enjoyed the field trips.	
(Average = 1.1)	
They were fun	44%
Learned/saw new things	33%
Suggestions/improvements/comments	
More field trips	56%
More time on projects	22%

skills and the value of completing a project, voiced by one student, "It was long and sometimes stress[ful], but it paid off."

The students also provided constructive criticism in the general comment section of the evaluation. The most common comments were a request for more field trips and for more time to finish their projects. Students also asked for more information on postsecondary education and help filling out college application forms.

Year 2 evaluations. The written evaluations from the second year (academic year 2011-2012) paralleled the positive feedback from the first year (Table 2). Half of the students stated that they learned more about the environment and its importance because of their participation in EnvironMentors. The majority of students (61%) felt that EnvironMentors taught them how to do a science research project, and others mentioned new scientific skills they learned from the program. One student said, "My favorite thing about EnvironMentors was the fun environment related activities we participated in." In addition, half of the students who returned for the program's second year did so because they enjoyed the program.

The students also indicated a positive response to their mentors, with at least 63% recognizing their mentors for their support, patience, respect, and knowledge (Table 2). The importance of science communication was stressed again in the second year, with one student commenting, "[The mentors] never talked over my head or made me feel the project I chose was too complicated."

When asked about suggestions to improve the program students responded, "I suggest that you give the students more responsibility," the need for "more serious students and mentors," and "more time with mentors." As in the first year, students also asked for more time to work on their projects.

Table 2. Student responses from the second year's (2011-2012) post-program written survey.

Question	Percent who mentioned the phrase[3]
What did EnvironMentors mean to you? (n=18)	
Learned more about the environment	50%
Chance to do something outside of school/extracurricular activity	28%
Benefit my future	22%
Taught me how actions affect the environment	17%
Meet new people	17%
Learn new things	17%
Access to college activities/application help	17%
Taught me how important the environment is	11%
Taught me to care for the environment	11%
Something different, an opportunity most people don't have	11%
What did you learn from EnvironMentors? (n=18)	
How to do a science project/my Project	61%
How to conduct water quality testing	33%
More about the environment	33%
How to use different science equipment	17%
About environmental problems	17%
If relevant, why did you join for the 2nd year? (n=6)	
Enjoyed coming last year	67%
My mentors were "Mentor of the Year" because…. (n=8)	
Cared/relate to me/supportive	63%
Didn't talk over my head, explained everything, patient	63%
Taught me things I didn't know	38%
Kept me on track and good work ethics	38%
Energetic and excited to work on project	38%
Fun to be around	38%

[3]Responses mentioned by at least two students are provided.

Key Finding 3: Mentors found the program to be a rewarding experience, improved their scientific communication skills, and enjoyed the opportunity to share their knowledge with the students.

Overall, the mentor evaluations showed a positive response to the program. Of the fourteen mentors who returned the year one survey, the average ranking was 1.3 (i.e., 1 -strongly agree) for the question, "I enjoyed participating in EnvironMentors." Mentors enjoyed interacting with students and being able to teach them at the same time (Table 3).

Table 3. Mentor responses to select survey questions. For the first year (2010-2011), the questions were presented to mentors either in a written survey (n=14) or at focus group discussion (n=8). Asterisks (*) indicate the topic was mentioned during the group discussion. In the second year (2011-2012), the survey was given to individual mentors (n=22).

Question	2010-2011 survey results that translate	2011-2012 (% of mentors mentioning the topic)[4]
Why did you become a mentor?		
Work with younger students (teaching and mentoring)		36%
Give back to the community	*	32%
Learn and improve science teaching skills	*	14%
Enjoy education		14%
Thought it would be fun		14%
More involved in environmental education		9%
What did you like about the program?		
Involvement/organization of the Coordinators	7%*	32%
Interactions with students	43%	32%
Getting to know my mentee/student		14%
Field trips		14%
Opportunity to teach science	14%	9%
Enthusiasm of student		9%
Seeing a transformation in the students		9%
Sharing my knowledge		9%
Time schedule	14%*	5%
Team mentoring	14%*	5%
Student-driven projects	*	5%
What was your favorite experience in this program?		
Working with students on the science projects	*	32%
Field trips	*	23%
Getting to know my mentee	*	18%
Seeing students take pride in their project		14%
Seeing students get excited about learning		14%
Working one-on-one with students	*	9%
Was it difficult finding time to participate?		
Yes		9%
No	*	68%
Sometimes		23%
Would you mentor again?		
Yes	75%	91%
No	25%	0%
Possibly		9%

[4]Responses mentioned by at least two mentors are provided.

The mentors' responses to the program were similar in both years, with nearly 50% of all mentors citing student interaction and "getting to know my mentee" as what they liked most about the program (Table 3). One mentor from the first year commented, "I enjoyed being able to help our mentee work through [a] problem and succeed," which was reverberated in all the mentors' comments.

Eleven of the 23 mentors from year one returned to mentor the second year and 25 new mentors joined the program in the second year. The high return rate of mentors for a program with an eight month commitment reinforces the positive survey responses. The diversity of departments represented also increased from year one to year two. The percent of mentors from departments other than the Department of Oceanography and Coastal Sciences increased from 17% to 42% from year one to year two.

In year two, when mentors completed a written survey, the program benefited from the extensive feedback. Many of the mentors saw LSU-EM as a means to give back to the community and to pay forward the help they've received, "It was important to me to give back to someone, after all of the help that has been given to me throughout my high school and college career."

Mentors also took pride in seeing their students succeed and compete in the science fair, and cited that as a reason to mentor again. One mentor commented, "Even though sometimes it was hard to fit into my schedule, I got a great feeling after every meeting with my students, I was so proud when she finished her project."

Both years, mentors provided their students with college access, advice and encouragement. For example, one mentor commented, "The opportunity to work with a student where this interaction may encourage them to set higher educational goals in their lives" is what they liked about EnvironMentors and another wrote, "Interacting with students and fellow mentors. Learning how to communicate ideas to different people" is why they enjoyed participating in the program.

The mentor evaluations also provided constructive criticism for program development. Several of the responses from the first year were incorporated into the structure of the second year, e.g., scheduling and project guidance, and therefore not mentioned in the second year responses (Table 3). One mentor wrote, "[I] would like to have started the project earlier that way each meeting with the student would not have been so stressful," which reflected the comments from several mentors in both years of the program. In terms of working with the students, mentors evaluations indicated challenges with mentee attendance, preparation and attitude.

DISCUSSION

Partnerships. LSU-EM attributes its success to the partnerships between educators and scientists. The partnership with a college access program such as Gear Up is a crucial component to the success of this program. The transportation Gear Up provides the students to and from the program meetings is pivotal in maintaining high student attendance. Without transportation, student participation in LSU-EM would be been extremely low, a trend observed nationwide in after-school programs for low-income students (Cornelli Sanderson & Richards, 2010; Grossman et al., 2002; Lauver & Little, 2005).

LSU-EM also benefits from having two Gear Up liaisons at the high school, a social worker and the Lead Teacher. These liaisons remind the students weekly about the program, necessary paperwork, and other important dates throughout the year. On behalf of EnvironMentors, the Gear Up social worker interacts with the parents or guardians. She contacts the parents if their child misses a weekly meeting and advises the LSU-EM staff when behavioral issues arise. The Lead Teacher also shares valuable classroom management skills with the Coordinators to help them maintain students' attention and respect.

The Louisiana Sea Grant is also instrumental in the success of the program. Louisiana Sea Grant provides LSU-EM with financial and administrative support, as well as funding for one Coordinator through a graduate research assistantship. LSU-EM also seeks community partners for financial and in-kind support to provide students with an enriched experience. Houston Energy, Albemarle, the LSU Student Government Association, and other private sources have generously contributed.

In addition to the cross-campus and community partnerships, the partnerships within SCE proved to be just as important to LSU-EM's success. The School of the Coast and Environment provides direct and in-kind support and LSU-EM would not be possible without full support from the administration, faculty, staff, and students.

Student success and challenges. Overall, there was a positive response from the students about LSU-EM's first two years and all three of the program's goals were met. SMHS teachers and LSU-EM staff noticed that the students had expanded their scientific vocabularies. The students successfully conducted an environmental science-themed research project and communicate an increased environmental awareness, meeting Goal 1 of the program. Because the students designed and conducted their research project, they took ownership at every step and were

extremely proud when they completed their projects. Mentors also liked interacting with the students by working together weekly on their projects and recognizing how rewarding the science fair was for both the mentors and students. One mentor commented on what they liked about EnvironMentors, "The (science) fair project was the best part. I would increase time spent on (science) fair projects."

LSU-EM met Goal 2 through a series of inquiry-based learning science projects. For example, to teach the concept of pH scale, i.e., acids and bases, a fun and visually stimulating activity is employed using dry ice, the solid form of carbon dioxide. Other hands-on activities include: using a magnified video camera to observe microscopic organisms, taking nature walks, and campus and museum scavenger hunts. The culminating field trip to the coast also lent an opportunity to discuss the environmental issues facing Louisiana, e.g., coastal erosion, marsh loss, and the effects of oil spills.

LSU-EM met Goal 3 by increasing college awareness throughout the school year. By the end of the program, the students not only felt comfortable being on a college campus and working with graduate students and professors, but they were more aware of their options to pursue higher education. The students were exposed to a variety of career opportunities in environmental sciences through their mentors and gained a variety of skills that would be needed in the workplace, e.g., data analysis, writing, critical thinking, presentation and communication skills. As the survey results showed, students were more aware of the environment and current environmental issues.

Program strengths and lessons learned. The EnvironMentors staff took an adaptive approach to the program in both the first two years. As with any new program, some components worked well and were incorporated in the second year and others that did not work well, and were modified. For example, collaborating with Gear Up helped maintain high weekly attendance, which was important for a rigorous program of EnvironMentors. Students were given an additional month to work on their projects in the program's second year, which was a lesson learned from the first year. During the second year the Coordinators met with students to work on college, scholarship, and financial aid applications.

The practice of "team mentoring" was a successful method for increasing the number of mentors who could participate. Team mentoring allowed the mentors scheduling flexibility and lessened the intimidation to commit to a weekly program for the nine-month period. In the second year, mentors were given an extra incentive by having an option to earn a graduate-level course credit for their mentoring service. No additional work was asked of the mentors to receive the course credit; however, it was inevitable that they improved their teaching, mentoring and science communication skills. EnvironMentors provides an outlet for many faculty and staff to give back to the community, and the LSU-EM staff hopes the program will be incorporated as an outreach and broader impacts component in future research grants.

The LSU-EM Science Fair and the poster session allowed the staff and mentors to witness how proud the students were of their accomplishments. All of the students who completed and presented their science fair projects were presented a certificate of completion. This was the first time some of the students were recognized for an academic achievement. The science fair winners were again acknowledged at the high school's award ceremony and presented with additional trophies. The poster session at LSU provided the high school students a professional experience to showcase and communicate their research to others, and allowed the university community to see the students' projects. Both the science fair at SMHS and the LSU poster session have become annual events.

Program evaluation is one area of the program that is continually evolving. The LSU-EM staff learned from the first year of the program that students respond better to open-ended questions and group discussions rather than questions with ranked answers. The current LSU-EM staff is working closely with the National EnvironMentors office to improve program evaluation techniques. LSU-EM succeeded in reaching its goals during the first two years of the program. This included exposing at-risk high school students to topics and issues in environmental science and the steps of the scientific method to help solve them. These goals were also attainable by maintaining students' high attendance rates via Gear Up transportation. EnvironMentors provided mentors the opportunity to participate in community outreach and enhanced their scientific communication skills. The mutual relationship between LSU-EM and Gear Up also helped Gear Up achieve their goals of providing additional college access and exposing the students to STEM careers. The on-campus collaborations and the administration's support have been paramount in the program's current success and continued growth. The authors suggest that this program structure can be used as a model for other environmental science and afterschool programs that are targeting at-risk students.

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ENDNOTES

1. Environmental literacy plan status by state available from No Child Left Inside (Available online: http://www .cbf.org/ncli/action/environmental-literacy-plans-by-state)
2. NCSE allows university chapters to utilize either an afterschool club model or more formal in-classroom model to implement the program.
3. The United States provides students from low-income families with free or low-cost lunches through the National School Lunch Program, (more information at www.fns.usda.gov/nslp/national-school-lunch-program)
4. SMHS has a 99.2% minority population and 78.6% of students were eligible for the federal free/reduced meal program. SMHS also has a school performance grade of "D," with 51.5% of students performing at or above grade level (Louisiana Department of Education, Available online: http://www.louisianabelieves.com/data/reportcards/).
5. Louisiana Sea Grant is one of 33 programs located in each of the coastal U.S. and Great Lakes states, as well as Puerto Rico. Sea Grant is administered by the National Oceanic and Atmospheric Administration and promotes environmental stewardship of coastal resources.
6. Louisiana Department of Education School Report Cards (Available online: http://www .louisianabelieves.com/data/reportcards/2012/).

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Appendix: Year two Mentor Survey Questions

Mentor Survey
1. Why did you become a mentor?
2. What did you like about the program?
3. What would you change/improve about the program?
4. Did the meeting day and split schedule work for you?
5. Was it difficult to find time to participate in the program?
6. Would you mentor again? Why or why not?
7. Did you mentor with a partner? If yes, was it helpful to have a partner? Please describe.
8. Was the program what you expected?
9. What was your favorite experience in this program?
10. How did you get your student to open up? Was it difficult?
11. Did you provide college access and give advice to students about college?
12. Was the $100 budget for the science project adequate?
13. Did you attend any of the field trips with the students? Why or why not?
14. Was the support staff helpful? How could they improve for next year?
15. Are there other resources that we could provide for our mentors in the future?
16. Any other suggestions/improvements/comments on the program?

Demographic Questions
1. Male or female
2. Age
3. Occupation
4. Highest level of education