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BEST METHODS FOR MEETING THE GOALS OF ENVIRONMENTAL AND
PLACE-BASED EDUCATION IN SHORT-TERM AND IMMERSIVE
UNDERGRADUATE SETTINGS

By

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A capstone submitted in partial fulfillment of the requirements for the degree of Master
of Arts in Education: Natural Science and Environmental Education

Hamline University

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To Charlie

We are always in error
Lost in the wood
Standing in chaos
The original mess
Creating
A brand new world
-Norman O. Brown

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There are several people I would like to thank for making this capstone, and the associated project, possible. First, my parents, for always supporting my education; our learning partners at Hamline University who were instrumental in making this dream a reality; my co-workers, for allowing me the space to thrive and providing necessary help throughout my graduate school journey; special thanks to Colleen Foehrenbacher and Martin Moore, for riding shotgun with me through an unforgettable eleven days in January; and most of all my students, for bringing an insight, passion, and enthusiasm that made this all worth it.

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CHAPTER ONE

Introduction

My capstone project explores a question I have been wondering, in one form or another, since engaging in two transformative learning experiences during my time as an undergraduate student at Macalester College: what are the most effective methods for meeting the principles of place-based education and environmental education in an intensive learning setting for undergraduate students? Ironically, neither experience happened on Macalester's campus. Both happened through third parties, as the credits were transferred into my school through learning partnerships, taught by professors with only affiliations to universities.

Increasingly, students are engaging in study abroad and short term learning experiences, many of them through outside institutions. When delivered effectively, such courses have the potential to provide meaningful learning while also building connections between people and place, growing and strengthening relationships between people, and sparking a higher level of engagement within the individual learner. Therefore, it is essential that the most effective methods for achieving the goals of environmental education and place-based learning be understood within the context of these unique educational offerings. The remainder of chapter one explores my own personal journey to

arriving at a desire to understand and develop those methods and illuminates the professional context in which this project sits.

When I returned from my study abroad experience in New Zealand, I underwent the most difficult period of my life as a college student. Typically someone who loves learning and takes an active approach to school, I found myself bored out of my mind in classes, cut every corner I could with homework assignments, and would complain much more than was necessary to my friends about the classes I was taking for the first month or so back. Reflecting back on that time, my frustrations had nothing to do with the classes I was taking that second semester of junior year, but everything to do with the fact that I had truly *experienced* education for the first time. Suddenly I had returned to standard collegiate methods for environmental studies students: a mixture of lectures, small group discussions, a heavy emphasis on individual reading, and various writing assignments. While I am deeply appreciative of the efforts and contributions of all my collegiate professors, particularly those in the environmental studies department, I was like an indoor cat who had received a taste of the outdoors, and suddenly being trapped behind four walls would no longer suit me.

I didn't have a word for it back then, but I would now describe the style of education on my study-abroad program as environmental, place-based education. For our purposes here, I am combining the two slightly divergent tracks of experiential education, but both place-based education and environmental education share the common DNA of engaging students directly with the material being studied, outside of a traditional classroom setting. Daily coursework on my program included guided and open-ended

exploration of various natural areas supplemented with short lectures as needed. Extended interactions with farmers, land managers, conservationists, scientists, and activists in the form of tours, question-and-answer sessions, and smaller discussion groups were a mainstay of learning units. One quarter of our credits were derived from an internship at a local organization (I did GPS work for a regional park), embedding us in the communities around Wellington in a most meaningful way.

My study abroad trip solidified for me what learning is, and what learning is not: Learning is not simply the act of pouring information from an expert into an empty vessel; learning, rather, is listening, tasting, touching, feeling, smelling, undergoing feelings of confusion, complication, confrontation, elation, and excitement for what comes next. It is one thing to listen and read about cattle farming within the four walls of a classroom, but that style of education bears little resemblance to visiting a commercial dairy operation one day, helping herd a group of crazed angus cattle the next paddock, and closing the week standing in water impacted by animal agriculture. It is an entirely other thing to witness, uncomfortably and unassuredly, Maori women who have graciously played host to you weeping about the state of the river at your feet, feeling somehow worlds removed and, yet, responsible. In short, place-based and environmental education connect feeling to learning in ways impossible inside a classroom.

I realized it even less then, but I experienced environmental education in an immersive setting once before. The previous year, during the interim period between fall and spring semesters (commonly called “J-term”), I had attended a two-and-a-half-week intensive class about predator ecology in Minnesota’s northwoods, hosted by the

Audubon Center of the Northwoods (ACNW). Days typically featured lectures, either by our primary professor or a guest instructor, and some sort of active outdoors activity, such as tracking, skiing, or doing plant surveys. As interesting as I had found the material, I still struggled to stay fully engaged throughout all the lecture periods, but I felt *alive* flying around the various outdoor ‘classrooms’ we visited, be they the ACNW campus or one of northern Minnesota’s many majestic natural areas.

Environmental and place-based education are about far more than a transfer of information. They are a process of self-actualization and a chance to forge connections to land and fellow people. Several years removed from the J-term course, I couldn’t tell you too much about the particulars of wolf life-history or why, exactly, Minnesota’s moose population is in decline. But here’s what I remember, crisp as frost: I made friends with other men while learning for the first time in my life, bonding over something other than the fact that we played on or supported the same sports team. This was new terrain for me, but it introduced me to learning as a social and communal act. Moreover, despite having no previous connection to Minnesota’s northwoods, I now visit there multiple times a year, think about it far more often than that, and have revisited several impactful places from the course in the years following. The same pattern holds for my time in New Zealand (although the cost of a plane-ticket has prevented me from revisiting there. Alas).

As powerful as those two experiences were, precious few of my friends had experiences akin to mine. For many, studying abroad meant simply enrolling in another university in some foreign country, Denmark, the Netherlands, or New Zealand. While

they reported gaining something from living in a different country, nothing about the *learning* itself was particularly memorable or remarkable. For many who opted for 3rd party programs, they described it more as tourism and less education, partying their way through India, Brazil, or South Africa. Only one other friend I knew engaged in a J-term class, and she came back reporting a strong connection to her host family, and stayed close friends with several other students from the program throughout college, just as I did with new friends from my two experiences.

Perhaps unsurprisingly, there has been a marked growth in short-term (defined here as four weeks or less) immersive learning programs. Be it lower cost, easier logistics, an increasing diversity of options, or other factors, the popularity of short-term programs is increasing to the point where summer programs have overtaken spring or fall programs in popularity (Mills et. al, 2010). Such programs are often offered by student's institutions, but also by third-party hosts, as was the case with both my J-term course.

Such programs lend themselves to holding great potential for environmental education and place-based learning practices. Environmental Education (EE), as defined by the Tbilisi accord in 1977, is "a learning process that increases people's knowledge and awareness about the environment and its associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action." For our purposes, we will use the definition of place-based education (PBE) provided by Teton Science Schools: "At its core, place-based education (PBE) is anytime, anywhere learning that leverages the power of place and connects learners to communities and the

world around us. It's goal? To increase student engagement and agency, boost learning outcomes, impact communities, and promote a greater understanding of global issues.” (Teton Science School, 2019). In the case of both, they are education processes that empower, connect, and activate. Immersive programs, given their intimate nature and potential for such tangible learning opportunities, create a platform of ideal opportunities for both PBE and EE, provided that curriculum is designed to meet the principles of PBE and EE.

Significant research exists exploring the best pedagogy derived from the principles of EE and PBE (both explored further in chapter two), with a particular focus on elementary and secondary education. As a result of the general explosion of EE as a field, several studies and research projects have been authored exploring what methods of instruction and assessment are most effective; these are best synthesized by the BEETLES Project at the University of California Berkeley. Despite the rising popularity of short-term immersive learning programs, however, a dearth of research exists exploring curriculum design and pedagogy of such programs within the context of EE and PBE. It is thus the goal of this capstone project to both summarize the existing literature and develop programming that is representative of the best-practices for delivering successful EE and PBE in a short-term, experiential setting. In this case, the capstone project took the form of curriculum for a J-term course, hosted by my employer.

I have worked at a Residential Environmental Learning Center (RELC) since graduation from college three years ago. Our organization is a not-for-profit school where students primarily grades four to eight experience environmental education, typically for

stays of three to five days, taking an array of 30 outdoor classes. The RELC has greatly benefited from the research done by those behind the BEETLES project and others within the field of EE; we strictly adhere to inquiry-based, discovery-driven learning processes that engage our students with nature and each other. We prioritize the process of learning over the strict dissemination of information; our instructors are facilitators, not lecturers or entertainers. I have seen the success and validity of this style of education first-hand for over two years, and recognize many similarities between what we do daily and the pedagogy that guided my two immersive undergraduate experiences.

As the Adult Education Manager at my RELC, I led a team that created and implemented a J-term course that we hosted and taught; specifically, we set out to design a class which would explore the connection between the geology, geography, and biology of the Driftless Area and the unique human communities within this area's loose borders. It should be stated that this project owes a debt of inception and inspiration to the previously mentioned, long-successful predator ecology course hosted by a RELC different from my own.

As part of my organization's mission to 'empower people to care for the Earth and each other,' this course increases the menu of powerful learning experiences available to undergraduate students. We pride ourselves on the delivery of education for elementary and secondary students based upon the best research and methods in the field of EE, and it is no different for undergraduate students. This project helped ensure that this class met the best available knowledge regarding PBE and EE teaching methods for undergraduates in short-term, immersive learning settings. Moreover, our learning partner

(a higher education university), accredited the class and future J-term offerings; it was imperative that we upheld their high standard. Finally, we owed it to our students to provide the highest possible quality programming, for them as learners and for them as people.

Summary

Environmental Education is not just for children, nor is it merely an extension of classroom learning. Likewise, an intentional relationship to place is essential for connecting people to each other and the natural world in an increasingly global society fraught with social and ecological challenges. Therefore, both fields are advanced by increasing research in the application of their pedagogy in an undergraduate context. Similarly, the era of the septuagenarian lecturer accentuating his point by ramming his chalk into a dusty chalkboard is becoming increasingly phased out. Higher education, while it rushes to adapt to new learning technologies and ideas, benefits from providing high-quality EE and PBE programming in a multitude of settings. This project, as an expansion of the research into curriculum design, assessment, and teaching techniques within the context of short-term, immersive learning environments, provides another brick in the growing foundation for similar future programming to stand on.

Chapter one has told my story of being a student in two unique experiential programs, to becoming an educator in the same field, providing a personal context for this capstone. The preceding pages also highlighted the professional and academic contexts in which this project rests. Chapter two will first explore the field of environmental and place-based education, arguing for their necessity, before ultimately

highlighting successes and opportunities for improvement within short-term immersive programs. Chapter three will lay out the methods for the project, including audience, context, and the unit design framework. Chapter four will summarize the construction of the curriculum, revisit pertinent literature, and reflect on what was learned throughout the research process.

CHAPTER TWO

Literature Review

This section offers a review of relevant literature, providing guidance and structure in answering my initial research question: what are the most effective methods for meeting the principles of place-based education and environmental education in an intensive learning setting for undergraduate students? We will begin by examining the field of environmental education and the principles of place based and environmental education. The subsequent section digs deeper into the world of place-based and experiential education for undergraduates, highlighting their efficacy and shortcomings in successfully practicing the principles of environmental education. Next, this chapter highlights the unique nature of short-term, immersive learning programs, which possess the potential to be either inconsequential educational expenditures or meaningful, transformative experiences fully in line with environmental education. Finally, this chapter reviews proven methods of instruction and assessment for undergraduates within environmental education. A lack of research has been done with regards to intensive, short-term learning programs, pointing to the necessity for further inquiry into the best design and implementation of such educational offerings.

History Goals, and Principles of Environmental Education

This section explores the definition of environmental education as a field, the merit of environmental education towards building a more sustainable and just world, and the application of environmental education practices for undergraduate audiences. Today,

components of environmental education are common at all levels of education, but the history of environmental education is worth touching upon. Following the ecological destruction created by the industrial revolution, posed in conjunction with the civil rights and social movements of the 20th century, a greater attention focused on the health of the planet and people in the years following the Second World War (McCrae, 2006).

Environmental education first became established as a defined, formalized field during the mid 1970s, following successive United Nations Meetings on the Environment in Stockholm (1972), Belgrade (1975), and Tbilisi (1977) (NAAEE, 2019). The United States passed National Environmental Education Acts in 1970 and 1990, codifying its principles into domestic educational policy (Atham and Monroe, 2001). Environmental Education was constructed around the goals of developing a global citizenry that is:

- a) aware of the environmental and social problems at hand,
- b) equipped with the educational tools and environmental literacy to understand and combat those problems, and
- c) motivated to care for and take steps to protect the environment (Carter and Simmons, 2010).

In the period of years following the onset of formalized environmental education, the overarching goals have largely stayed the same, while the definition has expanded (EPA, 2019). The role of the environmental educator, then, is to promote the preceding goals by connecting the learning process to stakeholder action, present credible information while considering multiple perspectives, foster an empathetic and emotional connection between people and the natural world, and foster learning as a social process

(Athman and Monroe, 2001; Moon, 2018). As an end goal, “the ultimate objective of environmental education is to encourage actions towards the resolution of environmental problems” (Torkar, 2014).

Key characteristics of environmental education. Today, environmental education has evolved into a robust field with significant backing by research into its efficacy. The Better Environmental Education, Teaching, Learning, Expertise Sharing (BEETLES) Project, based out of the University of California at Berkeley’s Lawrence Hall, has conducted dozens of studies, while synthesizing myriad more, establishing a warehouse of current research and best practices in Environmental Education. As a result of that research, the BEETLES Project has distilled the environmental education experience into five operating principles. Elaborated on below, the following five principles of environmental education provide students with the opportunity to:

- 1) Engage directly with nature
- 2) Think like a scientist
- 3) Learn through discussions
- 4) Experience instruction based on how people learn (the learning cycle)
- 5) Participate in inclusive, equitable and culturally relevant learning environments

Engage direction with nature. Using natural places, whether within a city, the countryside, or remote places, environmental education should provide students with the opportunity to play and learn outside. Frequent interactions and experiences in nature during adolescence are the strongest predictor of pro-environmental attitudes and ethics

later in life (BEETLES, 2018; Torkar, 2014). Playing and learning in nature are essential to developing a sense of wonder, awe, and curiosity for the natural world (Atham & Monroe, 2001). Moreover, experiences in nature have the potential to be memorable, transformative events that not only stimulate a positive relationship with the natural world, but also can serve to give students more agency in their own education, promoting a love for science and learning (BEETLES, 2018).

Think like a scientist. Environmental education, at its best, is structured to allow for students to autonomously (yet socially) undergo a cycle of initial curiosity, exploration, collection of information, the application of that information, and processing what questions still exist for further inquiry (BEETLES, 2018). Promoting this style of education increases critical thinking skills, problem solving skills, and decision making skills (EPA, 2018). In this way, environmental education serves to empower the learner to think for themselves, rather than disseminate certain information to the learner directly (Atham and Monroe, 2001; BEETLES, 2018).

Learn through discussions. As put by the National Research Council, “Science is fundamentally a social enterprise” (NRC, 2010). The use of discussion as a tool for students to enhance their learning through idea sharing and theory testing have been shown to increase math, science, reading, and thinking skills (Atham and Monroe, 2001). Moreover, discussion as a social act can therefore work to build communication, cooperation, conflict resolution, listening, and leadership skills (Atham and Monroe, 2001).

Experience instruction based on how people learn. Ideas of how people learn have evolved over time, with our understanding of learning progressing from perceiving people as “empty vessels” into which information could be poured. A constructivist approach, whose shoulders environmental education stands upon, contends that learners construct understanding based upon creating connections between prior knowledge and incoming information (BEETLES 2018; Atham and Monroe 2001). BEETLES has evolved constructivism further, distilling knowledge construction into what they deem “The Learning Cycle,” which consists of five phases: invitation, exploration, concept invention, application, and reflection (BEETLES, 2018).

Participate in inclusive, equitable, and culturally relevant learning environments. Because learning is a process that features each individual students’ previous life experiences and perspective, those perspectives need to be included and respected when delivering environmental education, particularly when learners are from marginalized communities (BEETLES, 2018; Atham and Monroe, 2001; NAEE, 2019). This requires that educators both a) seek to genuinely learn and understand the experiences of their students, and b) do their best to identify and address biases and prejudices in their own teaching and pedagogy in order to create inclusive spaces for all learners (BEETLES, 2018).

History Goals, and Principles of Place-Based Education

Closely related to environmental education is the pedagogy of place-based education (PBE). While place-based education as a term is relatively new, it has roots in the works of educators and scholars such as John Dewey and Gary Nabhan (Deringer,

2017; Smith, 2002). Like environmental education, there is no singular definition of place-based education upon which to draw from, as many scholars present their own definitions, and some argue that it varies by locale (Deringer, 2017). The idea of having a “sense of place” as a component of environmental education has been around for several decades, referring to a combination of place attachment and place meaning (Payne & Wattchow, 2008; Guenewald, 2002). While much of environmental education would be classified as place-based education, place-based education does not necessarily always focus on environmental issues or subjects. Summarized by the Teton Science School, “EE is PBE, but PBE is not EE” (Teton Science School, 2019).

Smith contends that all PBE techniques share five commonalities: the study of culture, the study of nature, real-world problem solving, internships and entrepreneurial opportunities, and induction into community processes (Smith, 2002). Sobel (2004) offers a similar perspective: “Place-based education is the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science and other subjects across the curriculum.” Kudryavtsev et. al (2012) distill sense of place down even further: education that fosters both place attachment and place meaning. Numerous studies have identified the relationship between place-based education and connection to the environment (Smith, 2002; Beckley, 2003, Deringer, 2017). Place-based education has been documented to increase pro-environmental attitudes in students (Atham & Monroe, 2001, Goldman et. al, 2013). Moreover, as it relates to the stated goals and principles of environmental

education, place-based education has been shown to improve critical thinking skills, particularly when associated with issues involving nature (Ernst & Monroe, 2004).

Key characteristics of place-based education. Smith (2002) attributes four key characteristics to place-based education, listed below and expanded upon in the following subsection:

- 1) Education is a critical component of healthy communities
- 2) Place based education immerses students in the natural and social worlds outside the classroom
- 3) Integrating and applying school subjects to real-world problem solving
- 4) Place based education involves teachers and local community members

Education is a critical component of healthy communities. Place-based education, as implicit in its name, means using education as a tool to explore the communities in which one lives and learns. When at its best, PBE identifies, explores, and addresses issues of social and environmental justice at the local level, for the betterment of local communities (Deringer, 2017). Place and the social contexts we live in are not static, they are the products of natural phenomena and human decision making; PBE is an essential component of building healthy communities because it allows learners to discover and make meaning of those contexts and encourages them to take action accordingly (Grunewald, 2003; Deringer, 2017).

Deringer (2017) links the outdoors as essential to PBE, in which interdisciplinary lessons are grounded in outdoor classrooms. This is an essential component of learning; “Learning results from synergetic transactions between the person and the environment”

(Kolb & Kolb, 2005). Learners are naturally curious about nature and physical systems, and rather than stifling those interests within the walls of a classroom, PBE allows that curiosity to take root in their home communities (Smith, 2002). Grunewald (2003) notes that learning in place not only teaches students what the world is actually like, but helps them contextualize their own role in their communities.

Integrating and applying school subjects to real world problem solving. By using local place as a context for interdisciplinary learning, curriculum lends itself to the realities of local communities (Deringer, 2017). Rather than talking about pollution in a classroom and perhaps doing a few experiences in a laboratory setting, for instance, students could explore, measure, and document pollution in their local community, meeting with those who are impacted, and design a project to improve conditions as a summative assignment. Smith (2002) also notes that the process of selecting issues to investigate is democratic, and therefore students will be more interested and feel more ownership over their learning. Real world problem solving, also, necessarily, improves the communities in which students live (Smith, 2002; Deringer, 2017).

Rooting school subjects in local communities necessitates the involvement of local community members, including the families and neighbors of students. This addresses a major point of disconnect for most students, which is a lack of connection between their school lives and their home lives (Smith, 2002). This also allows students space to investigate what roles they wish to play in their own communities as future members of the workforce

Environmental Education and Place-based Education Within Short-term Learning Programs

Given that it is common for professors and faculty within higher education to be hyper-specialized in a single area of research, the interdisciplinary approach of environmental and place-based education can often be an imperfect fit. It has been argued that myopia within academia contributes to broader societal challenges, and that the holistic nature of environmental education, when combined with its stated goal of fostering an environmentally literate and active, empowered citizenry have the power to bust through tunnel vision within higher education (Chase, 2008; Simmons, 2010). Short term, immersive programs such as intensive summer courses or January-term classes possess the potential for uniting the goals of PBE and EE with an undergraduate audience, explored in the following section.

Undergraduate students choosing immersive learning options such as summer or winter classes in addition or in lieu to semester courses is not a new century phenomena. As of 2018, about one in ten U.S. students engage in a study abroad experience (Pipitone, 2018; USA Study Abroad, 2016). Presently, the most popular immersive option for students was summer term, showing an increased preference for terms less than eight weeks long (Chieffo & Griffiths, 2004; USA Study Abroad, 2016). While short term learning programs have received some research attention, the efficacy and methods of short-term programs have long been understudied as learning opportunities for undergraduate students, with little emphasis placed on connecting such classes to environmental or PBE (Chieffo & Griffiths, 2004; Tarrant & Lyons, 2012).

While it was initially thought that the spaced-out nature of semester long courses offered a better learning environment for students, that myth has largely been debunked (Kops, 2014; Scott, 2003). Scott (2003) reported that well-taught intensive courses, when compared with semester-long counterparts, are more engaging to students, build deeper relationships between faculty and students, and produce superior academic performance. Many others have found similar advantages to immersive programs, in reviews of both faculty evaluations and student assessments (Kops, 2014). Research into short-term study abroad programs is largely in agreement: when well constructed, short-term study abroad courses are not only as effective as semester-long options, but actually surpass their traditional counterparts (Tarrant and Lyons, 2012). Moreover, the characteristics of effective immersive programs align very closely with the central tenets of effective EE and PBE, suggesting that short-term, immersive courses are an ideal format for fully blending these pedagogies with higher learning.

Effective methods for applying PBE and EE. This final section explores documented examples of the application of PBE and EE to immersive, short-term undergraduate courses. Such programs offer tremendous potential to provide a meaningful, memorable, and transformative learning experience within the context of post-secondary education, provided that curriculum and instruction utilize the most effective elements of course design and teaching techniques. In order to meet the goals of PBE and EE, short-term immersive courses must be taught with enthusiasm and humility, provide ample opportunities for discussion, promote active learning through experiential activities, connect learners socially to each other and the surrounding community, create

opportunities for reflection, and assess students in ways suitable for the modified course environment and timescale.

As a general rule, instructors of short-term, immersive learning environments should aim for three central qualities: enthusiasm, rapport, and choosing depth over breadth when covering material (Kops, 2014; Scott, 2003; McLaughlin, & Johnson, 2006). Torkar (2014) has identified the existence of positive relationships with instructors and environmentally-active role models as a key to developing ecologically-conscious citizens. Scott (2003) notes that in several studies of short-term programs, students identified instructor enthusiasm and their relationship to instructors as an essential component of the course. In addition to that, he describes faculty possessing a willingness to learn from students and engage with their interests as a core characteristic of successful immersive programs (Scott, 2003). Kops (2014) found that, from the perspective of professors, courses were most successful and performance and student experience improved when instructors took time to get to know the students, created a more relaxed classroom environment, and interacted outside of class hours.

Students studied by Scott reported that the emphasis on discussion was essential to their learning experience and construction of understanding, which is supported by research done by the BEETLES Project (BEETLES, 2018; Scott, 2003). Rennick (2015), in applying the pedagogies on Friere, Dewey, and Mezirow to international immersive learning contexts, cites facilitated discussions as critical to processing new information, overturning previously held beliefs, and reflection. When instructors provide space for structured and unstructured discussions improves the experiential learning process and

promotes reflection of the active learning portion of class (Kolb & Kolb, 2005).

Gonsalvez (2013) reported that students identified discussions following experiential activities and field trips as important to their learning and reflection. McLaughlin and Johnson (2006) incorporate discussion as a core element of building inquiry, and feature it ubiquitously in their *Field Course Experiential Learning Model*. Moreover, in the same study the authors include examples of students identifying discussion as a tool to grow their communication skills while also learning new ideas.

One of the leading studies into the effects of short-term, immersive programs and environmental citizenry in students was conducted by Tarrant and Lyons (2012), who examined two identical month-long programs in New Zealand and Australia. While individual instructors and details of the field trips varied, both courses sought to explore the connection between people and place; both courses spent 25% of their time in a classroom, with the remaining 75% in the field engaging in observation, experiments, discussions, service-learning, and meetings with local communities. Utilizing a pre and post quantitative survey, the researchers determined that the course had a notable positive impact on environmental citizenry, which they defined as seeking out knowledge on environmental issues, modifying their consumption patterns, political preferences, and ‘intention to act.’

Instructors must also make room for individual and group exploration during the learning process. BEETLES (2018) identifies exploration as a critical phase of the learning cycle, necessary for students to test out ideas on their own, confront new bits of information, and construct understanding. Likewise, McLaughlin and Johnson (2006)

necessitate individual exploration as part of building inquiry in field-based learning programs. In addition, they note the following field-based activities areas as productive for student learning: data collection, conducting plant/animal surveys, conducting interviews, and structured observation.

Harper (2018) observed social connectivity and community building among students during a three-week immersive course in the Andes; journal entries confirmed that students described positively their experience as intensely social and with increased feelings of comradery compared to standard on-campus semester courses. Barkin (2016) found that in programs without engagement between students and local institutions and organizations, students struggle to form meaningful and lasting connections to the people and place being studied. In a five-year study of a recurring short-term social work program in India, Gonsalvez (2013) reports that students cited interactions with locals as the most important component of the course to their learning, adding an educational element that would have been impossible during a similar course at their host university. Rennick (2015) identified meeting with people of an area being studied as crucial to students' abilities to "critically assess their own frames of reference, values, and assumptions."

A study investigating two short-term study abroad programs in Morocco and Bali, found that students identified visits to Non-Governmental Organizations and interactions with local people as essential to helping them learn about the place they were studying. The study concluded that "social change, in part, means recognizing that the relationship between people and place is mutually constituted—places shape, and are shaped by

people, who also shape place. Thus, our encounters and engagement with place shape the stories we tell, and the stories we tell shape not only our relationship with place but also the place itself” (Pippitone, 2018). This conclusion is particularly pertinent when considered with the goals of EE and PBE, which both seek to improve communities (ecological and social) through education.

Journal entries offer the potential for critical self reflection and growth throughout a short-term, immersive learning experience (Rennick, 2015; Mills et. al, 2010; Harper, 2018; Pippitone, 2018; McLaughlin and Johnson, 2006). McLaughlin and Johnson (2006) include journal keeping as a core component of building inquiry in experiential education for undergraduates. Harper (2018), who led a three-week study abroad experience for undergraduates in the Andes, used a journal with guided prompts both foment reflection and assess the impact of the program on the students. Prompts posed to the students included “Describe how you feel being in the places just visited, what about this place is most/least attractive to you, and what does this place mean to you?” In analyzing the student’s responses, they found that students described feeling more confident talking to strangers, more attuned to their home community, more willing to ask for help, more aware of their own privilege, and a greater desire to spend time in nature.

Pippitone (2018), in her examination of three and four week immersive courses in Morocco and Bali, respectively, used similar prompts to good effect. Students answered questions such as prompts which asked them to imagine if, based up what they had learned in the course, they had grown up in particular communities within Bali or Morocco; identifying local works of art that resonated with them and why; reflections on

the notion of tradition; and considering how the work of NGOs that the class visited related to their personal selves. Moreover, she asked students to repeatedly consider their gained knowledge with beliefs and ideas help prior to the course. In analyzing the journals, Pippitone concluded that the course and assessment prompts promoted a deeper understanding of both Moroccan/Balise culture and themselves as people. In addition, journal entries offer instructors an additional form of assessment for their students during a short-term immersive program.

Assessment. Through interviews with dozens of professors who teach both semester-length and immersive courses, Kops (2014) notes that when creating a compressed course, instructors should avoid papers and essays of significant length, as students do not have time to complete such assignments; he also notes that there is insufficient time for instructors to grade such assignments.

If time allows it, Pippitone (2018) posited that research-based assessments should focus students' attention on doing research *with*, not *on* local communities; such projects would strengthen relationships between learners and the community, while also improving the host communities . McLaughlin, & Johnson (2006) used journal entries as a means of formative assessments, asking students to apply scientific theory to new contexts or describe a new environment. Many studies utilize subjective participation as a core tool of grading and assessment (Kops, 2014; Scott, 2003; McLaughlin, & Johnson, 2006).

Others suggest summative assessments which ask students to translate their learning from the field experience to their home context, focusing not just on the content

learned but *how* it was learned as they interpret their immersive experience back into their daily life and home community (BEETLES, 2018; McLaughlin and Johnson, 2006).

Summary

This chapter began with an exploration of the histories, definitions, goals, and characteristics of environmental education and place-based education. We then reviewed the rise and nature of short-term, immersive learning opportunities for undergraduate students. Subsequently, we examined the literature as it relates to the application of environmental education and place-based education to such immersive learning contexts, identifying instructor qualities, discussion, experiential learning, assessment, and reflection as key aspects to creating successful learning environments in such programs.

In reviewing the studies which have tested effective pedagogical tools for applying environmental education and place-based education, it is alarming how little research exists in applying both fields to undergraduate students. While effective short-term, immersive learning programs have been studied in a limited fashion, no literature exists placing them in the context of EE or PBE, with research instead focusing on global citizenship, STEM, nursing, or language. Similarly, a plethora of research exists regarding best methods of instruction and course design for environmental education and place-based education, but rarely are such ideas tested within higher education.

The fields of environmental education, place-based education, study-abroad education, post-secondary education, and adult education would all be advanced by future research into pedagogies of short-term, immersive learning environments.

Especially considering the proliferation of short-term study away programs in summer and interim periods, more research is needed to understand and apply effective teaching methods to experiential and immersive settings. To that point, the following chapter details a course constructed by the author which unites place-based education and environmental education within the context of a January-interim course for undergraduate students. Course setting, participants, description, design, and assessment are detailed, creating the first data point in examining such programs.

CHAPTER THREE

Rationale

Before I detail the rationale for this project, it is worth revisiting the research question driving this project: what are the most effective methods for meeting the goals of place-based education and environmental education in an intensive learning setting for undergraduate students? This question is asked with an eye towards understanding best pedagogy for short-term intensive learning programs. Chapter three features an in-depth description of the project, as well as the theoretical underpinnings for the curriculum design guiding the contents of the course.

Goals, Setting, and Participants

This capstone project was the creation of a curriculum for a January-interim (J-term) course to be offered by the RELC where I teach. The class was ten days in length and was available to a wide array of participants. The course sought to provide students with an in-depth introduction to the Driftless region, a unique area in the upper midwest known for its hilly topography, ample outdoor recreation opportunities, and lack of glacial sediment, rocks, and debris, or “glacial drift.” Goals of the course are to connect the geography, biology, geology, economics, culture, and history of the region together. In addition, the course also aimed to foster student’s ability to develop a sense of place in

their own environments by bringing interconnectedness and systems thinking to the forefront of the class.

Participants were college students, from several regional four-year universities and colleges, who chose to participate. Students from any institution were welcome to attend the course and receive four college credits transferable from Hamline University. Demographically speaking, they came from all over the country, but attended universities and colleges in the upper Midwest. Students were between the ages of 18 and 22, except for one non-traditional student who was in their mid-thirties.

The site setting was a residential environmental learning center (RELC) in the upper Midwest. While the primary function of this RELC is to serve as a learning partner for elementary and middle schools across several states, the RELC also delivers programming for adults and the broader public in the form of skill-based classes, educational talks, and weekend workshops. While the RELC played host to the course, units and lessons featured visits to several businesses, parks, natural areas, farms, and more within the region.

Curriculum Paradigm, Description, and Assessment

This section highlights the two dominant theoretical bases upon which the curriculum stands, Understanding by Design (Ubd) (Wiggins and McTighe, 2011) and the BEETLES Learning Cycle (BEETLES, 2018). In both cases, I was drawn to the curricular frameworks because they create educational units where students are not asked to recite a particular tidbit of information or formula, but rather are provided an opportunity to contextualize new information within their existing network of

understanding. While I used the tools provided by Wiggins and McTighe specifically to design the curricular framework, I routinely cross-referenced my units with the Learning Cycle in order to make sure it followed my organization's core teaching philosophy.

The Learning Cycle and UbD both deliver student-centered education; *The understanding by design guide to creating high-quality units* lists a core tenet as “understanding is revealed when students autonomously make sense of and transfer their learning through authentic practices” (Wiggins and McTighe, 2011). This resonates with my training in BEETLES, which prioritizes asking questions and discussion routines before and after exploration in order to maximize meaningful learning; BEETLES memorably characterizes this style of learning as “deep and sticky,” not “shallow and slippery” (BEETLES, 2018).

First, I followed the steps outlined in *The Understanding by Design Guide to Creating High-quality Units* by Wiggins and McTighe, 2001, and defined my desired learning outcomes. For this, I created the following goal: “Students will understand the ways in which not only human activities are limited or provided by geologic and geographic forces, but the ways in turn that humans have developed a relationship to the land informed by geology and geography.” Essential to this learning goal is the idea of *transfer*, defined by Wiggins and McTighe as what happens when a learner has the ability to “take what you have learned in one way or context and use it in another, on your own” (Wiggins and McTighe, 2011). Thus, while to some degree it is important for my curriculum to inform students on the unique geology of the Driftless region and the relationship between human communities and that geology, the broader goal of the

course is to deliver an educational experience which empowers the students to see, autonomously, similar connections between people and place in the future.

Equally critical here is the concept of *understanding*. For both BEETLES and Wiggins and McTighe, it is helpful to first look at what understanding is not: the transfer of information from a source (a teacher) to a vessel (the student). Rather, understanding is “an idea that results from reflecting on and analyzing one’s learning: an important generalization, a new insight, and important realization that makes sense of prior experience” (Wiggins and McTighe, 2011). BEETLES provides a nearly identical definition of constructing understanding; note the word *constructing*, an active verb, one which places the creation of new meaning in the hands of the learner, rather than the teacher.

To that end, discussion during and after trips and activities played a central role. Natural area visits included exploration and analysis of species composition, identification of features characteristic of karst geology, and individual engagement and reflection at effigy mounds. In small and large group discussions afterwards, students were asked questions such as “how did today’s experience compare with your previous perception of the topic?” and “what tensions do you feel having explored this topic further?”. While visiting three separate farms, learning was diversified between guided exploration, open discussion with the farmer(s), and semi-structured activities, such as soil-composition tests. Three evenings of the course were spent reading and discussing the courses’ main text, *The Driftless Reader*, by Meine and Keeley, during which students also compiled events and turning points on a large timeline in the classroom.

Through all learning practices, students were asked to place their previous knowledge into context with new information during class, and to work together to create new meaning and understandings, both about the Driftless Region and broader systems in their life.

Constructed understanding is built to last; facts and content given *to* a student are not. As Wiggins and McTighe note, the latter is all too common in undergraduate courses, reflected by assessments which ask students not to place their ideas in new contexts, but rather recite information. Therefore, developing appropriate assessment, which accompanies the goal-setting portion of UbD, is essential. Unfortunately, a J-term style course does not have the luxury of multi-year, or even multi-month, assessment. Unlike a university, which can assess students as freshmen, sophomores, juniors, and seniors, as teachers of a J-term course we only have access to students for the time they are here; final grades are due within seven days of completion of the class, and students are not beholden to fill out any additional assessments. Therefore, all assignments must take place during and immediately concluding the course, before students depart. With that in mind, this project featured assessment tools aimed at examining our learning goal of understanding the ways in which human activities are limited or provided by geologic and geographic forces and the ways in turn that humans have developed a relationship to the land informed by geology and geography. To this end, students were assessed in three ways: a daily journal, a questionnaire following the class, and a group interview with the instructor following the class.

Summary

This research project was a January-interim course hosted by my organization, offered to undergraduates from regional higher-learning institutions. Curriculum design was inspired by Understanding by Design, a style put forth by Wiggins and McTighe, and the learning cycle, a product of BEETLES. The course featured hands-on exploration and activities, immersion in real-life places, intentional discussion, and assessment which sought to critically understand learning, experience, and ability to apply knowledge from the course. While this was a first time class, I hope it is to be the first of many, and reflections on the project and ideas for the future are explored further in chapter four.

CHAPTER FOUR

Reflection

I set sail on this capstone project with the goal of answering my core research question: *what are the most effective methods for meeting the principles of place-based and environmental education in an intensive learning setting for undergraduate students?* This question originated from both personal and professional goals. I one day hope to teach consistently excellent immersive environmental education courses for undergraduates, and to do so I needed to have a deeper understanding of the existing literature in that field. Professionally, I was developing a curriculum and serving as the lead teacher for such a program, making it essential that my course was based upon sound pedagogical principles that uphold my employers' high standard of environmental education. In this concluding chapter, I offer thoughts and critical reflection on both the research process as a whole, the effectiveness of methods used in my own J-term course, and provide a new perspective on the status of related research.

First, I detail what was new, surprising, and of particular import in researching curriculum and pedagogy for an immersive J-term style course. Second, I revisit my personal interpretation of what went well, where there was room for improvement, and overall impression of the effectiveness of my curriculum for meeting the principles of environmental and place-based education. Included in this section, I informally examine

and highlight evaluations and surveys from my students, allowing their words to speak directly towards answering my research question, adding in my personal perspective when needed. It should be noted that in including their testimonies, I am simply providing different voices than my own, not drawing meaningful conclusions, as no Institutional Review Board was completed during this capstone progress. Finally, I will review the relevant research to my question once more, placing my capstone within the broader academic context, and offering suggestions for future research to further advance this nascent sub-field of environmental and place-based education.

Research process

The first stage of my research involved gaining background information and arriving at general definitions for both environmental education (EE) and place-based education (PBE). While I had extensive experience with EE, I had limited experience with PBE. I appreciated the significant overlap between the two fields, both in their shared history, methodology, and principles. It is worth revisiting those principles in brief. The BEETLES project lists five: Engage directly with nature; think like a scientist; learn through discussion; experience instruction based upon the learning cycle; and participate in inclusive, equitable, and culturally relevant learning environments (BEETLES, 2018). While similar in overarching goals and tone, PBE widens the goals of EE to expand beyond the interactions with nature and includes broader human and physical contexts: education is a critical component of healthy communities; PBE immerses students in the natural and social worlds outside the classroom; PBE integrates

and applying school subjects to real-world problem solving; PBE involves teachers and local community members.

I found it very useful to have both sets of principles as a touchstone for my course. While generally course content covered natural phenomena, several units were mostly social in nature, including studying past societies and days spent learning about local businesses. Having these pillars to compare my course activities against also made it easy to decide what to include and what to scrap: I simply had to critically examine if a given activity or lesson matched any, and hopefully multiple, of the above principles from both fields.

Of particular value to me was the fourth principle of PBE, the involvement of local community members, especially when paired with the third pillar of EE, learning through discussion. I had several visits to farms, for instance, planned loosely in my head, but wasn't sure how to go about enacting our actual visit there. By collaborating with the farmers ahead of time to encourage them to engage directly with us in open-ended, free-flowing discussion moderated by myself when needed, we were able to have powerful conversations during and immediately after our experiential visits. Moreover, I designed a night at a local brewery where I invited several local business owners and employees (12 in total) to join my students for semi-formal discussions on their businesses, challenges of what they do, and so on. Several students identified this as one of the most meaningful moments in class, and similarly I received positive feedback from those business owners/employees on being asked to share their story and engage with their community in this way.

In reviewing pieces that looked specifically at providing high-quality, immersive education for undergraduates, I was pleasantly surprised at the overlap between the teaching methods that they described and the environmental education that I knew from BEETLES. Discussion consistently was identified as being important, as was engaging directly with the material under study. Moreover, inquiry remained a core foundation for teaching to undergraduates, suggesting that in many ways teaching environmental education and place-based learning for older learners is not as fundamentally different as I might have thought upon beginning this process. Overall, that will be my lasting impression of the research process: what makes sense to me as a learner, and what works for youth in EE and PBE, largely still applies to higher learning in an immersive, short-term context.

Reflections on the Project

While much of the pedagogy remained consistent in applying EE and PBE to undergraduates, it is worth exploring for a moment what, in my personal impression, went well in applying that pedagogy, and what can be improved upon for next year's J-term course. In describing three disparate learning activities, I will provide tangible examples of how I worked to incorporate the research I presented in chapters two and three into actual curriculum, supplementing my own interpretation of the activities with student commentary. In order, I will discuss the efficacy of the course's daily journaling assignment, a continuous timeline activity, and a visit to a nearby county park.

Multiple sources in my research identified journaling as an important tool for both important self-reflection and assessment for the instructor, reassuring me that it would be

something I would feature heavily in the class (Rennick, 2015; Mills et. al, 2010; Harper, 2018; Pippitone, 2018; McLaughlin, & Johnson, 2006). Students were given both specific prompts that corresponded to each day's lessons (e.g. What is the role of food in culture? How does food represent the driftless area?) and general, open ended questions asking them to describe their experience. I relied heavily on Harper and Pippitone for creation and framing of these prompts. Myself and my student-teacher graded journals once at the midway point of the class, providing feedback as their journal related to the assessment criteria, and once after the course concluded.

I appreciated the journal for a few reasons: it provided a daily touchstone for the students to work on, allowing them a space to distill their thoughts onto paper. I also selected it because it allowed me another way to grade them without the use of a long paper or test, which research dissuaded me against. Several students identified the self-reflective component of the course as very important to them, and while journaling was not the only reflective activity, it was the most robust and consistent. In addition, like any group of people I had several quieter voices who often were reticent to share their thoughts in large-group discussion. Reading their journals gave me another format to confirm that they were experiencing the class in deep and productive ways.

I do see, however, room to make changes for my 2021 class as it relates to journaling. One student noted that it would have been nice if discussion prompts dovetailed more intentionally with daily journaling prompts, a suggestion I will work to incorporate next year. Another student felt dissatisfied by the infrequency of the journal check-ins, wishing that we could have followed up more with them about what they wrote as a way to check in both emotionally and as a learner. Daily journaling was new to many students, and several struggled to record entries after each day.

The journaling experience can perhaps best be summarized by one student's course evaluation, who identified journal as the biggest obstacle to their learning, but then wrote the following in explanation: "I struggled with journaling because I am more of a verbal communicator--it was challenging for me to articulate my thoughts but very worthwhile." I plan on keeping journaling as a core component of the course, but tying the prompts more closely to daily discussion and adding in another check-in, building in one-on-one meetings along with the first journal grading as a way to better connect with and support my students.

I felt it important to include text as a component of this course, in order to provide us with a consistent and shared platform of information, mix-in different learning styles, and to provide students access to knowledge that I did not feel was my place to teach (e.g. certain Native American perspectives). We did four evening read-and-share jigsaw reporting sections, three of them supplemented by a small lecture, over the duration of the course. As a way to translate the text into something tangible, I conceived of a large timeline, stretching the length of our classroom, running from 13,000 years before present to modern day. The top half of the timeline featured human events, such as the arrival of the French traders, or the first known mound-building cultures, whereas the bottom housed natural events, such as the disappearance of certain animals or specific floods.

The idea was to visually connect the human and natural, thus giving visual representation to how people and their landscape relate. While the idea sounded great on paper, I struggled to make use of it during or upon the conclusion of the class. Perhaps there was value to simply writing things out for the students, but I regretted never building in ways to incorporate the timeline into class. In an intensive class like this one,

every second of education counts, and I wonder if time spent adding information to the timeline could have been used more wisely elsewhere. Perhaps tellingly, no student mentioned the timeline anywhere in the evaluation, positively or negatively. It was the only component of the course not to be identified, forgotten to time. While I don't know yet if I would like to scrap entirely or modify the timeline for next year, I am certain that I won't be repeating the execution of it for 2021.

Finally, and slightly to my surprise, the students' most consistent choice for most impactful activity was a visit to a local county park, where we spent about two hours. The morning had been spent learning about Karst geology, on our campus, and the park visit would serve to provide application to their morning lesson, because now they were asked to identify and find features of Karst geology that they had studied earlier that day. I asked them to find the cave in the park, locate the spring, and examine the way water moved through the valley. In small groups they set off, excitedly teaching each other and asking the instructors for further information when needed. "That place was so important," "very impactful for learning," and "a fun way to release energy + play outside as a group" were all descriptions of the field trip by students. Experiential learning can mean many different things, but to give students the space to apply their learning while exploring in a self-driven way outside clearly meant a lot to their learning. Field trips such as these need little modification for next year, and I am excited to continue to find ways to further create programming like the visit to this small county park.

Future Research

In doing this capstone project, I experienced the double-edged sword of researching in a nascent field. While environmental education and place-based education both have entire journals dedicated to their study, very little of that research is oriented towards higher learning. Similarly, while there is no shortage of articles and studies on best approaches to teaching undergraduate students, comparatively little of that is dedicated to understanding best approaches for immersive, short-term learning contexts such as J-term programs, despite their increasing popularity. Put the two together--environmental education and/or place-based education for college students in an immersive, short-term context-- and next to nothing exists in the literature offering proven methods in curriculum design or pedagogy. While that is exciting, and means there are near-unlimited directions for future research, it is also frustrating to those on the early frontier of this field, as I often found myself extrapolating and drawing from related, but dissimilar, programs and fields (math classes, or semester-long study abroad programs, for instance).

Going forward, to narrow down the directions for future study, it is my suggestion that researchers focus on the following guiding questions to guide their advancement of this nascent field:

- 1) In what ways does environmental education and/or place-based education fundamentally differ when delivered to a college audience?
- 2) What are the most practical and effective methods of assessment for undergraduates in a short-term immersive context?

- 3) When considering long-term impacts (both as learners and people), how do short-term immersive courses compare to semester-long courses?
- 4) What is the best way to incorporate text(s) into learning contexts discussed in this capstone; in other words, how can an experiential and immersive class successfully utilize reading?

While this list is far from complete, it offers suggestions for the sub-questions that I found both most lacking in research and of great import to me as a curriculum creator and teacher. Higher education has particular standards for, say, assessment and reading, and legitimizing courses such as these as rigorous academic affairs is essential to bringing EE and PBE into mainstream higher learning. Assembling additional evidence that non-traditional assessment methods (i.e. tests, long written papers) are more effective and measuring student learning in immersive, short-term contexts would go a long way to selling professors, administrators, and students on the value of programs like these.

In their evaluations, one student wrote that “It was refreshing to be away from memorization and stiffly graded exams. Without the stress of judgement and grading, I felt like I absorbed more information than I normally do and can relay the information to others easily. It reinforced my love for learning through activity and conversation instead of solo memorization and lectures.” Quantifying and expanding evidence that alternative forms of grading are both representative of a student’s work in the course and can actually increase learning is, in my opinion, the first frontier to be tackled when considering future research into the marriage between EE/PBE and higher education.

Summary

In this final chapter, I reviewed the preceding chapters before offering an in-depth reflection of specific components of the research and implementation of my capstone project. In particular, I first reviewed what was novel, surprising, and particularly helpful to me for crafting curriculum as I surveyed the existing literature in and around my core question. I then looked back on a few specific examples of curriculum implementation from my J-term course, highlighting what activities went well, what might need significant modification, and where the foundation was strong but there is still room for growth. Finally, I zoomed back out to look at a wider view of this nascent field. Environmental education and place-based education are just beginning to make inroads into higher learning; this is happening first in non-traditional classroom settings, such as J-term courses like mine.

I know from my own personal experiences as a learner that immersive classes have potential to transform the self in ways impossible during a semester-long, on campus class which you attend in three installments of one hour. Moreover, for me personally living and learning with a community is fundamentally more impactful than a lecture or lab format. Many of my students, in their evaluations and conversations with me, noted that they now felt similarly.

Higher education is excellent in many ways, but lacks in how it chooses to engage students. Many professors are content experts, researchers first, teachers second. Large classrooms and limited time result in underwhelming education, despite the often exorbitant cost of college.

More and more, students are choosing to take control of their learning and enroll in summer and winter interim classes, such as the J-term course featured in this capstone project. These classes often exist outside of the traditional educational paradigm, enabling rapid advances in education and opportunities to do something truly different and novel, such as designing a course around the principles of EE and PBE. In other words, I had leeway creating this class that would be nearly impossible in a traditional college setting. That leeway was freeing and enabled me to provide what I felt was an excellent educational experience for my students (humbly, my evaluations backed this assertion up). That leeway also, however, suggests that more research is essential for ensuring a high quality of education, backed by the best research in the field, is being delivered to students giving up their time and money.

Environmental education is for everyone. We all benefit by studying place and people, connecting with community, and placing information into real-life contexts, making place-based education equally universal. College is a time of tremendous personal and academic growth for young people. Programs like this seek to connect people to place, each other, and themselves. That we as educators have the ability to provide these experiences in engaging, meaningful, and memorable ways is a gift not to be forgotten. Next comes the fun, and also hard, part: learning from each other, through years and years of programs similar to this one, backed by a growing and developing field of research, and doing it so that students in the *next* class are receiving the best-possible education.

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