

Spring 5-13-2017

Developing a Curriculum Framework for Field Studies Using Experiential and Environmental Educational Theory

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Developing a Curriculum Framework for Field Studies Using Experiential and Environmental
Educational Theory

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Plan B Project

Submitted in partial fulfillment of the requirements
for the degree of Masters in Science in Natural Science Education
in the Science and Mathematics Teaching Center
at the University of Wyoming

2017

Laramie, Wyoming

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Abstract

Experiential and environmental education are educational philosophies with significant overlap. Experiential and environmental education are mutually supportive, and linked through five key components, (a) direct experience, (b) place, (c) learning community, (d) critical investigations, and (e) purposeful outcomes. A literature review demonstrated shared purpose and similar pedagogies. These similarities were used to define *experiential environmental education*. Field studies programs, educational expeditions defined by direct experience and investigations of place, are an effective way to put experiential environmental education theory in to practice. Curriculum frameworks are an educational tool used to develop specific curricula aligned with theoretical objectives. The key components of experiential and environmental education served as a foundation for the design of a curriculum framework for field studies programs. The intent of this work is for the curriculum framework to be made available as a tool for field studies practitioners to implement experiential environmental education.

Acknowledgements

This research would have not have been completed without the communities I receive support from. Thank you to my committee, for knowing when to challenge, and when to encourage. A special thanks to Ana Houseal, for modeling patience and work ethic.

To the Teton Science School family, I am grateful for the invaluable mentorship of faculty and my fellow grad students. Laurel Genzoli, I am impressed by, and thankful for, your ability to act on your vision (and all the times you made me coffee in the destinations of our dreams). Many thanks to Weston Boyles, for trusting me to contribute to Ríos to Rivers. My own field explorations in Laramie were guided by a group of climbers and Wyomingites, open to sharing their extensive knowledge of this place. I am grateful for the boldness and compassion shown to me. Our excursions contributed to my stamina for completing this work.

Finally, an infinite thank you to my mom and dad, for believing in me from the beginning.

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Chapter One

Introduction

Background and Rationale

Laurel Genzoli has a vision. A native Oregonian and avid kayaker, Laurel works as a professional river ecologist. These factors make her acutely aware of the legacy of dams built above her favorite stretch of river, the Lower Klamath. The Klamath charts a meandering course through southern Oregon and northern California. The ecological and cultural impacts of the Klamath dams are far-reaching. The ranching community and tribal members of the region are at odds, salmon runs continue to decline (Gosnell & Kelly, 2010), and toxic algae blooms in reservoirs. The Klamath Watershed is beautiful, complex, and divided.

Laurel is a scientist, collecting and analyzing data on primary producers as a part of her work. Yet, Laurel sees the task of river conservation needing to go beyond the lab. She wants to educate the next generation of watershed stewards. Watershed stewards are citizens concerned with the management and protection of their local rivers and streams. Due to pressures, such as drought, irrigation, and declining fish populations, the Klamath River is in need of spokespeople. Therefore, Laurel dreams of leading a group of students into the Klamath Basin on a field studies expedition. She envisions floating the river as a team, practicing research methodologies, and interacting with community members in order to learn about the social and ecological complexities of the region. The expedition requires immersion in place and direct investigations of environmental issues. Laurel's program seems to reside at the intersection of experiential and environmental education.

Educational philosophies are sets of values and beliefs about the purpose of education and the construction of knowledge. Experiential and environmental educations, both educational philosophies, are progressive approaches to learning, with environmental education more recently defined, in the last forty years. Environmental education's purpose is to increase student understanding about the environment and to teach students skills to contribute to environmental problem solving (Palmer, 1998; Stevenson, 2006; NAAEE, 2017). In practice, environmental education has struggled to achieve this purpose (Saylan & Blumstein, 2011). The implementation of experiential education has met similar obstacles. In theory, experiential education aims to support student's personal growth and sense of social responsibility through direct experiences and structured reflection (Carver, 1996; Itin, 1999; Kolb, 1992). Experiential education is recognized as an approach to education with a variety of expressions, from outdoor education to service-learning programs. According to The Association for Experiential Education (AEE), a professional association for experiential education, authentic experiential education should include intentionally crafted, hands-on learning experiences, provided by a practitioner familiar with experiential education principles ("AEE", 2017). However, a gap exists between theory and practice. How can Laurel's dream program benefit from the bodies of knowledge that exist about environmental and experiential education?

A curriculum development tool catered to field studies programs might help address this theory-practice gap. Laurel is not alone in her dream of implementing a field studies expedition. Many programs calling themselves "field studies" currently operate in the United States and abroad. Typically, the programs are rooted in direct experience, and include in their aims the development of environmentally literate citizens. *The School for Field Studies, Wildland Studies, Round River Conservation Studies, Wild Rockies Field Institute, Ecology Project International* and *Whitman College's Semester in the West* are a few of the better known options for "field studies experiences". Several of these programs benefit from University partnerships that provide academic credit. The

programs listed above differ in emphases, but center around environmental awareness and direct experience. Skills practiced typically include scientific field methods and backcountry travel. Common themes are natural resource management, the functioning of ecological systems, and environmental ethics.

Lonergan & Anderson (1988) define 'the field' as any place "where supervised learning can take place via first-hand experience, outside the constraints of the four-walls classroom setting" (p. 64). The programs above fit this description, taking place significantly or entirely in outdoor or wilderness settings. Fieldwork is accepted as a valuable educational approach (Boyle et.al., 2007), with the potential to create a positive learning environment for students, leading to a transformative educational experience. Because field studies have been shown to be influential on student attitudes (Golubcikov, 2015; Hope, 2009), organizations that implement field studies programs claiming to be "environmental" or "experiential" arguably have a responsibility to demonstrate documented best practices.

Curriculum development is the first step of implementation. However, curriculum development is challenging. A curriculum framework is a planning tool for educators in the development process. Curriculum frameworks offer an outcome based system that educators can employ to align specific curriculum to broad educational standards or educational theory. Curriculum frameworks provide guidance for the implementation of curriculum (Wiggins & McTighe, 2005), based on content and performance standards. Curriculum frameworks vary in scope and scale, from national priorities such as *The Next Generation Science Standards, A Framework for K-12 Science Education* to school district wide curriculum (Wiggins & McTighe, 2005). Educational theory informs strong curriculum frameworks. The implementation of field studies may benefit from the use of a curriculum framework tool during the planning stage of a program.

Problem Statement

Experiential and environmental educations have rich histories and varied applications. The desired outcomes of experiential and environmental education intersect in the format and goals of field studies programs. However, programs conducted outside of traditional classrooms are not automatically “experiential”, just as programs covering natural systems or taught in the outdoors are not by default “environmental” (Stevenson, 2007). Experiential and environmental educations are not implemented in a way that matches the theories they derive from (Saylen & Blumstein, 2011; Breunig, 2005; Payne, 2006). Experiential and environmental educations are convergent practices, but treated separately in the literature and in implementation (Adkins & Simmons, 2002; Stevenson, 2007; Cole, 2010). Because of this, it would be helpful for field studies practitioners to have a resource for implementing authentic experiential environmental education.

Research Questions and Purpose

The questions that guided this project were:

1. How can the intersections of environmental and experiential educational theories be combined into a singular theory of experiential environmental education?
2. How can environmental and experiential educational theories be used to inform the design of a curriculum framework for field studies programs?

The first purpose of this research was to combine environmental and experiential education, due to their intersecting nature and shared goals. Experiential environmental education will be defined. Intersections are highlighted, and used as key components of the curriculum framework. A second purpose of this research is to design a curriculum development tool for field studies practitioners using the key components of experiential environmental education. The framework and its utility is explained and modeled. *Ríos to Rivers*, a field based river conservation program, is the subject of the model. Laurel Genzoli partnered with *Ríos to Rivers* in order to

realize her vision of bringing students to the Klamath Basin. The Ríos to Rivers model applies a real-world program to the curriculum framework. Ideally, the Ríos to Rivers model provides a specific context to illustrate best practices from experiential environmental education. The intent is for Ríos to Rivers to be implemented in a manner that fulfills the purpose of experiential environmental education.

Chapter Two

Literature Review

Introduction

The theories underlying environmental and experiential education offer two sets of fundamental educational criteria. Traditionally separate educational approaches, environmental and experiential education have significant commonalities (Adkins & Simmons, 2002; Roberts, 2008). This literature review synthesizes the theoretical values and suggested practices of experiential and environmental education. Similarities and parallel purposes are highlighted, with the intent of defining *experiential environmental education*.

Experiential Education

“The philosophy of experiential education is what is needed to help develop a community which actively involves all in cooperatively solving problems and contributing to the greater good of society”. Itin (1999).

The purpose of experiential education is democratic. Experiential education aims to develop citizens able to participate in their communities and make a positive impact (Itin, 1999). The Association for Experiential Education (AEE) exists to support programs, schools, and individual educators involved in this purpose by offering accreditation, hosting professional development workshops, and holding an annual conference for experiential educators. The AEE defines experiential education as “a philosophy that informs many methodologies in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities” (“AEE”, 2016). Education is recognized as a political process. If incorporated broadly,

experiential education can be a tool for progress, developing informed individuals able to collaborate, solve problems, and makes changes on a societal level.

In 1938, John Dewey published *Experience and Education*, a foundational text. Dewey believed that education was not merely “a transmission of facts”, but should exist to engage the whole person in a meaningful learning process. Rather than treating students as passive recipients of knowledge, asked to regurgitate facts as assessment, students should be addressed in their entirety through pedagogical strategies supportive of experiential education. A student-centered disposition is a distinction of an effective practitioner of experiential education (Breunig, 2005, p. 110). The traditional role of the teacher as the holder of knowledge, as the dispenser of the “correct” answer, is challenged. Cognitive control is transferred from the teacher to the students (Stevenson, 2007). “Although formal educators become senior members of the learning communities, students share in the process of teaching, and teachers actively continue to learn from their experiences with the group” (Carver, 1996, p. 9). Students participate in their own learning, and teachers practice a responsive dialogue with their students.

A critical approach is another essential practice of experiential education (Kolb, 1984; Itin, 1999; Breunig, 2005). Critical teaching aims to reveal structural and systemic inequalities. In this way, critical dialogue, critical thought, and critical writing repeatedly appear as components of the experiential learning process. Multiple perspectives are considered, conflict and uncertainty are acknowledged, and nuanced understandings are encouraged. Strategies to act on local issues of social justice are incorporated in the curricula.

Suggestions for pedagogical practices supportive of a critical perspective can be found in Carver’s (1996) interdisciplinary framework for experiential education. Carver lists the salient features of experiential education as “authenticity, active learning, drawing on student experience,

and providing mechanisms for connecting experience to future opportunity” (p. 10). She translates these salient features into a framework for thinking about experiential education (Figure 1).

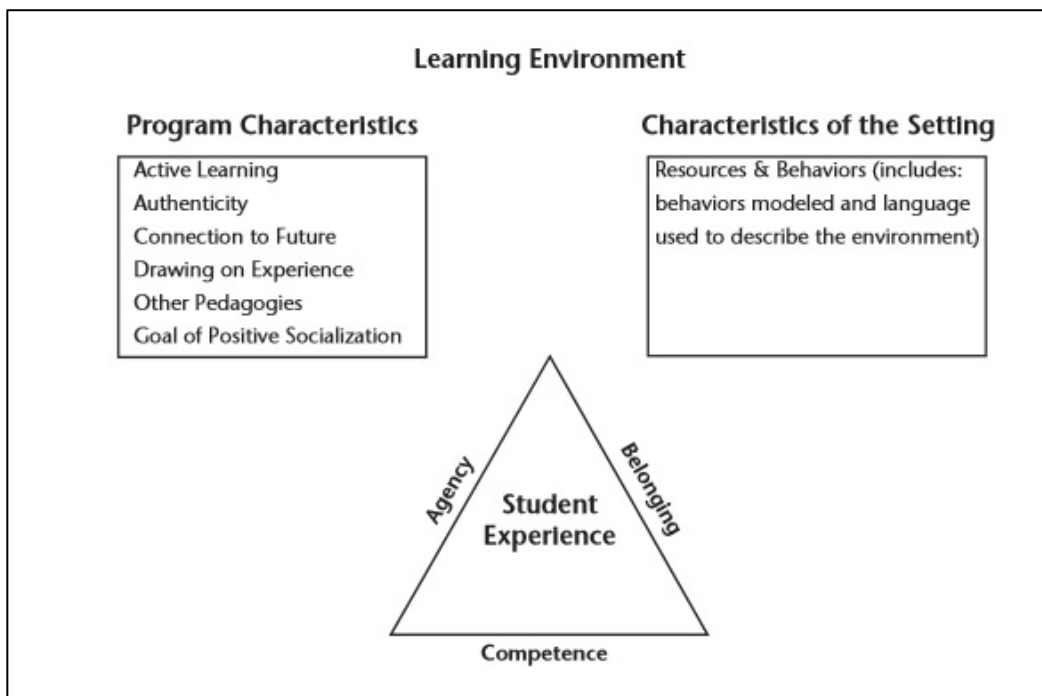


Figure 1: Rebecca Carver's Conceptual Framework for Experiential Education

Student experience is both a process and an outcome. Carver (1996) divides student experience into three interrelated categories (agency, belonging, and competence), or the “ABC of student experience”. Development in these dimensions “are at the heart of what students experience during a program” (p. 12). Belonging is an affective (socio-emotional) goal, competence is a skills goal, and agency is conceptual goal. Developing student’s sense of agency supports the democratic purpose of experiential education. A critical perspective towards curriculum, problem-posing teaching methodologies, and teacher/student awareness of their role as social change agents are general dispositions and practices supportive of critical pedagogy in experiential education (Breunig, 2005).

Implementing authentic experiential education is a challenge (Itin, 1999; Kolb, 1992; Breunig, 2005). A gap exists between the theory of experiential education, and the practice.

Unifying theory and practice is important for effective implementation. Curriculum frameworks are a unification tool. Carver's conceptual framework is helpful for understanding experiential education, however, Carver emphasizes that her framework is not "a recipe for developing programs", but is an organizational tool to support communication about program development ideas between colleagues (p. 14). For experiential education to thrive and be practiced widely, specific implementation suggestions are needed. An experiential approach requires critical analysis and structured reflection (Lutterman-Aguilar & Gingerich, 2002), and is imperative if practitioners wish to involve their students in a holistic learning process supportive of problem-solving, self-efficacy, and community engagement.

Environmental Education

Contemporary environmental education...has the revolutionary purpose of transforming the values that underlie our decision making, from the present ones which aid and abet environmental (and human) degradation, to those which support a sustainable planet in which all people live with equal human dignity. Stevenson (2007)

The purpose of environmental education is to develop environmentally literate citizens. Environmental literacy is the ability of an individual to act on their knowledge of environmental issues. The North American Association for Environmental Education (NAAEE) defines environmental education as "a process that helps individuals, communities, and organizations learn more about the environment, and develop skills and understanding about how to address global challenges" ("NAAEE", 2016). Environmental education is an approach to education rather than a distinct strand. It should not be thought of as a separate subject, but as integrated and interdisciplinary (Palmer, 1998).

As with experiential education, the implementation of environmental education poses challenges (Stevenson, 2007; Saylen & Blumstein, 2011). Environmental problems are regularly conflated with political agendas. Environmental issues are often complex and not easily resolved. Scientific uncertainty contributes to these challenges. However, it is imperative that we educate a citizenry able to understand and address these environmental problems, as environmental problems pose great threats to the health of our planet and ourselves. Effective environmental education requires enduring understandings of natural resource systems, as well as the human dimensions and interactions of those systems. Understanding systems interactions abets nuanced views of ecological complexity.

In accordance with their mission, NAAEE developed 'Guidelines for Excellence' for effective environmental education curriculum. The guidelines are structured around six key characteristics: Fairness and Accuracy, Depth, Emphasis on Skill Building, Action Orientation, Instructional Soundness, and Usability. The guidelines are an example of the unification of theory with suggestions for practical implementation. The guidelines include suggestions about what to look for in high-quality education materials and example lessons.

Through "a process of inquiry, critique and reflection [students] can be assisted to develop and defend their own set of environmental beliefs and values" (Stevenson 2007, p. 143). Here, an experiential approach is applied to an environmental education objective. The objective (for students to develop their own environmental ethic) is a major aim of environmental education.

Experiential Environmental Education

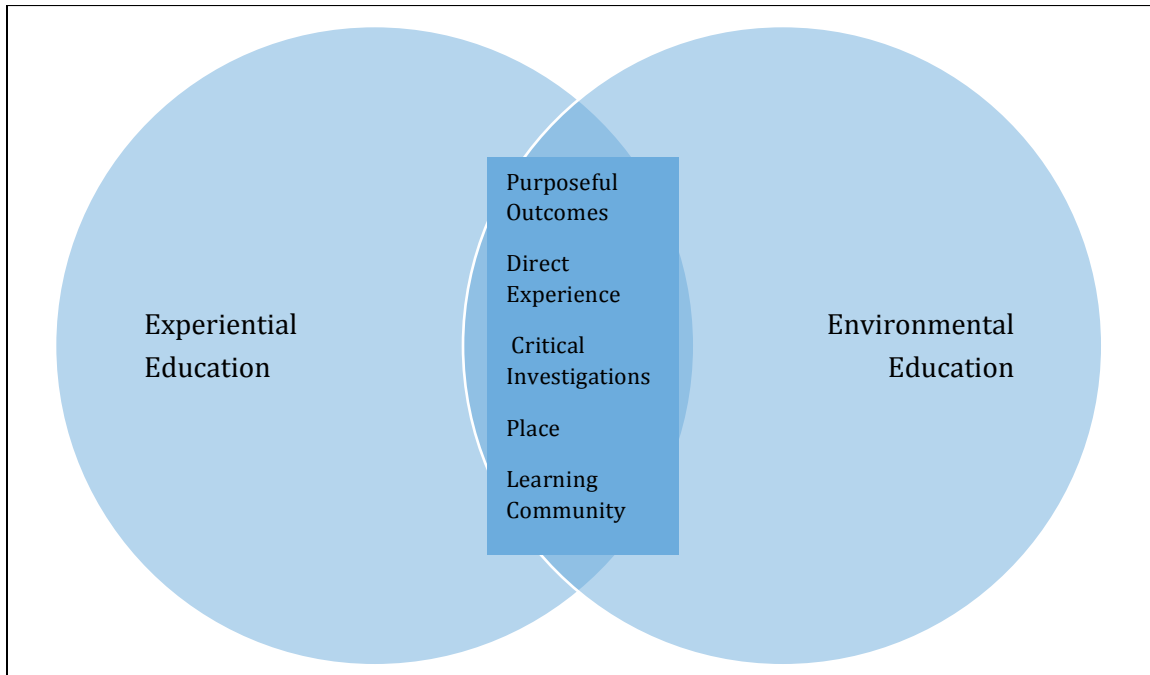


Figure 2. Intersection of experiential and environmental education

The Venn diagram (Figure 2) above illustrates the intersections of experiential and environmental education. Experiential and environmental education are educational approaches with “revolutionary purpose” (Itin, 1999; Stevenson, 2007) and significant overlap in aims. Environmental education exists as an expression of experiential education. The purpose of experiential education is contextualized within the environment. That experiential and environmental educations are effective in the development of ecologically literate citizens able to understand and collaboratively solve environmental problems is an underlying assumption of this research. It has been shown that “strong and lasting lessons take shape” when experiential and environmental education are combined to support one another (Adkins & Simmons, 2002, p. 5). Adkins & Simmons argue that experiential, environmental, and outdoor educations are convergent educational practices, best used together.

Shared characteristics and ideas are highlighted in this section. Direct experience, learning community, critical investigations, place, and agency act as five key areas of overlap between experiential and environmental education. Together, the key areas describe a unified theory of experiential environmental education. The combined purpose of experiential environmental education is participatory. Through immersive and inclusive investigations of real-world ecological problems, students emerge with increased environmental understandings, and awareness of their choices for civic engagement.

Direct experience. While it is arguable that true environmental education *must* be experiential, Alagona & Simon (2010) make the point that environmental understandings are greatly supported by first-hand experience. The field trip, or field study, is often the way in which direct experience is manifested in environmental education. Watershed health is investigated through water quality sampling, geological concepts are illustrated through rock strata, and species are learned through identification in the corresponding habitat. An emphasis on first-hand experience has been included since the inception of environmental education. In 1976, The National Association for Environmental Education drafted a *Statement of Aims*. Experience is included in several of these aims. For example; “Plants and Animals: Knows from *firsthand experience* various kinds of plants and animals in their own environment” [Emphasis added] (Palmer, 1998, p. 12). Hands-on experiences support conceptual understandings of environmental issues.

In addition, time spent outdoors, or outside of the traditional classroom, is associated with experiential and environmental education. The outdoors or natural world connects to the ‘place’ component, because “for many experiential education activities, the natural environment is the medium through which program goals and objectives are realized” (Ewert, 1996, p. 29).

Place. Place is both geographical and socially constructed, and varies in scope and scale. Place consists of topography, climate, and biotic communities, but is also cultural and conceptual (Cole, 2007). As the context and content of environmental processes (ecosystem interactions, watersheds, geological influences, etc) place must be addressed in environmental education. Students are asked to understand the interconnectedness of the environment. Place links experiential and environmental education through providing a site for immersive experience. In experiential education, learning consists of “transactions between the person and the environment” (Kolb, 1984). An enduring understanding of experiential education is that people are influenced by places, and that people have influences on places (or environment).

Place plays a comprehensive role in environmental and experiential education. Place-based education, a process of using the local community and environment to teach concepts, is a stand-alone educational theory. Due to place-based education’s emphasis on real world learning experiences, and the desired outcomes of “enhanced appreciation for the natural world, and improved environmental quality” (Sobel, 2008, p. 06), I treat place-based education, or simply “place”, as the point of overlap between experiential and environmental education.

Critical investigations. Conflict is embraced by both experiential and environmental education. The use of real-world problems in curricula is an indicator of both approaches. In these situations, problems are not viewed as insurmountable challenges to avoid, but treated as learning opportunities. Complex issues are investigated through uncovering and exploring power dynamics and social structures. There is tolerance for ambiguity and uncertainty. Critical investigations are the explorations of these problems.

The ability to “problematize” a situation is essential to a critical perspective. “Problematization” takes place through critical dialogue (Lutterman-Aguilar & Gingerich, 2002). The learner is actively engaged in posing questions, investigating, experimenting, being curious,

solving problems, assuming responsibility, being creative and constructing meaning. A critical pedagogy incorporates these skills in support of a developing a critical consciousness. Students with a critical consciousness challenge societal status quos and dominant narratives (Breunig, 2005). This is relevant to environmental literacy in order to address “the ways in which power, race, class, gender, and politics shape human interactions with the land” (Cole, 2007, p. 36).

Local problems, or problems that directly affect student lives, add relevancy and urgency to the learning experience. This connects to the place component. If ecological problems are abstractions, the sense immediacy is lost (Grunewald, 2003). Many environmental problems global in nature can be investigated at the local or regional level. A “bioregionalist” perspective questions ecological limits and features of a place in relation to cultural practices. Natural resource management issues present opportunities to examine complex political, scientific, and managerial interactions that defy easy answers, and reveal larger scale driving forces (Ewert, 2007). Opportunities to interact with professional resource managers, visit sites impacted by environmental decision, and consider alternatives can make seemingly overwhelming environmental problems approachable and contextualized.

Learning community. Experiential and environmental education is linked through individual learners, the learning community, and the practitioner. Recognition of these three realms, the individual responsibilities and the interactive responsibilities, is important to experiential environmental education because of the responsibilities associated with each role. Facilitators of experiential programs should have an awareness of the principles and practices of experiential education (Lutterman-Aguilar & Gingerich, 2002, p. 71). Experiential educators have expertise, but must acknowledge that they are co-learners in the experiential process.

Experiential educators do have influence over the learning community they belong. Positive learning communities are key to transformative education (Hooks, 1994). Carver’s inclusion of

'belonging' in to her experiential framework alerts us to the importance of a positive learning environment. Student experience is at the heart of experiential education, and requires acknowledgement of the individual. An empathetic learning community and small group dynamic contribute to student interest and engagement in environmental humanities (Alagona & Simon, 2010).

Awareness of self and others is important to Experiential Environmental education because of the connection to agency and problems. Awakening student's to their own learning processes supports self-efficacy. This brings us to the final connective component, agency.

Agency. When students start to take responsibility for their own learning, personal agency begins to take shape. Agency appears repeatedly as a desired outcome of experiential and environmental education, under various names: "action orientation" and "action and social transformation" (Lutterman-Aguilar & Gingerich, 2002). Agency is the ability to act within and have influence on a situation or environment. "Human agency, that empowering but elusive possibility of education" (Payne, 2010, p. 31) is a shared purpose of environmental and experiential education.

Environmental education aims to shape students environmental values and beliefs. It is assumed that those values and beliefs will shape environmental behaviors. The development of an environmental ethic, and a commitment to act on that ethic, is a common element of environmental curriculum. This connects to the educational goal of transference. Students need to play an initial role in their own learning if they are going to be able to apply their knowledge to novel situations. If we are to address the environmental problems that we teach about, the concept of individual responsibility is a critical component of environmental education (Saylan & Blumstein, 2011).

Experiential education is an approach that encourages self-efficacy because experiences are designed with decision making and personal accountability in mind. Students are encouraged to take initiative, and responsibility for the choices they make. Ideally, self-efficacy results in positive

social change. Experiential Environmental education should develop skills that support personal agency.

Direct experience, learning community, critical investigations, place, and agency unite experiential and environmental education. They are also key components of field studies. Field studies offer a path to implement experiential environmental education.

Field studies programs.

I am not quite sure what the biggest take away from the last three months has been. Perhaps it's how to beat a joke to death, and the keep going, squeezing every last chuckle out. Perhaps it's how to stay on good terms with a group of people after spending almost every minute with them for the past three months. It could be the understanding of the importance of biodiversity or ecosystem services. Maybe it has something to do with where we belong though, how we can make effective impacts on the world around us, and how we might apply our passion into real world problems

Alex Walt, Eckerd College, Round River Conservation Studies Patagonia Program
2015

This student testimonial highlights several key components of field studies programs. Alex Walt participated in a course with Round River Conservation Studies, an ecological research and education organization focused on wilderness conservation and restoration. Round River programs are “field-based, authentic experiences where students become part of our efforts working alongside our conservation biologists and local community partners” (“Round River Conservation Studies”, 2016). Walt’s testimonial highlights the affective nature of field studies. He recognizes the value of natural systems, developed a sense of place, and has a desire for transference. This is an example on of student experience that illustrates the aims of experiential environmental education.

'Field studies' are educational expeditions with a variety of expressions. Direct experience and site-specificity are key components. Students of these programs are often asked to investigate socio-ecological processes and various dimensions of place. Field studies offer a multi-disciplinary approach to learning. The term and practice of 'field studies' increased in usage around the same time as environmental studies began to gain traction and legitimacy in the educational world (Palmer, 1988). "The field" is an educational setting "outside of the traditional classroom context" (Alagona & Simon, 2010, p. 193) where curriculum based learning takes place. Although "the field" is often a wilderness or natural setting, urban landscapes or other built environments are not excluded.

Emphases differ from program to program, but shared language and overlapping purposes exist. Because of this, field studies programs offer a format within which experiential environmental education can flourish. The implementation of field studies presents an opportunity to narrow the theory-practice gap that exists for experiential and environmental education. Round River Conservation Studies refer to themselves as an education organization, as do several other programs that offer field study experiences (Wildland Studies, Wild Rockies Field Institute, School for Field Studies). However, out of these organizations, Wild Rockies Field Institute (WRFI) is the only program that explicitly includes experiential learning in their mission. Field studies programs are an important mode of learning (Hope, 2009), with the potential to a transformative experience for students. This raises the question: How might field study programs improve if practitioners were working from a framework aligned with experiential environmental educational theory?

Curriculum Frameworks and Backwards Design

As illustrated by Carver's (1996) framework for experiential education, frameworks are not prescriptive. Curriculum frameworks are guidance documents that unite a particular field or approach. Field study, as a format, would benefit from a curriculum framework rooted in

educational theory. Used effectively, curriculum frameworks inform the specific curriculum to be implemented. If field study practitioners develop specific curricula based on a framework aligned with the principles of experiential environmental education, we may be one step closer to narrowing the theory-practice gap.

Deliberately choosing suitable learning experiences is essential to authentic experiential environmental education. Planning learning experiences and the learning progression is essential prior to meeting students and going into the field. An essential part of being an educator is the crafting of curriculum and lesson plans to meet intentional purposes. However, designing curriculum is challenging. Understanding by Design, or Backwards Design, is an educational resource that was developed to assist in meaningful curriculum development (Wiggins & McTighe, 2005).

Understanding by Design has been described as a “robust approach to *planning*” (Wiggins & McTighe, 2005, p. 8). It is a tool with which to identify themes, enduring understandings and essential questions. Transfer skills are made explicit. Learning outcomes and instructional strategies are identified. This “backwards” approach begins with desired results instead of beginning with “the means”, such as activities or textbooks. Working backwards helps educators determine specific content based on outcomes. This approach is beneficial because the focus is on outputs (the desired results), rather than inputs (favored lessons, traditional activities). Curriculum should lay out the most effective way of achieving specific results (Wiggins & McTighe, 2005, p. 15). Educators should be able to answer the “why?” and the “so what?” of their chosen content.

Educational theory provides themes, outcomes, and instructional strategies to work with. A curriculum framework that adequately incorporates the desired results of a theoretical approach is a step towards theoretically aligned implementation. Experiential Environmental education’s

enduring understandings, desired skills, and supportive instructional strategies were identified through this literature review. These elements were then incorporated into the Understanding by Design process (Wiggins & McTighe, 2005) used to build the curriculum framework.

Chapter Three

Methodology

Introduction

This research project aimed to develop a curriculum framework based on experiential and environmental educational theories. The framework is a step towards linking experiential and environmental educational theory, and applying that theory to a learning environment (a field studies program). I hope that the framework serves to fill a theoretical gap, and ultimately supports authentic implementation of Experiential Environmental education. As a reminder, the research questions that guided this project were:

1. How can the intersections of environmental and experiential educational theories be combined into a singular theory of experiential environmental education?
2. How can environmental and experiential educational theories be used to inform the design of a curriculum framework for field studies programs?

Answering these research questions required four steps:

- 1) Literature review
- 2) Defining experiential environmental education
- 3) Framework development and structure
- 4) Modeling the framework

Building a curriculum framework based on educational theory required a literature review to establish the parallel purposes and current states of experiential and environmental educations. The framework represents the principles and best practices of Experiential Environmental education. The implementation of Experiential Environmental education is well suited to the format

of field studies. The goal is for the framework to be a tool for the development of field studies programs. Modeling the framework applies a real-world program to the structure, and demonstrates the framework utility.

Literature Review

The Journal of Experiential Education and *The Journal of Environmental Education* were the primary sources of peer reviewed articles. For background on general educational theory influential to experiential and environmental education, I chose selections from foundational texts by John Dewey (*Experience and Education*, 1938), David A. Kolb (*Experience as the Source of Learning and Development*, 1984) and Paulo Friere (*Pedagogy of the Oppressed*, 2007). *Environmental Education in the 21st Century: Theory, practice, progress and promise* by Joy A. Palmer (1988), and *The Failure of Environmental Education (and how we can fix it)* by Charles Saylan and Daniel T. Blumstien (2011), greatly contributed to my understanding of the history and current status of environmental education. *The Journal of Geography in Higher Education* was a fruitful source of information on field studies. My four main search terms were variations and re-combinations of “experiential education” “environmental education” “field study” and “curriculum design/development”. Curriculum design/development combined with environmental and/or experiential education yielded few results. In terms of curriculum framework development, *Understanding by Design* by Grant Wiggins and Jay McTighe (2005) served as the main text.

The National Association for Environmental Education (NAAEE) and the Association for Experiential Education (AEE) websites provided additional background, definitions, and resources. The websites of currently operating field studies programs (primarily *Wild Rockies Field Institute*, *Wildland Studies*, *Round River Conservation Studies*, *The School for Field Studies* and Whitman College’s *Semester in the West*) contributed to my understanding of the current status of field studies programs, and the language used to define the organizations and their educational missions.

The value of field studies programs (Hope, 2009; Boyle et. al., 2007; Kent et. al., 1997; Alagona & Simon, 2010) is supported by the literature.

Defining Experiential Environmental Education

Although environmental and educational theory frequently operate together with similar purpose (Adkins et.al.; Roberts, 2007; Payne, 2006), the literature review demonstrated a paucity of the perspective that experiential and environmental education can be a combined theoretical approach, and would be better for it. In order to address this gap, I sought to define a unified theory of Experiential Environmental education. I looked for similarities in language, purpose, and skills during the reading process, and created a matrix to record these elements. Because environmental and experiential educations have similar purposes, the goal was to establish Experiential Environmental education as a stronger combined educational approach. From these intersections, I began to define the key components of Experiential Environmental education. Additionally, a major challenge of experiential and environmental education has been authentic implementation (Saylan & Blumstein, 2011; Stevenson, 2007; Itin, 1999). Field studies programs offer a method to address the gap between theory and practice.

Framework Development

The literature review provided the foundation for the curriculum framework. I used “backwards design”, also known as the educational planning approach “Understanding by Design” (UbD) to develop the curriculum framework. “Backwards is best” because the curriculum design is results focused rather than content focused (Wiggins & McTighe, 2005, p. 15). Wiggins & McTighe offer templates, suggestions, and rationale for this approach. The text is user friendly and designed with educators in mind. UbD can be used for unit design, and or for “big picture” curriculum framework design for a course or program. The structure for planning big picture curricula is referred to as a “macro” framework. The framework for field studies is a macro framework. Wiggins

& McTighe argue that programs and courses “be conceived and framed in terms of essential questions, enduring understandings, key performance tasks, and rubrics” (Wiggins & McTighe, p. 275).

Essential questions act as the foundation for courses and programs. Essential questions are “doorways to understanding” that drive learning. Essential questions provoke inquiry, and do not have easy answers. Essential questions probe at the “why” of themes or topics. For example, an essential question addressing human interactions with the environment could be: *“What of my/our actions, interactions, and relations can be changed to help or not help the environment?”* (Payne, 2006, p. 32). Wiggins & McTighe suggest that the best essential questions are “alive”; questions that are debated in the real-world, interdisciplinary, and approachable regardless of expertise (Wiggins & McTighe 2005, p. 108). I recorded essential questions present in the literature related to Experiential Environmental education over the course of my literature review. These questions were then modified to fit the format of field studies programs.

One way to think about this research is as a meta-curricular project. I worked to create a framework for designing curricula specific to field studies, but representative of Experiential Environmental education. The macro-framework was designed to demonstrate essential questions and enduring understandings from Experiential Environmental education. These questions and understandings are applicable across contexts. This means they can be tailored to fit the specific format of varying field studies programs.

I needed to format the guidelines, best practices/methodologies, and purpose of Experiential Environmental education in to essential questions and enduring understandings representative of Experiential Environmental education. Before this, I needed to identify the main themes, or areas of overlap, between experiential and environmental education. I eventually landed on purposeful outcomes place, learning community, critical investigations, all approached through

the method of direct experience. From these key components, I developed essential questions and enduring understandings,

The key components were selected based on relevancy to Experiential Environmental education and field studies programs. I suggest an order in which to address the components. Purposeful Outcomes come first. Outcomes address the 'Why' of the program, and drive learning. For Experiential Environmental education, agency and ecological literacy should be incorporated into outcomes. As the context of environmental systems, Place is the 'Where' of the program, and should be addressed following Purposeful Outcomes. Often, Purposeful Outcomes and Place are inextricably linked. Critical Investigations follow Place, and are the 'Why'. Critical Investigations represent of problem based content and a critical approach. Learning Community is the 'Who' of the program, and typically addressed last. Direct experience is the method used to teach about these components.

Framework Structure

The framework consists of three parts:

- 1) A basic overview matrix of the key components with explanation
- 2) A 'How To' guidance document
- 3) An extended matrix with a breakdown of each key component

Simple visuals synthesize frameworks and display main ideas in a visually appealing, approachable manner. Figure 2 demonstrates an example of this. If a framework is to be truly useful, it needs to be communicable and approachable. The basic overview matrix shows the key components together in a single table. The key components are further broken down by the critical aspects of each component from an Experiential Environmental lens.

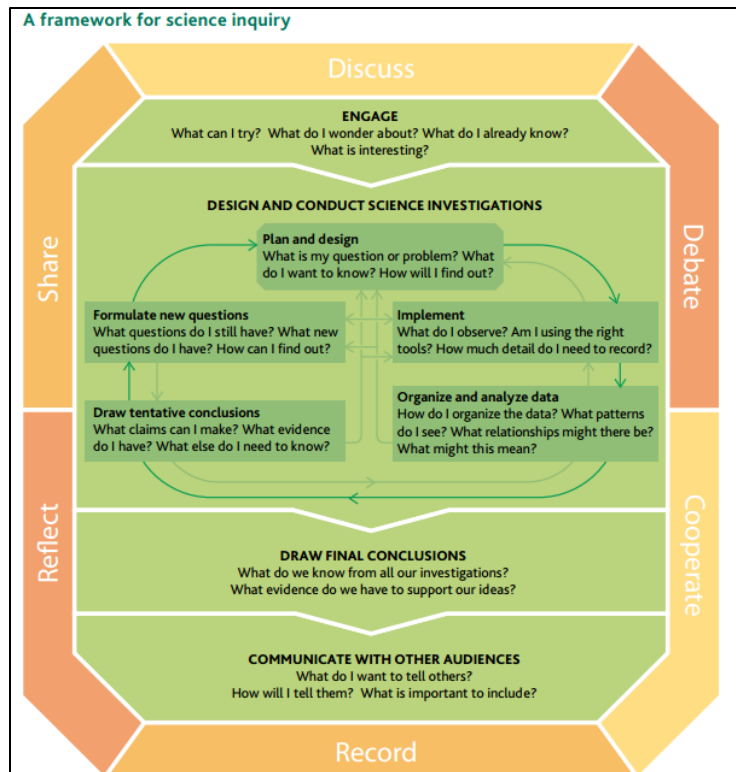


Figure 3. The Pollen Project’s Framework for Science Inquiry (2009)

The critical aspects are unique to each component. For example, the Place component is subdivided into “abiotic, biotic, and cultural”. This is based on the understanding that the landscape or place can be conceptualized in terms of those three aspects, and then woven back together into a more complete understanding of the landscape. This gets at environmental enduring understandings about the role of ecological systems that can be better understood through direct experience. The Purposeful Outcomes component exists to prompt practitioners to go through a backwards design process, with a focus on the desired outcomes of experiential environmental education: agency and environmental literacy. The Critical Investigations component addresses the learning process through exploration of real-world problems. The Learning Community Component consists of three parts: the whole group, the individual students, and the educators. Educators may include outside experts or guest speakers from the community. Experiential educators

acknowledge learning as an ongoing, participatory process, and as much a responsibility of the students as the instructors or guest speakers.

The Model: Putting the Framework to Use

I selected Ríos to Rivers, a conservation oriented river-running field program, to model the curriculum framework. The founder of Ríos to Rivers describes the program as environmental education. After an initial run in 2014, Ríos wanted to improve their programming through the use of a curriculum. I worked with Laurel Genzoli (Director of Student Programs) and Weston Boyles (Founder) to establish transfer goals based on the mission. Clarifying transfer goals is the first step of the UbD process. (See Figure 8, Chapter Five). Laurel and I had several meetings in person, in addition to electronic communications about Ríos to Rivers mission. We collaborated to translate the mission into educational transfer goals. Weston contributed to these conversations. Communicating his vision for Ríos to Rivers in to educational terms was a significant step. Weston's objective is to inspire the next generation of conservationists, specifically, watershed stewards. This is an important mission, but required refinement. We worked to clarify and prioritize the major understandings Laurel and Weston want their students to have about river systems, and human interactions with river systems. Ríos to Rivers aims to experientially illustrate these understandings, but because they are enduring understandings, they are applicable to situations beyond the Ríos to Rivers program.

The UbD process for Ríos to Rivers was incorporated in to the model curriculum framework in the Purposeful Outcomes template. With Purposeful Outcomes defined, I completed populating the subsequent key components with content specific to Ríos to Rivers. The Place component required background research on the Klamath Basin. I read peer reviewed articles on the Klamath Basin (Gosnell & Kelly, 2010; Poff et. al., 2003), and on integrating watershed management with learning (Hamann & Drossman, 2006; Stapp, 2000). Not all of the components could be completed

at the time of this writing, in particular the Learning Community component. This is because student selection will not be completed until May 2017. My hope is that the Ríos to Rivers model framework demonstrates the key components of Experiential Environmental education.

Discussion

The principles of experiential environmental education were used to inform the design of curriculum framework for field studies programs. This was a multi-step process that included a literature review, establishment of theoretical understandings, and utilizing educational planning. Selecting the key components of Experiential Environmental education took several attempts. Empirically, the utility of this framework is unknown. Using this framework is time consuming and requires some explanation. Specific challenges encountered during the modeling stage will be discussed in Chapter Five.

Chapter Four

The Curriculum Framework: A Planning Tool for Program Design

Field Studies Overview Template: Education via Environmental Experience

Field studies programs bring students outside, often to remote or wild natural areas. Students conduct interdisciplinary investigations into place-based, real-world problems. Conflicts are explored from multiple perspectives, and the interwoven nature of ecological systems, society, and the individual is revealed. Students collaborate on potential solutions and reflect on their own role in environmental decision making. As individuals, students participate in and take ownership of their own learning.

The following template is a planning tool for those looking to implement or improve a field studies program. The overview template provides a structure within which to organize a program. The structure, or framework, consists of four key components, framed by the method of direct experience. The components were derived from the principles and practices of experiential environmental education. Location is the central component. At times components overlap, or serve the same outcome as another component.

Following the overview template, there are extended templates for each key component. The extended template includes key aspects of each component, and probing questions. Lastly, each component includes example outcomes, arrived at through direct experience. The template is designed to be filled out during the planning process.

	Key Components	Essential Question and Definition
Direct Experience The modus operandi, the method	Place	<p><i>Where does the program take place? Which ecological communities characterize the place?</i></p> <ul style="list-style-type: none"> - <i>Study area boundaries: bioregion, geographic region, major watershed</i> - <i>Abiotic +Biotic+Cultural = Landscape</i> <p>Field study requires immersion in place. Location is a key component because it is the synthesis of direct experience and environment. Place is physically and socially constructed. Both realms should be explored, as while as the interactions. Location should illustrate conceptual understandings and trigger inquiry associated with critical investigations. Place provides the setting for the learning community, and is key to understanding the nature of our relationships with each other and the world (Gruenewald 2003).</p>
	Learning Community	<p><i>How will the learning community be characterized? What norms and routines will be established?</i></p> <ul style="list-style-type: none"> - <i>Student expectations/responsibilities</i> - <i>Instructor expectations/responsibilities</i> <p>Learning community is a key component because of experiential environmental education's emphasis on the learning process and personal growth. Learning is both a process and an outcome.</p>
	Critical Investigations	<p><i>What real-world conflicts will students be asked to explore/understand and assess?</i></p> <ul style="list-style-type: none"> - <i>Problem based content that illustrate enduring understands</i> - <i>How will preconceptions be challenged and the status quo be examined?</i> <p>Critical investigations are a key component because a critical approach is essential to experiential environmental education. A critical investigation is real world, solution oriented, and interdisciplinary. Complex, locally relevant problems are addressed. It is acknowledged that the problems may not have an easy answer</p>
	Purposeful Outcomes	<p><i>What question(s) will drive and frame student learning?</i></p> <ul style="list-style-type: none"> - <i>Open-ended questions associated with the central topic under investigation</i> - <i>Revisited throughout the course</i> <p><i>What are the central conceptual goals of the course?</i></p> <ul style="list-style-type: none"> - <i>Enduring understandings and/or big ideas</i> - <i>Concepts applicable across phenomena that can be built upon</i> <p>Purposeful outcomes are a key component because of the educational goals of experiential environmental education. Personal agency and environmental literacy are the main goals experiential environmental education, and therefore field study.</p>

Figure 4. Field Studies Overview Template

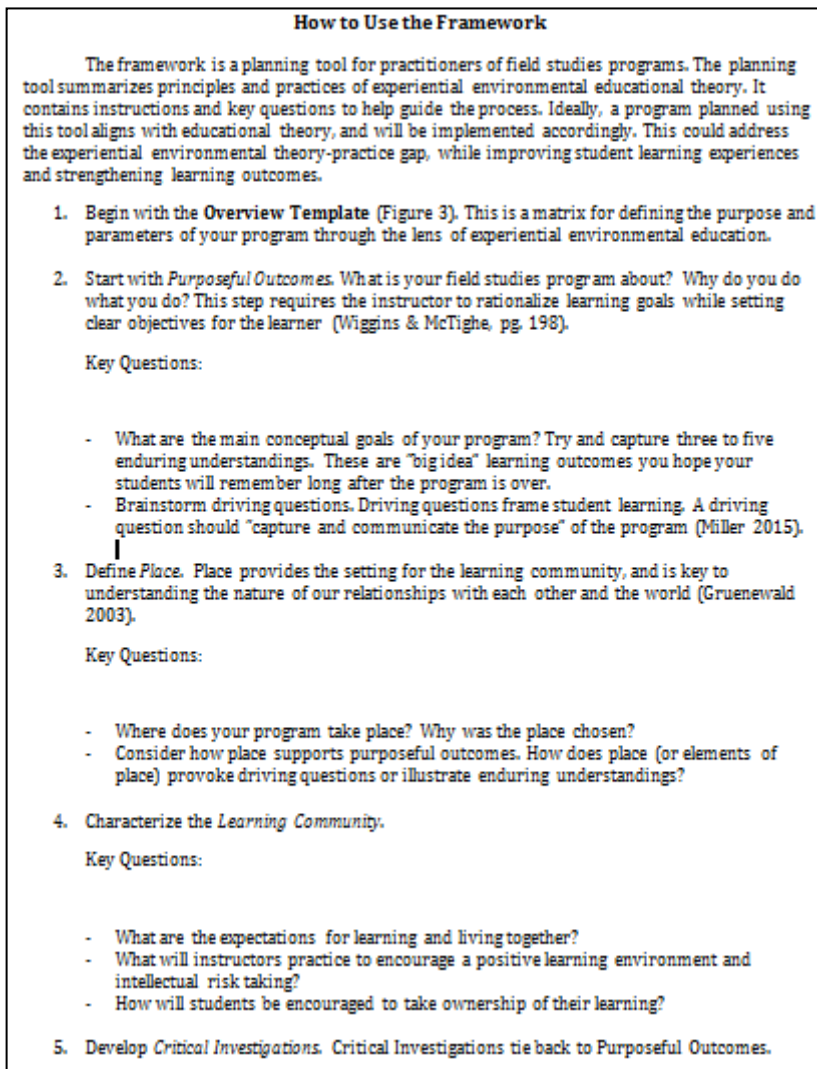


Figure 5. How To Document

The Overview Template is supported by a How To' document, as seen in Figure 4, and included in Appendix A. The How To document provides detailed steps for using the framework's Overview Template. This document exists to provide additional guidance for practioners.

Extended Templates

The 'Purposeful Outcomes' Template should be filled out first, and revisited at the end of the process. There may be overlap, which is to be expected with interdisciplinary programs. Beginning with Purposeful Outcomes reflects best practices from Understanding By Design.

Purposeful Outcomes		
<i>Personal agency and environmental literacy should be incorporated in to the learning goals of field studies program. This section encourages backwards design with those outcomes in mind.</i>		
Course Understandings	Course Essential Questions	Course Skills
Conceptual goals of the program (Distill it down to 3-5):	Open ended questions that trigger inquiry related to critical investigations and course understandings:	What should students know and be able to do by the end of the program?
Direct Experience		
<i>What hands on experiences will students undergo that illustrate essential questions and/or help them arrive at enduring understandings?</i>		
<i>What opportunities will students have to practice desired skills?</i>		
Students have the ability to become committed agents of change		
Students can challenge and change their life situation (address the role of privilege)		

Figure 6. Purposeful Outcomes Template

Place <i>Place is the classroom for field studies. What are the defining characteristics of the chosen classroom? What are the borders/boundaries of the study area? Why was the location chosen for the program?</i>		
Abiotic	Biotic	Cultural
Major rivers and streams: Climate: Mountain ranges:	Dominant species: - Organize taxonomically Habitat designation (sagebrush steppe, alpine, wetland...):	Land ownership and management (private/public/federal/tribal):
Driving Questions and Course Objectives about Place Met Through Direct Experiences		
<i>How will the students be immersed in place?</i> <i>How will students interpret place for themselves?</i> By the end of the program, students will be able to describe the interwoven nature of abiotic, biotic, and cultural features of the landscape.		

Figure 7 Place Template

Place plays a central role in field studies. Locations should be carefully considered, and students made aware of the impacts of their presence and appropriate behaviors, particularly if visiting sensitive areas or interacting with communities that require special considerations. Immersive field studies experiences often involve backcountry travel and wilderness skills. Consider methods of travel, as well as cumulative days spent front or backcountry camping.

Learning Community <i>Students, instructors, and guests are participants in a learning community. These constituents are described below.</i>		
Group	Student	Instructors/Guest educators
Number of students: Number of Instructors: Established norms +/- or routines:	Schooling level: Student learning needs: (dyslexia, etc?) Student fields of study/aspirations (what degrees are your students seeking? What careers are they interested in?): Student background: (What cultures are represented by your students?)	Instructor Expertise: Guest Lecturers: What stakeholder position do the guest speakers represent? Are there voices/perspectives missing/absent?
Driving Questions and Course Objectives about the Learning Community Met Through Direct Experiences		
<i>What type of community do we want to create?</i> <i>What traditions and routines do we want to be part of our group culture?</i> <i>Conceptions are shaped by the particular context and communities in which we live</i> <i>Self-awareness is crucial to intercultural learning</i>		

Figure 8. Learning Community Template

Critical Investigations		
<i>A critical approach looks to unpack a problem, understand multiple perspectives, and question current understandings. Complexity and uncertainty are embraced.</i>		
Real world Problems	Solution Oriented	Interdisciplinary
Central Conflict Under Investigation: Root or underlying causes/driving forces of conflict: Stakeholders: <ul style="list-style-type: none"> - Interests - Positions Power holders/power structure:	Are existent solutions proposed to the real-world problem?	What topics or themes compose the problem?
Driving Questions and Course Objectives Met Through Direct Experience		
<i>Will students have opportunities to interact with stakeholders? Will all perspectives be represented?</i> <i>How do we know which [perspective] is right and does it even matter? Are there connections between the two? Is it possible to believe both things at the same time?</i> <i>What materials will be provided to students about the conflict? (Peer-reviewed articles, media, etc)</i> It is impossible to solve a problem without first analyzing and understanding the nature of it Through critical reflection and analysis of problem based content, students can become empowered and develop skills they need in order to take action that makes a difference in the world.		

Figure 9. Critical Investigations Template

Conclusions

The templates exist to support the planning stages of field study program development. The framework is an organizational tool designed to promote curriculum development through the lens of Experiential Environmental education. An intentional planning process is critical for legitimate educational experiences. Educators choose and craft experiences, then are participants in those experiences.

As with all frameworks, the templates are not prescriptive. This tool is designed to provide guidance for the planning stage. Field studies courses have varying emphases, and the templates

work for a variety of specific contexts. One program might dedicate 50% to critical investigations, 25% to learning community, and 25% to place. Another might dedicate 35% to place, 35% to critical investigations, and 35% to learning community. However, every program must include purposeful outcomes to be considered truly educational. To be exemplary, and reflective of Experiential Environmental education, a program will include each key component with a detailed plan for the related direct experiences. Chapter Five will model the curriculum framework with Ríos to Rivers, a youth river exchange program.

Chapter Five

Modeling the Framework

Laurel's vision is becoming a reality. In collaboration with Ríos to Rivers, plans are in motion to bring a group of students from Chilean Patagonia to the Klamath Basin. Ríos to Rivers mission is

... to inspire the protection of rivers through river-running, hands-on education, and the support of outdoor programs. With a focus on education and cultural exchange, we aim to give students the information and tools they need to form their own conclusions and become knowledgeable spokespeople for the world's rivers and the people who depend on them.

The challenge ahead is for Ríos to Rivers to fully implement their educational mission. A tool to help the program do so is the curriculum framework for field studies. Planning for Ríos to Rivers will provide a model of the framework. The templates outlined in Chapter Four are now populated with Ríos to Rivers specific information. The Purposeful Outcomes template was completed first, as a collaborative backwards design effort between Laurel and myself. What follows is a general explanation of the Ríos to Rivers program, and then the model curriculum templates filled out to represent Ríos to Rivers goals and format.

Program Overview

Ríos to Rivers participants will engage in two separate three week immersion experiences. First, Chilean students will visit the Klamath students in their home watershed (July 2017). Six months later, the Klamath students will visit the Chilean students in their home watershed (February 2018). This template addresses the first exchange, located in the Klamath Basin.

Participants camp out for the entirety of the program, often in remote or wilderness areas. Students will experience the Klamath River via kayak, spending consecutive days on the water. During the course, local land managers, watershed council representatives, and Klamath community members will interact with students and share their perspectives on the region. These experiences will be deliberately chosen and coordinated by Ríos staff, who represent a variety of expertise. Weston Boyles, a filmmaker conservationist, is the founder, Laurel Genzoli is a river ecologist, and I am an experiential educator. Jorge Molina and Consuelo Manke are Chilean outdoor educators who have been working with the Chilean youth for an extended period prior to the program. Ríos to Rivers driving question for students is: *Why are some rivers subject to dam removal, while other rivers are subject to new infrastructure projects?* Group debriefs and time set aside for personal written reflection in journals provided is incorporated in to the course. Students are expected to complete a cumulative media project reflective of some aspect of their Klamath investigations as an assessment of their learning.

The Model

The model is a work in progress, and challenges are embedded throughout. It is important to acknowledge that field studies programs are dynamic in nature, and in spite of the importance of planning, time in the field often results in spontaneous learning opportunities, which include unexpected obstacles or encounters.

Purposeful Outcomes

Transfer Goals:

Think critically about and articulate complex environmental problems while acting as stewards of their environment

Explore and investigate the economic and affective (social/emotional) values placed on watersheds through first-hand experience running rivers and interacting with stake-holders.

Bring a global perspective to an increasingly cross-border environmental problem by facilitating an exchange between two communities experiencing complex watershed management issues, encourage dialogue and innovation, and determine where we go in the future.

Understandings	Skills and Knowledge Objectives		Assessments
<p>Effective environmental stewardship requires collaboration, critical thinking, and persistence. Individuals and communities are able to have a voice in determining environmental decision making.</p> <p>Rivers are a critical resource, to humans and to ecosystem function. Due to the multitude of values and uses placed upon rivers, they are often contested and subject to infrastructure.</p> <p>Opportunities exist to learn from the impacts of previous environmental decision making. Through immersive experience and community exchange, individuals and communities are better able to understand the history of ecological impacts and make more informed decisions about the future.</p>	<p>Different leadership styles and methods of taking effective action exist</p> <p>Historically and currently, certain voices have been ignored or excluded from environmental decision making.</p> <p>The fundamentals of river ecology (abiotic and biotic ecosystem interactions)</p> <p>The ecological effects of dams on watersheds (salmon run, flow regimes, temperature/sediment)</p> <p>Every river and every watershed is unique, but have shared characteristics and functions</p> <p>The socioeconomic impacts of dams on watersheds</p> <p>The socioecological conflicts of the Klamath Basin and the Aysen region</p>	<p>Recognizing varying leadership styles and practicing methods of effective method</p> <p>Investigating stakeholder perspectives and seeking out diverse opinions</p> <p>Describing how rivers function</p> <p>Identifying the ecological impacts of dams on river function</p> <p>Relating and evaluating unique and shared characteristics of the Klamath Basin and Aysen Region</p> <p>Critiquing and analyzing cultural and economic impacts of dams</p> <p>Comparing and contrasting socioecological systems</p>	<p>Student Journal</p> <p>Students will keep a journal over the course of the exchange. It will include, but is not limited to, observations, reflections, questions, data, and sketches. The journal will serve as an artifact of their learning, and support their final product.</p> <p>Celebration of Learning/Final Product</p> <p>Students will create a final product that synthesizes their learning during the exchange. This has a creative element, and may take on a variety of forms. This may be a media piece (radio segment/podcast, film, photojournalism, expository) or an artistic product. Students may have the opportunity to receive guidance and/or input from a professional.</p> <p>Meaningful work will include personal reflections, potential solutions to identified problems, and an awareness/attention to stated knowledge objectives.</p> <p>Ideally, students will be able to communicate their own role in any solution proposed. Students may wish to extend and share their final product with their school and/or community of origin.</p>
Direct Experience			

Figure 10. Purposeful Outcomes Template Rios to Rivers

Place		
<p><i>Study Area</i> : Lower Klamath Basin</p> <p>The Klamath watershed is defined by the Klamath River, flowing through southern Oregon and northern California. The Klamath Watershed is divided into Upper and Lower Basins, which have significant ecological and management differences. The majority of the program takes place in the Lower Basin.</p>		
Abiotic	Biotic	Cultural
<p><i>Major rivers:</i> Main stem of the Klamath River</p> <p>Major subwatershed: Trinity River</p> <p><i>Climate:</i></p> <p>Temperate rainforest (Lower Basin)</p> <p><i>Mountain ranges:</i></p> <p>Cascades to the West, Basin and Range to the East</p>	<p><i>Dominant habitats:</i></p> <p>Freshwater ecosystems: Low elevation marshes, Lotic environments (rivers and streams)</p> <p><i>Critical species:</i></p> <p>Chinook salmon and other anadromous fish</p> <p>Migrating waterfowl: Grebes, ducks, geese, cranes</p> <p><i>Endangered species:</i></p> <p>Lost river sucker fish, short nose sucker fish</p>	<p><i>Land ownership and management:</i></p> <p>6.2 million acres of public land (BLM, National Forest, NWR, and NPS): Klamath National Forest, Lava Beds National Monument, Klamath Basin NWR Complex</p> <p>3.7million acres of private land</p> <p>308 acres of Tribal land: Klamath Indian Reservation (Hoopa, Kurok, and Yurok)</p> <p>Klamath River has <i>Wild and Scenic</i> designation from mouth to Iron Gate dam</p> <p><i>Land/water use patterns:</i></p> <p>Agriculture (primarily Upper Basin), Recreation (primarily Lower Basin), Fishing</p>
<p>Driving Questions and Course Objectives Met Through Direct Experience:</p> <p>Kayaking and rafting different reaches of the Klamath River: multi-day paddles interspersed with stakeholder meetings</p>		

Figure 11. Place Template, Ríos to Rivers

Currently, there is not enough information to complete the 'Learning Community' template for Ríos to Rivers. This may happen for other programs, especially in regard to enrollment logistics, hiring, and scheduling guest speakers. However, learning community driving questions and objectives can still be considered.

Learning Community		
Students, instructors, and guests are participants in a learning community. There are important considerations for this component due to the exchange program format of this program.		
Group	Student	Instructors/Guest educators
Number of students: Eight Chilean Students, Eight American students Number of Staff: Six Established norms +/- or routines: <i>Students will be skilled at...</i> <ul style="list-style-type: none"> - participating in group routines and tasks - demonstrating an awareness of group dynamics and successful expedition behavior - showing curiosity for and positively engaging with people and place 	Schooling level/age range: 17-20 yrs old Student learning needs: (dyslexia, etc?) TBD Student fields of study/aspirations (what degrees are your students seeking? What careers are they interested in?): Student background: Klamath tribal members Rural Chilean youth	Guest lecturers: Klamath Watershed Council Hoopa Tribal Members What stakeholder position do the guest speakers represent? Are there voices/perspectives missing/absent?
Driving Questions and Course Objectives Met Through Direct Experience: Early establishment of group culture Strategies to address language differences		

Figure 12. Learning Community Template, Ríos to Rivers

An emphasis of the Klamath Exchange is environmental activism, particularly in regard to watershed health and the impacts of dams. Through the Klamath Basin as a case study, students will be exposed to the current impacts of historical management decisions, how the human communities dependant on the river negotiate, and in particular, how the salmon population has fared.

Critical Investigations		
<i>A critical approach looks to unpack a problem, understand multiple perspectives, and question current understandings.</i>		
The Klamath Basin conflict illustrates water conflicts that plague the Western US.		
Real World Problems	Solution Oriented	Interdisciplinary
<p>Conflicts: “The Klamath has been ground zero for conflicts between the Endangered Species Act (ESA), Indian water rights, commercial ocean fishing, and irrigated agriculture for decades” (Gosnell & Kelly, 2010)</p> <p>Stakeholders</p> <ul style="list-style-type: none"> - Tribes: Hoopa, Yurok, Karuk - States: Oregon and Washington local and regional governments - Industry: PacifiCorp - Farmers and Ranchers - Scientists - Government agencies: Oregon Water Resources Department 	<p>Collaborative answers:</p>	<p>Topics addressed:</p> <ul style="list-style-type: none"> River ecology Watershed restoration Wildlife Resource Management Environmental Justice
Driving Questions and Course Objectives Met Through Direct Experience:		

Figure 13. Critical Investigations Template, Ríos to Rivers

Discussion

Research Questions Revisited:

1. How can the intersections of environmental and experiential educational theories be combined into a singular theory of experiential environmental education?

2. How can environmental and experiential educational theories be used to inform the design of a curriculum framework for field studies programs?

Purpose and practices identified in the literature support a unified theory of experiential environmental education. From convergent purpose and practices, key components of experiential environmental education were identified and used to inform a curriculum framework for field studies. The framework was developed using backwards design. The utility of the framework was modeled with a developing field studies program, Ríos to Rivers.

The curriculum framework lacks specific learning plan suggestions that could be modified to a variety of environments. An addition to the framework might include readings, prompts, and meaningful activities connected to each key component. This could further address the gap between theory and practice.

Future Research and Recommendations

The true utility of this framework is unknown. A potential assessment would be a comparison between a course that operates without the benefit of a curriculum framework, and then evaluating the same course (preferably with the same instructors) that has been redeveloped using the framework. This would require an empirical assessment method.

A current critique in the literature is examining the nature of direct experience, and how this might be manipulated or influenced by educators running “experiential” programs. Phenomenology, studying the nature of experience, is its own complex field. Interviews with practitioners could have benefited this research. I did not survey staff of currently operational field studies programs. Their outlook and expertise could have benefitted the framework. A review of course syllabi combined with student reflections may have garnered some insight into the effectiveness of these programs. This could be framed in terms of ecological literacy and student transference of learning to their current lives. A synthesis and review of student reflection, with an

evaluation metric, is a potential method. A possible extension of this work is an assessment of the exchange set to take place in July 2017

Conclusions

Field studies programs consist of five key components: purposeful outcomes, learning community, place, and critical investigations, framed by the method of direct experience. These key components reflect the theoretical intersections of experiential and environmental education. Field studies programs offer an opportunity to close the “rhetoric-reality gap” (Stevenson, 2007) that exists between Experiential Environmental education theory and practice. It is the intention that this framework will help bridge the gap. The application of this framework to Ríos to Rivers will be a test of its usability.

Field studies programs provide opportunity to influence student’s environmental understandings, and to offer students tools to increase their own agency in natural resource decision making. If this potential is realized, then the purpose of Experiential Environmental education is fulfilled. Programs designed intentionally, with the practices and goals of Experiential Environmental education written in to the structure, may have an even better chance of achieving that purpose. However, further research is needed to measure the efficacy of field studies programs on pro-environmental behavior. With a focus on the local “field”, acting on ecological knowledge may have the potential to result in positive environmental change.

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Appendix A

How to Use the Framework

The framework is a planning tool for practitioners of field studies programs. The planning tool summarizes principles and practices of experiential environmental educational theory. It contains instructions and key questions to help guide the process. Ideally, a program planned using this tool aligns with educational theory, and will be implemented accordingly. This could address the experiential environmental theory-practice gap, while improving student learning experiences and strengthening learning outcomes.

1. Begin with the **Overview Template** (Figure 3). This is a matrix for defining the purpose and parameters of your program through the lens of experiential environmental education.
2. Start with *Purposeful Outcomes*. What is your field studies program about? Why do you do what you do? This step requires the instructor to rationalize learning goals while setting clear objectives for the learner (Wiggins & McTighe, pg. 198).

Key Questions:

- What are the main conceptual goals of your program? Try and capture three to five enduring understandings. These are “big idea” learning outcomes you hope your students will remember long after the program is over.
- Brainstorm driving questions. Driving questions frame student learning. A driving question should “capture and communicate the purpose” of the program (Miller 2015).

3. Define *Place*. Place provides the setting for the learning community, and is key to understanding the nature of our relationships with each other and the world (Gruenewald 2003).

Key Questions:

- Where does your program take place? Why was the place chosen?
- Consider how place supports purposeful outcomes. How does place (or elements of place) provoke driving questions or illustrate enduring understandings?

4. Characterize the *Learning Community*.

Key Questions:

- What are the expectations for learning and living together?
- What will instructors practice to encourage a positive learning environment and intellectual risk taking?
- How will students be encouraged to take ownership of their learning?

5. Develop *Critical Investigations*. Critical Investigations tie back to Purposeful Outcomes.

Key Questions:

- What opportunities will students have to question content and reflect on their experience?
- How will students explore place, with their learning community, in order to arrive at purposeful outcomes?

After these steps, the extended templates are available to refine each component.

