**Part I: Preliminary Information**

**Title:** Toward Interconnected Sustainability Education: A Case Study of Four “Green Schools of Excellence” in North Carolina

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**Abstract:** Sustainability education is more important than ever. Since 2011, the United States Department of Education has been recognizing Green Ribbon Schools, and North Carolina has been awarding a similar designation in their Green Schools Program. I am proposing to conduct a qualitative case study of four schools that received the NC Green Schools of Excellence award in 2014 or 2015. These schools show a commitment to a sustainable campus and promote environmental literacy for all students. Based on the metric of interconnectedness (Warner & Elsar, 2015), I will investigate whether and/or how these schools take a whole-school approach to sustainability education. Sources of data will include observations, interviews, and documents. Sustainability education has the potential to become a new paradigm for K-12 education, yet there are few studies of “green schools” that might uncover how that potential may be realized.

**Personal Statement**:

When I was young my parents bestowed upon me a love for the natural world. Forests, rocks, and streams were my playground. One summer we were backpacking in the Whites National Forest, and I stood on top of a ridge. The wind blew so hard I could lean into it and angle my body like an Olympic ski jumper without falling flat on my face. I have a long list of similar memories that constantly remind me of my passion for nature.

My time in elementary school also shaped who I have become and what I want to do with my life. I was a part of an experiential education program that regularly kept me active and outside. My classmates and I studied the James River ecosystem and watershed in 5th grade, for example. We visited local parks, took pictures, and recorded observations. At the end of the year, we split up into groups, each presenting on a different topic. I dressed as a tree in all green with branches fastened to my arms, a representation of where resources originate and a reminder of the importance of recycling. Just like the times I spent outside with my family, I can recall vivid details of what I learned during those years. Sadly, I did not experience that style of education again until I arrived at Elon.

Going into my first year as an Elon student, I was given the opportunity to participate in the Elon Gap Experience. Fourteen other Elon students and I embarked upon a twenty-five day backpacking course at the National Outdoor Leadership School (NOLS), served in four different states over four weeks, and studied abroad for six weeks. We developed leadership skills, enhanced our environmental literacy, engaged with and learned from different communities across the United States, and studied the past and present culture of Costa Rica. I applied to the Gap Experience primarily because of the NOLS course. In all honesty, though, that ended up being the toughest part of the semester. I sometimes struggled to communicate with the rest of the cohort why I loved the natural world. The entire experience solidified my interest in environmental education and pushed me to pursue what it means to be an effective teacher.

Consequently, I spent last summer as a counselor at Green River Preserve, a coed summer camp in western North Carolina that focuses on connecting children with nature. We hiked almost every morning, explored mineral mines, ate crickets in a cave, practiced stalking deer, sang songs, and told stories. For the two- and three-week sessions, we took the campers on a three-day, two-night backpacking expedition throughout the preserve. I saw the effects of spending extended amounts of time outside; it was like they grew more comfortable with their surroundings and themselves simultaneously. The staff at Green River Preserve refers to nature as a classroom, a place that sparks creativity, curiosity, and imagination. I could not agree more.

As a future middle school math teacher, I want to take my students outside regularly. And yes, even to learn math. In October, I attended the ABCs of Farm-Based Education workshop at Shelburne Farms in Vermont. I learned practical strategies for using the local environment and community as curriculum. It is through experiences like this and the research I plan to conduct in the next two years that I will become the kind of teacher who can help students learn academic content and develop a love for nature at the same time.

**Part II: Project Description**

During my time at Elon, I have backpacked in the mountains of Wyoming, constructed and delivered bunks beds to impoverished families at the Pine Ridge Indian Reservation, discussed the Polish education system with high school students in Warsaw, and coached the Burlington YMCA swim team. These transformative experiences have helped me become a more compassionate and engaged global citizen and refine my educational philosophy. I care deeply about the natural world because of the time I spent outside as a child (Chawla, 1998; Chawla & Cushing, 2007; Tanner, 1980). Like Orr (1994), I believe that all education is environmental education and that it is needed now more than ever. Just this week I read about two World Health Organization studies that found that one in four deaths of children younger than five is attributed to environmental hazards like “contaminated water, indoor and outdoor pollution, and other unsanitary conditions” (Naqvi, 2017, para. 2). At the same time, the Trump administration is rolling back regulations that curb vehicle emissions, which will contribute to global warming (Davenport, 2017). Many are calling for a radical change in the ways humans interact with the earth (e.g., Klein, 2015; Kolber, 2015; McKibben, 2011), which requires environmental literacy. According to the North Carolina Environmental Literacy Plan (n.d.), environmental literacy is “the ability to make informed decisions about issues affecting shared natural resources while balancing cultural perspectives, the economy, public health and the environment” (p. 7), and this is possible through environmental education (UNESCO, 1977).

Unfortunately, learning about environmental issues and spending time in nature are not common in most schools. Saylan and Blumstein (2011) make the case that environmental education has failed altogether. Louv (2005) coined the phrase *nature deficit disorder* because “the bond is breaking between the young and the natural world” (p. 3). Sobel (2012) argues that environmental education has gradually shifted away from being hands-on and experiential to being sanitized and systematic. Children are too often told to not climb trees, not pick flowers, and not play in the mud because they could injure themselves or the delicate ecosystem they are playing in. Instead, Sobel posits that children should interact with nature as “untutored savages” where the outdoors functions as a “field of free action” for them to play.

Not only has Sobel (2008) written about the importance of children being in nature, but he has also written extensively about grounding curriculum in the local community (Smith & Sobel, 2010; Sobel, 2004). This intersection of place-based, environmental, and experiential education would certainly be contrary to current practices in most schools. There is plenty of evidence, however, that suggests there would be many benefits (Higgins, 2009). Louv (2005) wrote that “a growing body of research links our mental, physical, and spiritual health directly to our association with nature” (p. 3). Studies show that being outside has positive effects on children in particular, including positive physiological and psychological health (e.g., Barton et al., 2009; Davis, Rea, & Waite 2006; Wells & Evans 2003) and personal development (e.g., Bingley & Milligan, 2004; Thomas & Thompson, 2004). According to Wells and Lekies (2006), nature helps children cope with stress because it allows for unstructured play and generates a sense of freedom, independence, and inner strength. Children who struggle with ADD or ADHD also benefit from being outside (Bird, 2007).

I believe that all children should have access to environmental education, including time spent outside in nature (Chawla, 2006). Consequently, I am interested in studying schools that are recognized for the ways they embrace sustainability education (Nolet, 2009).[[1]](#footnote-1) The “green schools” movement began several decades ago “as an effort to promote environmental literacy with the additions of having the school facilities and operations themselves embody the principles and practices of education for sustainability” (Sterrett, Imig, & Moore, 2014, p. 2). Eco-Schools were created following the United Nations Conference on Environment and Development in 1992.[[2]](#footnote-2) More recently, the United States Department of Education created Green Ribbons Schools (ED-GRS) in 2011. The purpose of the ED-GRS is to inspire schools to “reduce environmental impact and costs; improve the health and wellness of schools, students, and staff; and provide environmental education.”[[3]](#footnote-3) On a local level, North Carolina has its own Green Schools Program, which also began in 2011. It grades applicants based on five criteria: culture and community, school sustainability, healthy schools, curriculum integration, and innovation. Every year the Green Schools Program gives out three different awards, each one recognizing a different level of achievement: NC Green Schools of Promise, NC Green Schools of Quality, and NC Green Schools of Excellence. The schools that receive the Green Schools of Excellence award “show[s] the highest level of commitment to a sustainable campus and environmental education curriculum”[[4]](#footnote-4) by including and excelling in all five criteria.

I am proposing to conduct a qualitative case study of the four schools that received the NC Green Schools of Excellence award in 2014 and 2015. Although I have not found any ethnographic studies that investigate “green schools,” there are a few relevant studies that have helped me develop my research questions. Sterrett, Imig, and Moore (2014) surveyed 75 public and private schools that received the ED-GRS award. Their focus, however, was on the process and perceived benefits of applying for the recognition. Data was collected via an online questionnaire; they did not visit any schools. Sterrett and Imig (2015) published a second article based on 13 phone interviews of school leaders who completed the survey in their previous study. Warner and Elser (2015), however, were interested in developing a metric that could be used to conceptualize sustainability education. There has been an increase in sustainability programs in K-12 schools, they argued, yet “much ambiguity surrounds sustainability education” (p. 2). Their measure is called “interconnectedness” (Henderson & Tilbury, 2004), and they used it to compare Green Ribbon Schools. Interconnectedness refers to “the facilitation of the interactions, collaborations, and integrations between diverse and relevant disciplines, ideas, and educational stakeholders in order to teach students that our actions may, and often do, result in unintended consequences” (p. 2). Degrees of interconnectedness emerged from their analysis of the ways three broad topics in sustainability education (healthy environments, population wellness, and economic efficiency) intersected with the curriculum, the campus, and the community. In their study, they analyzed 59 ED-GRS applications and conducted telephone interviews, and the schools that scored the highest in interconnectedness viewed education for sustainability as paradigm shift away from traditional education. In their conclusion, the authors cautioned against relying on the self-reporting nature of “green school” awards and recommended using their metric to measure progress toward an interconnected sustainability education.

I intend to use the metric of interconnectedness to examine four schools: Carolina Day School and Rainbow Community School, independent schools in Asheville; C.T. Koontz Intermediate, a public school in Asheville; and Queens Creek Elementary, a public school in Swansboro. My research questions are as follows:

1. In what ways are Green Schools of Excellence in North Carolina providing an interconnected approach to sustainability education?
2. How are environmental, place-based, and experiential education integrated across disciplines and grade levels?
3. In what ways are sustainability education initiatives reflected in learning outcomes for students?

In addition, I also hope to investigate the following questions that emerged from email exchanges with Dr. Warner when I sought his advice:

1. Could interconnected sustainability education be a new paradigm in K-12 education that allows us to overcome the various pedagogical (and other) shortcomings in our current education system (e.g., disciplinary boundaries, focus on testing, etc.)? If so, why?
2. What do “green schools” offer -- beyond typical content and experiences -- that can make their case for continued support (e.g., community outreach, public arts space, etc.)?

**Scholarly process:**

Data collection for this case study will be qualitative. Three sources of data will be observations, interviews, and documents (Merriam, 2009; Stake, 1995). At each of the schools, I will conduct at least forty hours of observations, which will include a variety of teachers and grade levels. I will interview administrators and teachers about their school mission and philosophy, process of becoming a Green School of Excellence, areas of strength and areas for improvement, school culture, and curriculum. I will also interview students at each school in a focus group where I will ask about their school experiences, being a Green School of Excellence, school culture, and curriculum. Finally, I will analyze a variety of documents, including their Green School Program applications, student work publicly displayed throughout the school, and curriculum guides. Data analysis will be modeled after Warner and Elser (2015), using the metric of interconnectedness.

**Proposed products:**

I plan on presenting my findings at the American Educational Research Association conference, the North American Association of Environmental Education conference, and the National Council for Undergraduate Research conference. I will also prepare a manuscript for submission to *Environmental Education Research* or *The Journal of Environmental Education*.

**Part III: Feasibility**

**Feasibility statement**:

I have already emailed the four schools that I propose to study, and one has already responded positively. If the other three schools are not interested in participating, I could invite the six schools that received the Green School of Quality award in 2013, 2014, or 2015. In addition, there is a Green Ribbon School in Raleigh that I could invite to participate in the study.

I recognize that I need to learn more about qualitative research methods. I will enroll in SOC 215 Qualitative Research Methods in order to be prepared to collect and analyze the data. I will also attend two conferences this fall (North American Association for Environmental Education conference and Green Schools Conference and Expo) and one conference in the spring (Children and Nature Network Conference and Summit) that will give me the opportunity to learn about the latest research in the field of environmental education.

In order to pursue my own professional development and aid in my understanding of sustainability education, I also propose to attend the ECO Institute in Montpelier, Vermont, a week-long exploration of the principles and practices of educating children outside, and the Summer Institute on Education for Sustainability in Burlington, Vermont, a week-long program designed to help teachers develop curriculum. These opportunities will also help me complete the NC Environmental Education Certification program, which I hope to finish before graduating.

**Budget:**

Audio recorder and microphone: $60 (on Amazon)

Transcription services: $400

North American Association for Environmental Education conference (2017)

* Registration: $100
* Travel: $450
* Lodging: $450
* **Total: $1,000**

Green Schools Conference and Expo (2018)

* Registration: $100
* Travel: $300
* Lodging: $450
* **Total: $850**

Children and Nature Network Conference and Summit (2018)

* Registration: $100
* Travel: $300
* Lodging: $450
* **Total: $850**

ECO Institute (2018)

* Registration: $1,500
* Travel: $450
* Lodging: $900
* **Total: $2,850**

Summer Institute on Education for Sustainability (2018)

* Registration: $300
* Travel: $450
* Lodging: $900
* **Total: $1,650**

North American Association for Environmental Education conference (2018)

* Registration: $100
* Travel: $450
* Lodging: $450
* **Total: $1,000**

American Educational Research Association conference (2018)

* Registration: $100
* Travel: $450
* Lodging: $500
* **Total: 1,050**

Tuition: $5,290

Total: $15,000

**Timeline:**

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|  | **Proposed Experiences** | **Proposed Product(s)** |
| **Summer 2017** | Work at Green River Preserve  Write IRB | IRB approval |
| **Fall 2017** | Begin data collection  Attend workshops for the NC Environmental Education Certification program  Attend the North American Association for Environmental Education conference in Puerto Rico in October | Data (interviews, field notes, document analysis, etc.) |
| **Winter 2018** | Continue data collection  Attend workshops for the NC Environmental Education Certification program | Data (interviews, field notes, document analysis, etc.) |
| **Spring 2018** | Finish data collection  Attend workshops for the NC Environmental Education Certification program  Attend the Green Schools Conference and Expo in March  Attend the Children and Nature Network Conference and Summit in April  Write conference proposal for NAAEE | Data (interviews, field notes, document analysis, etc.)  Conference proposal for NAAEE |
| **Summer 2018** | SURE (analyze data, write conference proposal for AERA)  Attend workshops for the NC Environmental Education Certification program  Attend the ECO Institute in Montpelier, Vermont in July (I will receive 3 hours of graduate school credit.)  Attend the Summer Institute on Education for Sustainability at Shelburne Farms in Burlington, Vermont in July | Draft of preliminary findings  Conference proposal for AERA |
| **Fall 2018** | Begin writing manuscript for submission to Environmental Education Research or The Journal of Environmental Education  Attend workshops for the NC Environmental Education Certification program  Present research at the North American Association for Environmental Education conference in October  Write SURF proposal | Draft of manuscript  NAAEE presentation  SURF proposal |
| **Winter 2019** | Finalize manuscript and submit for review  Attend workshops for the NC Environmental Education Certification program | Manuscript to be submitted for publication |
| **Spring 2019** | Student Teaching  Present research at the American Educational Research Association conference in April  Present research at the National Council for Undergraduate Research  Present research at SURF Day at Elon  Complete the NC Environmental Education Certification program | AERA presentation  NCUR presentation  SURF presentation |

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1. According to Nolet (2009), sustainability education is comprised of nine themes: stewardship, respect for limits, interdependence, economic restructuring, fair distribution, intergenerational perspective, nature as model and teacher, global citizenship, and importance of local place. [↑](#footnote-ref-1)
2. For a school to become an Eco-School they must follow a seven-step process: form a student-led eco-committee, carry out an environmental review analyzing the school and the local community, create an action plan based on the environmental review, monitor and evaluate the action plan, incorporate the program into the school’s curriculum, inform and involve the local community, and produce an Eco-Code. [↑](#footnote-ref-2)
3. [https://www2.ed.gov/programs/green-ribbon-schools/index.htm](https://www2.ed.gov/programs/green-ribbon-schools/index.html)l [↑](#footnote-ref-3)
4. <http://www.centerfortheenvironment.org/about.html> [↑](#footnote-ref-4)