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Creating Environmental Education for Children:
Focusing on the Vigo County/Terre Haute Community



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Abstract

This study is an attempt to create an action plan to improve environmental education for children within a community. It evaluates the reach and sophistication of this type of education that currently exists in the Vigo County/Terre Haute community, diagnoses weaknesses in the system, and finds ways to develop it. Data was collected through surveys given to elementary school teachers in Vigo County Public schools, interviewing community educators, making on-site visits to educational locations, online research, and speaking with political figures.

Environmental education lacks sophistication in schools and can be improved through hands-on, sustainability standards and resources. Community sources outside of schools are limited to university organizations, city and county parks, and museums. The reach of these entities can be improved through advertisement, accessibility, and collaboration. Lastly, initiatives to change legislation can improve the reach and sophistication of environmental education through government-funded environmental programming. (environment, education, sustainability)

Introduction

Choosing to research environmental education was an easy choice to make. I am currently finishing a degree in elementary education with a minor in environmental science. Environmental activism, science, policy and nature itself greatly inspire me. I participated in NYC Peoples Climate March 2014, studied the science of climate change, and signed a variety of petitions. I am specialized in the art of educating with a passion for learning. I have contributed to many conservation projects and created farm-camp curriculum for kids. I believe in a variety of education inside and outside the classroom—gardening, natural vs processed foods, ecosystems, earth processes, sustainability, biodiversity, culture, renewable and

nonrenewable resources, outdoor survival skills, hiking, nature appreciation, invasive species, pollution, environmental clean-up, environmental health issues, conservation, and eco-justice. There is a large web of environmental concepts to understand, appreciate, and solve.

I find it most important to make our youth aware of the beauty of nature and its current predicaments. Children should be taught to think critically, try something new, solve problems, lead others, and be empowered to make a difference. The environment and its issues can be tied to any discipline: politics, law, medicine, science, business, engineering, agriculture, education and conservation alike. The average home-owner, for example, should understand the environment around them, how to conserve it, and work with it. Where is your electricity coming from? Is it causing carbon emissions? What options are available? Is your water fresh? Where does it come from? What drains into it? Where does your waste go? What materials is your house made from? Where did the materials come from? Was its mining process detrimental to others? Where is your food coming from? Does it contain harmful chemicals? Is your land healthy and being used to its full potential? Is rainwater clean enough to drink and the air fresh enough to breathe? Sustainability comes full circle and touches everybody. The environment isn't the environmentalists' problem, it is everyone's problem.

Therefore, I propose that environmental education is vital to future generations' health, well-being, and prosperity. The difficulty lies within the realistic goals of this education. Who is teaching it? Can children learn these things in school, summer camps, or at home? What is publically offered for our youth to learn it? Are there any promoters or restrictions?

Public Education does not require environmental education. In Indiana, there are science academic standards (Physical, Life, Earth, Space, Engineering, and Technology) adapted for each grade level that may touch on a few different environmental topics, but these are guidelines

and not required curriculums (doe.in.gov). Schools can set high or low priority for sciences and choose how to teach them. Majority of the school day is focused on math and language arts. What time is left can be used for social studies and science, and these topics are most often taught from outdated textbooks. The teacher chooses how much effort to put into current, engaging materials and hands-on projects. The typical textbook does not provide project-based learning that can ignite self-discovery and critical thinking.

Outdoor environmental education is more likely to be offered in a community during the summer months at parks, camps and local gardens. These entities may be a sponsored non-for-profit organization, funded by the government, or paid for by the participant. A farm, such as Traders Point Creamery, is located near Indianapolis in a wealthy area where parents can afford to pay \$400 for their child to go to camp for a week on an organic farm to learn about natural food and sustainability. State parks, such as Turkey Run, are located throughout rural Indiana and hire naturalists to provide free nature programming to the public on weekends. An inner city garden called South Circle Farm partners with a local child care center to share the importance of growing local foods once a week; this programming is funded by grants. There can be a variety of environmental education outside of schools, depending on the community and its resources.

From my educational training and experience, I have learned that environmental education can happen in one of three ways. One, it is wanted by the people and the people provide—parents pay an expensive bill for it or teachers put extra effort into materials and lessons. Two, it is wanted by the people and the government provides—funding is applied for and granted. Three, the government mandates it—state employees offer free programming at state parks.

What I do not know is what exists in an actual community as a whole. I do not know what kind of environmental education is really being taught, what teachers want to teach, and feel equipped enough to teach. I do not know the true variety of environmental education offered outside the schools within a community. I cannot say what does and does not work without first seeking out these entities and asking. Lastly, I cannot know for sure what the government has in place for and against this type of education without questioning its political figures.

I plan to look at the Vigo County/Terre Haute community, research its educational opportunities, interview teachers, environmental educators, and political figures to learn what truly exists and how to improve it. After collecting this data, I will research and speculate ways to create better environmental education where it is needed. My hope is to create an ideal community possessing successful environmental education for its youth.

My specific research questions are as follows: (1) What environmental education is being taught in Vigo County public schools? (2) What environmental education is made available to children outside of public schools in Vigo County? And by what entities? (3) Is there any state or city legislation that supports or restricts these entities from implementing environmental education to the community?

I will collect this data in a variety of ways. By creating and sending out a survey, I will find out which teachers feel as though they have adequate background knowledge, which topics they teach and how, what school-wide initiatives exist, and what obstacles lay in the way of environmental education. I will search for all community educators by word of mouth, internet, and social media sites. Interviews and on-site visits can then be conducted to see what is available and what has been successful. Then, I will interview the mayor of the city of Terre Haute to ask about political interest, legislation, and funding regarding environmental education.

Lastly, I will analyze data to speculate solutions to create an ideal community educating its youth on current environmental issues.

I understand many facets of environmentalism and current environmental issues, and I am a trained educator. I have experience creating and teaching hands-on, outdoor education in the Indianapolis area. This study will build upon my prior knowledge in environmental education and develop my thoughts into making a plan. I will learn what this type of education looks like in a rural Indiana city, what works, what does not, and where there is room for change. This will enable me to formulate a plan. I will have a plan to create and advise others on how to create environmental education within a community.

Research Data Collection and Analysis

Environmental Education can be evaluated in a variety of ways. It can be classified by type: nature appreciation, earth processes, or sustainability. Nature appreciation specifically makes regard to biodiversity, conservation, and exploration. It can mean learning about and protecting animals and plants. People can come to understand the importance of diversity in ecosystems and how organisms work together within a specific biome or geographical location. Taking time to appreciate natural wonders and unique niches of the life around us—a bird building a nest from brush and straw to protect its young from predators high up in a tree or a bear learning to swim with its thick coat of fur to keep warm in cold river water to catch fish to survive. Nature finds a way to survive in often harmoniously detailed ways. Nature appreciation takes time to understand perspective and even mimic the beauty of life around us for human enjoyment and benefit. Conservation is a further step of this appreciation where people take time

and make effort to protect and conserve the land, water and specific locations of all natural life. Explorations is finding it and sharing it with the world.

Earth processes are defined as dynamic, natural-occurring processes of land, water, and air. Land can be shaped by erosion, weathering and plate tectonics. It can be created by specific occurrences, such as Hawaii by ocean volcanic hotspots. A mountain is pushed up by two colliding plates and the Grand Canyon is carved out by the Colorado River. Water not only helps form land, it is also recycled through evaporation and condensation, frozen in mountain caps, filtered by running down mountains through rocky streams, and stored in groundwater systems. The air we breathe reaches high up into an atmospheric blanket around our planet that blocks out extreme heat and keeps just enough heat in to encourage life, it is made up of a balanced complexity of gases, and interacts with land and water through a variety of processes as well. Scientists study these processes to not only learn about our Earth, but also our own human processes that may interfere with it.

Sustainability is a relative term addressing the idea of sustaining oneself, whether that be an object, human being, business, or planet Earth. Today, sustainability is commonly used to describe current environmental issues and learning how to sustain our planet, our communities, and our households. More specifically, it means what an entity takes from its environment, it must give back in some way, shape or form. Nature does this well and human beings disrupt this cycle. We are in a habit of taking and not giving back. We cut down entire forests and deplete its lush ecosystems for farming, paper, and wood before thinking about the implications. It is hard to turn back and plant fresh seedlings to grow and support these complex ecosystems again with a large portion of its inhabitants endangered or extinct. We take water from a dry climate for pools, watering lawns, and agriculture to the extent of extreme droughts in California where

Colorado did not reach the Sea of Cortez on the Mexican gulf for over a decade depleting precious deltas, estuaries, and fish populations (voices.nationalgeographic.com). Nature is connected by sustainability—taking and giving back its wealth of being. In order to survive among it and prosper, humans need to learn to do the same. Without doing so, we will cease to exist along with our generous donor.

The will collect data to not only detect how much environmental education exists in the Vigo County/Terre Haute community, but also what types of environmental education are being taught. I will then analyze the depth, application, and sophistication of the material. Children should not only be taught nature appreciation, earth processes and sustainability, but also know how to make crucial connections between the three and solve real-world problems. Lastly, I will attempt to diagnose any weaknesses or restrictions to this type of education and hypothetically solve them.

(1) What environmental education is being taught in Vigo County public schools?

Methods—Original data was collected for this question through an online survey using Qualtrics (qualtrics.com). I sent the survey link to all Vigo County elementary school principals and asked them to forward it to his/her teaching staff. The survey was limited to 14 questions in order to create a quick and easy survey to convenience a teacher's busy schedule. The first four questions pertained to the teacher—how many years of experience teaching, school, grade and belief of personal ability to adequately teach sustainability and environmental science in the classroom. The next three questions addressed current sustainability and environmental education in the classroom—what related topics are taught, how they are taught and in which subjects. The following six questions pertained to school-wide sustainability and environmental education—

recycling, student clubs, educational posters, fieldtrips, and on-site garden/greenhouse availability. The last question asked the participants to select the main obstacle(s) to incorporating this type of education in elementary schools—lack of money, lack of interest, not recommended in standards, not enough time, etc.

Results—

1. How many years have you been teaching?

#	Answer	Response	%
5	20+ years	16	37%
1	1-5 years	10	23%
2	6-10 years	9	21%
3	11-15 years	6	14%
4	16-20 years	2	5%
	Total	43	100%

2. Which elementary school do you teach at in Vigo County?

#	Answer	Response	%
1	Sugar Creek	0	0%
2	Fayette	1	2%
3	Ouabache	6	14%
4	Davis Park	0	0%
5	Ben Franklin	0	0%
6	Riley	8	19%
7	Deming	0	0%
8	Fuqua	0	0%
9	Rio Grande	9	21%
10	DeVaney	0	0%
11	Hoosier Prairie	4	9%
12	Sugar Grove	0	0%
13	Dixie Bee	1	2%
14	Lost Creek	0	0%
15	Terre Town	12	28%
16	Farrington Grove	0	0%
17	Meadows	4	9%
18	West Vigo	2	5%

3. What grade do you teach?

#	Answer	Response	%
1	Pre-K	1	2%
2	Kindergarten	3	7%
3	1st grade	6	14%
4	2nd grade	6	14%
5	3rd grade	7	16%
6	4th grade	5	12%
7	5th grade	11	26%
8	6th grade	0	0%
9	Other	12	28%

4. Do you believe you have adequate knowledge on sustainability and the environment to incorporate it into your classroom?

#	Answer	Response	%
1	Yes	22	51%
2	Maybe	17	40%
3	No	4	9%
	Total	43	100%

5. What topics do you currently incorporate into your curriculum and lesson planning pertaining to sustainability and the environment? (Select all that apply)

#	Answer	Response	%
1	water conservation	24	63%
2	energy conservation	27	71%
3	non-renewable/renewable resources	24	63%
4	Recycling	37	97%
5	importance of animal/plant diversity	10	26%
6	environmental health	16	42%
7	food production	13	34%
8	Agriculture	10	26%
9	definition of sustainability	7	18%
10	definition of organic foods	3	8%
11	climate change	18	47%
12	carbon emissions	6	16%
13	consumer waste	16	42%

6. *In what ways do you incorporate sustainability and environmental education in the classroom?*

#	Answer	Response	%
1	Posters	11	26%
2	lessons/activities	35	81%
3	Books	28	65%
4	magazines/articles	11	26%
5	guest speakers	6	14%
6	Internet	11	26%
7	None	5	12%
8	Other	3	7%

7. *In which subjects do you incorporate sustainability/environmental education?*

#	Answer	Response	%
5	Music	1	2%
6	Art	1	2%
7	Physical Education	1	2%
1	Math	3	7%
8	None	5	12%
4	Social Studies	19	44%
2	English/ Language Arts	25	58%
3	Science	29	67%

8. *Does your school recycle?*

#	Answer	Response	%
1	Yes	43	100%
2	No	0	0%
3	Not sure	0	0%
	Total	43	100%

9. *Are there any student clubs or groups geared toward the environment or conservation of resources?*

#	Answer	Response	%
1	Yes	10	23%
2	No	21	49%
3	Not sure	12	28%
	Total	43	100%

10. Does your school have an on-site garden or greenhouse used for educational purposes?

#	Answer	Response	%
1	Yes	5	12%
2	No	33	77%
3	Not sure	5	12%
	Total	43	100%

11. If not, would you be interested in it?

#	Answer	Response	%
1	Yes	25	64%
2	No	0	0%
3	Indifferent	14	36%
	Total	39	100%

12. Are there any posters throughout the school to conserve water or energy?

#	Answer	Response	%
1	Yes	14	33%
2	No	29	67%
	Total	43	100%

13. Does your class take any nature or environmental field trips?

#	Answer	Response	%
1	Yes	12	28%
2	No	31	72%
	Total	43	100%

14. What is the main obstacle to implementing more sustainability and environmental education in your school? (Select all that apply)

#	Answer	Response	%
1	lack of interest	1	2%
2	money	18	43%
3	not sure how	7	17%
4	not recommended in standards	7	17%
5	not enough time	36	86%
6	lack of resources	17	40%
7	Other	2	5%

Discussion/Analysis—43 teachers participated in the survey from 9 out of 18 schools elementary schools. 37% of participants have been teaching for 20+ years, followed by 23% of participants who have been teaching for 5 years or less. The rest fell in between these year marks. The highest portion of participants selected “other” when asked what grade he/she taught. This included special education, reading recovery, art, music, and P.E. teachers. The next highest portion taught 5th grade, and the rest of the percentages decreased from 4th to Pre.K. 51% of participants felt as though they had adequate knowledge to teach this type of education, 40% selected “Maybe”, and 9% selected “No”. The most popular topics taught in the classroom were water conservation, energy conservation, renewable/nonrenewable resources, and recycling. The rest fell below 50%. The least taught topics included carbon emissions, definition of organic foods, and definition of sustainability, which all fell below 20%. These topics are most commonly taught with lessons, activities, and books; they are least commonly taught using guest speakers at 14%. These topics are most often incorporated into Science, Language arts, and Social Studies lessons. 100% of schools recycle. 23% of participants report having an environmentally geared student club. 12% claim to have an on-site garden. Educational posters are up in 33% of schools. 28% take an environmentally-based fieldtrip. Lastly, the greatest obstacle is “not enough time” at 86%, followed by “money” and “lack of resources”.

Most teachers who participated have been teaching for a long time or are fairly new to the career. There is a demographical gap in the middle. The participants were geared toward higher grades, and this might be caused by the topic of the survey. Teachers from younger grades may think that he/she is not able to incorporate these topics into lessons for young kids or do not feel obligated to. I created and taught an engaging, hands-on Earth Day program to 3-5 year olds in April 2015 at the ISU Early Childhood Education that included recycling, landfills, a trash-

degradation timeline, sorting trash, water pollution in a sensory table, ocean pollution, picking and decorating up-cycled containers, and planting a seed. It was full of visuals and discussion that made material relatable to themselves and their community—“water that you drink”, “the trashcan at home”, “ISU recycling center”, and taking the planted seed home to grow. It tied many concepts together and introduced the kids to basic sustainability. The concepts can be simplified for any age; it can be done.

Half of the participants felt knowledgeable enough to teach environmental education, but only 3/13 of the topics are taught by 50% or more of participants. Those that feel they are able to, are not doing it. The main obstacle reported by 86% is “not enough time”. Teachers are busy people. We are required to build curriculums hitting each set of standards for each subject throughout the year, making copies, preparing effective materials, and finding reliable resources while assessing for retention, preparing for standardized testing, and managing behavior of 15-25 children who each learn in his/her own, unique way with vastly different interests and backgrounds. It is not a simple task. Unfortunately, not many required standards relate to sustainability concepts. When it is not a requirement, it is easy to dismiss. One thing that teachers do undoubtedly care about is our students’ well-being and success. More teachers need to make our students’ environmental awareness a priority in this category. It is becoming pertinent to understand the environment and how to sustain oneself from it in order to survive in today’s society. It has been ignored for too long. It can’t be as simple as going to the grocery store and counting out change. Where is the food in the grocery store coming from? Who grows it and how? Am I safe to eat it? What is it doing to the environment? Could I grow it on my own? Could I buy it from a local farmer? The sooner these concepts are introduced, the better.

Then, future generations can be aware of these issues, make their own educated decision, and find their place amongst society as adults.

The most common subject that supports this kind of education is Science, but environmental education can be taught in any subject. There is a Native American song called the “Cherokee Morning Song” that could be used in music class; it symbolizes giving thanks to Mother Nature for harvesting and hunting to show appreciation and respect for the environment. Hiking and outdoor living skills could be taught in P.E. class. Children could draw a food chain or create a tactile ecosystem in Art. Math could be used to solve a sustainability problem—cutting down and replanting a forest. Textbooks do not always provide cross-subject integration or address current issues. Materials have to be sought out elsewhere. Largescale unit plans can be planned ahead of time to address a topic across all subjects planned by multiple teachers to enhance learning. It could become a grade-wide or even school-wide initiative.

Most participants lacked in this school-wide programming. There were few educational posters, student clubs, school gardens, or field trips. Environmental education is very hands-on, and it should be strengthened by student-teacher-administrative cooperation. The strongest act of sustainability in schools is recycling at 100%, and it shouldn’t stop there. Teachers are not teaching a large variety of topics, and the few that are being taught are not applicable to the community or presented in an engaging way. Worksheets and books only go so far for meaningful retention of material. Children should get their hands dirty in a worm-composting bin, learn how it works, and then start a group project to solve the food waste problem in the cafeteria. Critical thinking should be provoked and connections should be made.

(2) What environmental education is made available to children outside of public schools in Vigo County? And by what entities?

Methods—I sought out and analyzed environmental education that is offered in the Vigo County/Terre Haute Community through interviews, on-site visits, and online research. I have participated in various programs and events in the community that implement this type of education in the past few years, therefore I was already aware of organizations that provide this type of education before conducting research. I took data collection one step further to find all sources of environmental education in the community geared toward children, what is taught, what is made available, how, and by whom. Then, I evaluated how well it is advertised and made accessible to the general public.

Results—

Indiana State University:

- ***Institute for Community and Sustainability (ICS)***
 - **Community Garden**—this garden is located next to the ICS building on the 11th and Chestnut city block in Terre Haute, IN. It hosts 90 gardeners and provides 150 plots of land. The plots are free to the public. Registration is required, 100% organic operation is required, and 10% of all garden produce is asked to be donated to a local food bank of choice (unboundedpossibilities.com). An event called “Children’s Day” was hosted at the garden on June 20th from 8:30 a.m. to 12:30 p.m. Terre Haute Children’s museum, ISU’s Recycling Center, Wabash River Mycological Society, ISU’s Center for Bat Research, and Terre Foods Cooperative Market joined the occasion (wthitv.com). I volunteered at this event to represent the Sycamore Environmental

Action Club. We presented a blank mural for students to paint. They were asked to paint something inspired by their experiences and/or write down something that they had learned. We had a total of 3 children participate. There were depictions of flowers and a cat. One child wrote that he learned about recycling. This event was open to the general public for free.

- Greenhouse Project—the ICS was funded to build 7 greenhouses in the Wabash Valley area by the Lily Endowment. Its purpose is to facilitate intergenerational education on science, nutrition, and local food systems. Each greenhouse location adapted the University of Missouri Bradford Research and Extension Center building specifications to meet individual needs. The chosen locations are Saint Mary-of-the-Woods College's White Violet Center for Eco-Justice, Ivy Tech Community College's Giving Garden, Indiana State University's Institute for Community Sustainability, Indiana State University's Early Childhood Education Center, Catholic Charities' 14th and Chestnut Community Center, Rose Hulman Institute of Technology, and Lost Creek Township (unboundedpossibilities.com). I helped build the ISU Early Childhood Education Center greenhouse in December 2013. It is a plastic sheet and metal frame build, and it is used for educational purposes at the daycare for children ages 2-5 years.
- Sponsors ISU Earth Day—the last Earth Day celebration took place April 15, 2015 on ISU's campus. It was a day-long event that welcomed people from the ISU and Terre Haute community. It included rock wall climbing, corn hole, an outdoor picnic, featured film, live band, and 50 local businesses and organizations offering educational activities about sustainability at tables spread out on a grassy lawn

(unboundedpossibilities.com). I worked a table for the Sycamore Environmental Action Club. This event brings in a large range of people—families, college students, ISU affiliates, and non-ISU affiliates. There are many different kinds of environmental education made available to all ages, and the event offers a strong sense of appreciation for the Earth. The event was open to the general public for free.

- ***Sycamore Environmental Action Club (SEAC):***

- Trash Timeline—this student organization created a timeline that represents the chronological identity of 15 trash items according to each item’s estimated degradation rate. The items are placed on a table, and the participant is asked to place the trash items where he/she thinks they belong on the degradation timeline spanning from 2 months to 1 million years. Some assorted items include: a newspaper, glass bottle, plastic cup, Styrofoam, diaper, cigarette butt, and leather. A clear container filled with dirt and a submerged food can represents the concept of degradation—the amount of time it takes a piece of trash to break back down into soil. This educational tool has been used at the ISU Earth Day event, at the St. Mary of the Woods Earth Day event, and for Earth Day programming at the ISU Early Childhood Education Center and West Vigo Community Center in April 2015. As the former head of the committee for Education and Outreach, I helped implement the programming at each location. Children were drawn to it, and parents found it interesting. It was successful, efficient, and “eye-opening” for individuals of all ages. The programming provided at the ECEC and West Vigo Community Center was closed to the public, but programming at Earth Day events was open to the general public for free.

- ***Early Childhood Education Center (ECEC):***
 - Gardening—children from ages 6 weeks to 5 years spend time outside at the ECEC when weather is permitting. Teachers grow food to eat in several different ways. There is an on-site garden filled with 6 raised beds, a greenhouse, and flower beds spread throughout the grounds. The director, Gail Gottschling, partook in sabbatical leave in spring 2015 to travel and visit different educational programs that practice successful sustainability in the United States and Europe. She has plans to further develop the ECEC’s practices. As a former student employee, I witnessed a variety of environmental, sustainability, and nature education at the center. Children make nature art, observe wildlife, and read a variety of environmental books. Unfortunately, it is not made available to the public. It is only made available to enrolled students: 16 infants, 20 toddlers, 10 two-three year olds, and 40 preschoolers at capacity. Majority of enrolled families are ISU affiliates.

- ***ISU Recycling Center***
 - Tours—the center offers tours to ISU students, ISU faculty, schools, businesses, clubs and other interested individuals by appointment to inspire sustainability and recycling (indstate.edu). The center participates in community events as well, such as “Earth! A User’s Manual” educational series offered to the public at the Vigo County Public library in spring 2015, ISU Earth Day, and Children’s Day at the community garden (spsmw.org).
 - Up-cycled Crafts—the center’s website offers downloadable resources for fun crafts, such as making a fish, pumpkin, snowman, or Christmas tree out of trash and useless

household items (indstate.edu). This resource would have to be sought out online by an educator or older family member for a young child to do.

St. Mary of the Woods College:

- ***White Violet Center for Eco-Justice:***

- Farm Life—there are 343 acres of certified organic farmland, an alpaca farm, chickens, bees, a berry patch, a water garden, trails, and a classified forest at this location. The center offers scheduled tours to garden clubs, 4-H, scout troops, women’s auxiliaries, college students, homeschooling families, and religious groups. Since 1996, the sisters of the organization believe in “fostering a way of living that recognizes interdependence of all creation” (spsmw.org). They support interns, volunteers, educational workshops, and seasonal events. A large variety of educational opportunities are provided to the community and its families.
- Hosts St. Mary’s Earth Day—the event was last held on April 18, 2015 at St. Mary of the Woods. There were dozens of educational exhibits, local food vendors, live music, and activities for kids. A set schedule of mini-workshops were offered for free throughout the day, which included: gardening, cooking, fiber arts, composting, vegetable fermentation, and growing fodder (spsmw.org). I attended the event as a SEAC presenter, toured the garden, bought local and organic products, and collected water treatment education materials from a booth. The water treatment materials were provided by the Project WET Foundation based out of Montana. It is a program that focuses on creating kid-friendly education about water and providing these resources to families and educators (projectwet.org). Networking and collaborative events make

footholds of accessibility for programs such as these to educate our youth. The educational aspects of the event were offered to the general public for free.

Vigo County Parks and Recreation Department:

- *Parks and Nature Preserves*

- Fowler Park and Fowler Park Wilderness Area—this wildlife area is located 7.2 miles south of I-70 on U.S. 41 and .8 miles east on Oregon Church Road. It was the first park founded by the department in 1967. It consists of 462.82 acres of land and 55.9 acres of water. There is a campground, beach, picnic shelters, playgrounds, trails, a boat launch, and a pioneer village. The village contains 18 buildings, a log barn, and working gristmill; it is open every third Saturday of the month from May to September (vigocounty.in.gov). This park is open to the general public.
- Hawthorn Park and J.I. Wetland Wildlife Refuge—this refuge is located near the Rose-Hulman Institute of Technology and consists of 256.72 acres of land and 68.6 acres of water for fishing, boating, swimming, and camping. The park also provides an archery range, trails, and a meditation rose garden (vigocounty.in.gov). This park is open to the general public.
- Prairie Creek Park—this park consists of 282.75 acres of land and 16 acres of water, and it is located 10 miles south of I-70 on U.S. 41. There is a lake, two ponds, campground, picnic shelters, playgrounds, sports facilities, and a sugar house used for maple syrup production. The sugar house taps 2,500 old maple trees in the park every year during February to make maple syrup and maple cream to be sold on-site throughout the year. A state nature preserve was recently added to the park. It is a

- unique woodland full of at least 26 different tree species, and it offers a hiking trail (vigocounty.in.gov). This park is open to the general public.
- Markle Mill Park—this park consists of 8 acres for visitors to fish, look upon the historic mill and damn, listen to the waterfall, and relax in a gazebo in northern Vigo County (vigocounty.in.gov). It is open to the general public.
 - R. Kermit Flesher Memorial State Nature Preserve—nature preserve in Prairie Creek Township deeded to the department in 1972. It is a 36 acre parcel of natural flood plain land dominated by native species, and access is only allowed by permission of the department. It is not a public source of use or education (vigocounty.in.gov).
 - Wabashiki Trail—this park is a fish and wildlife area composed of 2600 acres of floodplain along the Wabash River, and the park offers a 7 mile trail for hiking and biking (vigocounty.in.gov). It is open to the general public.
- ***Monthly Activities***
 - Educational Opportunity—the department provides environment-friendly events at least once a month all throughout the community at public locations and local parks. They feature special guests, nature hikes, wildflower hunts, photography, recycling, holiday events and more (vigocounty.in.gov). These events are published on the department’s website; some require registration and/or a small participation fee.

Terre Haute Parks and Recreation Department:

- ***Nature Parks and Recreation Centers***
 - Deming Park—this park is located on the east side of Terre Haute. Its 177 acres are home to a playground, disc golf course, public pool, sports facilities, and the Torner

Center. Classes, camps, leagues, and events are held here throughout the year. Kids Cooking Class, Creek Stomping, and Mobile Recreation are offered as Summer Programs (terrehaute.in.gov). Lastly, it is home to Clark-Landsbaum Deming Park Holly Arboretum where people of all ages can learn about and enjoy the beauty of holly (hollyfota.org). It is open to the general public.

- Collett Park—this park is located on the corner of 7th and Maple Ave. It is listed on the National Register of Historical Places; it hosts an indoor rental facility and outdoor recreational facilities (terrehaute.in.gov). This location does not provide any formal education. It is open to the general public.
- Dobbs Park—located on the east side of Terre Haute, this park offers a Nature Center, Native American Museum, heirloom garden, 3 acre pond, restored prairie, restored wetland, pine woods, and a butterfly garden. A variety of education is available here for all ages (terrehaute.in.gov). This park is open to the general public.
- Fairbanks Park—this park is located on the Wabash River near downtown Terre Haute. It is the site of many events and festivals throughout the year. There are several sets of playground equipment, shelters, an amphitheater, and docks for fishing and boating (terrehaute.in.gov). It is open to the general public.
- ***Dobbs Park Nature Center***
 - Center Information—this center is open Tuesday through Saturday from 9 a.m. to 5 p.m. to the public. It offers educational displays, native wildlife displays, a wildlife viewing area, a Junior Naturalist Program, Honeysuckle Eradication volunteer work, monthly Saturday programs, and scheduled group programs. Program topics include: butterflies, birds, invasive species, hiking, and wildflowers (terrehaute.in.gov).

- Naturalist Interview—the naturalist’s programming is geared toward pre-school and kindergarten-aged children, but it can be adapted for older ages. She has had many older students start the Junior Naturalist Program, but no one has finished it due to a final research project. She educates an estimated 5,244 persons per year: 1,027 from scheduled on-site visits, 3,805 from schedules off-site visits, and 412 from Saturday programs. She visits elementary schools, middle schools, assisted living areas, clubs, Boy Scout groups, the fairground fieldtrips, ISU summer science program, and Wetland Days. Unfortunately, the naturalist reported that there are not many “teaching” moments at the center. Most kids stroll through, and consider the playground equipment as the “park”. Some kids enjoy the turtles, fish and snakes on display, while others are too afraid to enter. Her main topics pertain to nature appreciation. Her Saturday programs have been as small as two participants before. She attends a lot of school field days, and not many schools visit her due to fieldtrip-restrictions in Vigo County. The center advertises events through their Facebook page, Twitter account, brochures, posters, and word of mouth.
- ***Native American Museum***
 - Museum Information—this site is located in Dobbs Park and offers permanent displays on Native American culture as well as temporary exhibits. Traditional plants and vegetables are grown in the Heirloom Garden. A full library and knowledgeable staff are available Tuesday through Saturday from 9 a.m. to 5 p.m. to the public for free. Group programming can be scheduled, and Saturday programs are offered twice a month to the public (terrehaute.in.gov).

- ***Special Events***

- Family-oriented Events—these are outdoor events hosted at the public parks near and on holidays, such as Easter, Independence Day, Halloween, Thanksgiving, and Christmas (terrehautet.in.gov).

Vigo County Public Library:

- ***Environmentally-based Programming Events***

- Hosts Events—the library advertises and hosts events that are put on by outside community organizations and provided to children and their families, some of which pertain to environmental education. Blindfold Birding Classes and the “Earth! A User’s Manual” series were offered in 2015 (vigo.lib.in.us).
- Nature Tales—this event is offered by the library two times a month from 3:30 p.m.-4:30 p.m. on Wednesdays all throughout the year. It requires early registration, and it includes a nature-themed story and craft to take home (vigo.lib.in.us).

Terre Haute Children’s Museum:

- ***Environmentally-related Education***

- Exhibit Observation—On September 25, 2015, I visited the museum and documented any environmentally-related information that was on display through digital pictures. A Purdue extension exhibit called “The Heroes in Your Hometown” included topics such as gardening, local foods, farmers markets, seasonal food, climate, food transportation, fossil fuels, food preservation, farm technology, and genetically modified organisms. A variety of animal fact bubbles are pasted to the bottom of the museum’s first floor for visitors to read. Donated by the Rose-Hulman Institute, a

speed zone exhibit allows children to pick an animal to race on a 10 yard sprint track. The track lights up according to the speed of the animal. A cheetah causes the light to zoom past you, and a snail causes the light to slowly crawl down the track. A large bee-hive jungle gym is available for children to climb through. There was an Energy Generation Station on the second floor donated by Duke Energy. It exhibits human power, wind power, solar power, and energy conservation. The Water Table exhibit allows children to enjoy water play and experiment with liquid flow, but it does not pertain to clean water practices or natural water processes. A grocery shop invites students to learn about fruit and vegetable nutrition. An agriculture exhibit expresses modern farming practices concerning chickens/eggs, pigs, cattle, and crops. Lastly, it offers an insect/critter corner with a functioning beehive, snakes, frogs, beetles, spiders, and lizards with a variety of educational posters about the animal kingdom and its many life cycles.

- Programming—the museum offers Kid’s Programs, field trip opportunities, Summer Science Camps, and scheduled programming throughout the year. Regular museum hours include Tuesday through Thursday from 10 a.m. to 6 p.m., Friday from 10 a.m. to 8 p.m., Saturday from 10 a.m. to 5 p.m., and Sunday from noon to 5 p.m. (thechildrenmuseum.com). It is open to the public at the price of a small entrance fee.

Discussion/Analysis—According to my research, there are 9 separate organizations that provide environmental/sustainability education to children in the Vigo County/Terre Haute community—Institute for Community Sustainability, Sycamore Environmental Action Club, Early Childhood Education Center, ISU Recycling Center, White Violet

Center for Eco-Justice, Vigo County Parks and Recreation, Terre Haute Parks and Recreation, Vigo County Public Library, and the Terre Haute Children's Museum. Smaller entities of similar interest may exist and participate in this type of education, but these 9 groups delegate, host events, offer resources and/or provide explicit programming. 10 major nature parks—Fowler, Hawthorn, Prairie Creek, Markle Mill, Flesher, Wabashiki, Deming, Collett, Dobbs, and Fairbanks—are available to the public. These parks are operated by the city and county park and recreation departments. One nature center and trained naturalist is available at Dobbs Park full-time. Indiana State University cultivated 4 of the 9 organization. St. Mary of the Woods College has provided the White Violet Center. The library belongs to the county, and the children's museum is part of a national consortium.

Over half of the organizations operate in alliance with a college or university. This creates current and sophisticated education, but it largely targets ISU and St. Mary of the Woods affiliates. For example, the ECEC provides priority enrollment to children of ISU affiliates. This means that children of ISU parents are being introduced to sophisticated environmental education, while the average non-affiliated daycare located is not. There is a gap between the general public and these organization's education.

Most educational events offered to the public are held on/near campus. Children's Day at the garden drew in 3 kids in the span of 3 hours. Advertisement and public access may be lacking. Families who are not affiliated may not hear about events in their work and school environments or social circles, they may not have internet, and the college campus may not be ideal due to location and parking. If the family does manage to hear about the event, a parent or guardian must take initiative to bring their child. The parents

have to play an active role in obtaining this type of education for their children, and this may, in many cases, necessitate an existing parental interest in the topic—not just the child's.

The two most popular events are held on Earth Day at ISU and St. Mary of the Woods. The turnouts and festivities continue to grow each year. More non-affiliated families are coming, it is publicized well, and local newspapers are covering it. This is great news, but it cannot stop here. Environmental education and advocacy cannot make successful gain on only one day out of the year. Taking a holiday to celebrate Earth is a good thing, until environmental groups spend months planning for it relinquishing year-round advocacy. Children should be taught to care about the Earth 365 days out of the year. Earth Day success can remain positive, as long as strength is adjacently built toward other events and programming all throughout the year.

The ten parks offer an estimated 4,000 acres of nature preserves, wetlands, forests, river floodplains, trails, gardens, recreation facilities, and fish and wildlife. This is a substantial amount of public land in the Vigo County/Terre Haute community. There is great potential for environmental programming, but it is mainly used for family recreation. It provides natural observation and leisure learning for all ages. What informal education occurs would be classified as nature appreciation, but without learning about pressing environmental issues, sustainability and conservation, families may no longer have lush ecosystems and clean water to appreciate. All educational concepts are necessary. Vigo County is fortunate to have so much natural land left to enjoy, other places in the world are not so lucky. Teaching our future generations to take action and

empower eco-justice can potentially solve crucial environmental issues all over the world.

The local government uses tax dollars to maintain these lands through DNR officers and hired park staff. There is only one full-time Naturalist position and a few Native American Museum staff positions that are hired specifically to implement education located in Dobbs Park. 1 out of 10 nature-based parks offer formal education on a regular basis. This means that only a small portion of the Parks and Recreation parks' funding goes toward environmental education. This is where outside organizations have to provide and compensate for the lack of funded education. There is a need that is not being filled. The government not only needs to maintain lands, but participate in its protection.

The remaining entities in the community that provide environmental programming are unique—Vigo County Library, Terre Haute Children's Museum and the Clark-Landsbaum Deming Park Holly Arboretum. The library partners with community organizations to provide accessible, public programming. The children's museum is a product of a national organization program and receives funding from prominent foundations. The arboretum is an all non-profit organization in partnership with one of the Parks and Recreation departments. These entities are made possible by people who organize themselves for a common cause. The funding is not organized nor provided by the government.

(3) Is there any state or city legislation that supports or restricts these entities from implementing environmental education to the community?

Methods—I collected data for legislative supports and restraints of environmental education by interviewing the mayor of Terre Haute, IN on September 25, 2015. I asked him a series of questions and partook in conversation involving sustainability and environmental advocacy.

Results—Mayor Duke Bennett believes in keeping the city of Terre Haute clean—keeping trash off the streets and recycling. He is a big supporter of recycling and recycles at home. There is a full-time arborist position to care for and treat all of the trees located throughout city as well. She does not receive designated funding from the government; she receives local grants, state grants, and sponsorship from a local organization called TREES Inc. She is in the field nearly every day, but occasionally visits schools and presents environmental programming. The mayor has been involved with city water treatment, as well as creating new, sustainable water treatment facilities. One of the plans includes repurposing an old factory property near the Wabash River, building efficient and sustainable treatment technology underground, and refurbishing green space for parks and recreation above. He supports ISU research pertaining to environmental research as well. There are old, useless factory grounds in Terre Haute that belong to the city and have contaminated soils. ISU plans to experiment with different kinds of plants that have the potential to pull harmful chemicals out of the soil over time, and it could take up to 30 years to collect data and see results.

Mayor Duke Bennett claims that there are no laws restricting or supporting environmental education, at least at the local level; the only problem would be funding. He oversees the naturalist at Dobbs Park, and he stated that there are no rules. When questioned whether or not she is allowed to teach controversial topics, such as climate change, he replied, “Well I hope not. Now, I might just check to make sure she isn’t.” The mayor is not convinced that climate change is real.

At the end of the interview, I asked for advice on how to create and implement large-scale environmental programming similar to the drug program in Indiana called D.A.R.E. He informed me that state funding would be needed. From personal opinion, he thinks that pools of money from un-sustainable practices could be relocated into an education fund. If more people recycled, there would be excess money from landfill fees and trash pick-up services, and the cost benefit could be pushed toward funding for environmental programming. To get programming started, I would have to start small—create the lessons and materials and implement them in a local school. Once successful, I could travel to more schools, and figure what works and does not work. Then, I would have to formulate a plan for large-scale programming and funds, then present it to my representative. I would need to know how much money would be used and how. The legislator would then have to agree to aid me in taking a series of legal procedures to receive the funding.

Discussion/Analysis—According to Mayor Duke Bennett, there is not any legislation explicitly prohibiting or supporting environmental education in the Vigo County/Terre Haute community. The only problem is funding. There is no money for it. Legal changes

would have to occur for money to be moved around and placed in environmental education funds. If someone were to present a plausible plan, it is possible to persuade legislators to make this change.

Conclusion

Environmental education exists in the Vigo County/Terre Haute community. It is incorporated into lesson plans by teachers in public schools, university organizations offer it at public events, museums provide it through temporary exhibits and permanent displays, and there are a variety of nature parks mandated by two separate parks and recreation departments. According to the research of this study, the reach of this type of education can be broadened, and the sophistication should be developed.

There is a lack of funding in the community for environmental education. Land is being provided by the government, and most of the education is being provided by organizations. If the government does not create more positions for this type of education, more organizations need to be created by the people. There need to be more partnerships between environmentally-based organizations and parks. These connections can be made through communication and networking.

The education that already exists needs to be advertised better to the general public, and it needs to become more accessible. College organizations should start going to schools and daycares, instead of participating in campus-based events. Non-affiliated families are not apt to attend, and reaching these children will be best accomplished in a public school setting. Because of Vigo County's field-trip restriction, organizations will have to travel to the schools to implement programming. Lastly, the bulk of the current environmental education being

implemented is centered around Earth Day. Advocacy for the environment and sustainability should be carried out year-round.

Public schools need to make environmental education a priority as well. The education that currently exists is minimal and underdeveloped. The Indiana Academic Standards only reach a shallow depth of sustainability. For example, older elementary grades learn environmental processes such as the water cycle; they learn the difference between a renewable and nonrenewable resources; and they are told that recycling is good. A knowledge gap remains where sustainability connects these three concepts. The water cycle can be negatively affected by our choice in resources, and recycling is a way to solve this problem. Do students understand why recycling is a good thing? Do they know what a landfill looks like? Do they know that a certain percentage of that trash will end up in waterways draining into the ocean? Do they know that our choices of non-biodegradable resources we call “trash” pollutes the water cycle? Once the harmful chemicals are in the ocean, it can evaporate, fall back to Earth as rain, and end up back in our hands as drinking water. Sustainability comes full circle, and it affects everyone. The state of Indiana needs to incorporate adapted sustainability concepts for each grade level. School corporations need to become more aware of current environmental issues, and teachers need the incentive and resources to implement more sophisticated, hands-on environmental education.

The Vigo County/Terre Haute community is located in rural Indiana, we have farms, parks, and organizations, and there is still a lot of room for improvement when creating environmental education for children. There is a need for improvement in communities everywhere. We are in need of a movement and change. Therefore, I propose that communities everywhere make a plan to identify your weaknesses, find your gaps, and fill them. You cannot know how to fix a problem, without first analyzing it. The need for this type of education is

imminent. We can start at the political level by initiating state-wide, government-funded environmental programming that will reach children in schools everywhere.

Conserving the environment is everyone's problem. By educating our youth, we are giving them a foothold across disciplines. Doctors need to know the health factors and environmental implications behind medicines that he/she prescribes. Lawyers need to know the facts on environmental issues before making a case for or against it. Legislators need to be aware of the issues they support or restrict. The business man needs to know where his resources come from. The engineer needs to know how to build structures sustainably. Teachers need to know how to empower their children to make an impact. Conservation of resources can no longer be left to the conservationist. The environment may not be able to withstand humankind's needs much longer, if we do not obtain the knowledge to conserve it. In 1854, Chief Seattle once said, "Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect" (seattletravels.com). Without action, we may be at the precipice of our own demise.

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