EVOLVING EDUCATION IN THE ENVIRONMENT; REFLECTING ON BENEFITS OF FACILITATING FIELD TRIPS FOR ENVIRONMENTAL STUDIES FACULTY AT TESC

by

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ABSTRACT

Evolving education in the environment; reflecting on benefits of facilitating field trips for environmental studies faculty at TESC

Kennedy Krossen

As widespread environmental degradation and global climate change stresses our shared environment, it is critical that institutes of higher education around the world engage society to safeguard environmental protection and human well-being. How can these institutions partner with societal groups affected by environmental issues while also ensuring students learn practical skills for future careers? Field trips provide an opportunity to do both; along with another key benefit, that of faculty learning. Academic studies focusing on pedagogy within the fields of Geography, Ecology, Engineering, and other environmentally relevant disciplines consistently report increases in both standardized test scores and qualitative learning objectives as a result of field trips (Charles-Edwards, Bell and Corcoran 2014; Collinsfree 2014; Jacobson, Seavey and Mueller 2016; Lei 2010; Stumpf, Douglass, and Dorn 2008). Yet I have found minimal research examining the experience of leading these field trips for faculty.

Using a grounded theory research design, I interviewed nine professors at The Evergreen State College regarding their experiences leading Environmental Studies field trips with various social partnerships. These interviews and relevant portions of documents concerning The Evergreen State College history and pedagogy were then transcribed.

Field trips within environmental studies programs help students and faculty actively engage with stakeholders of a given environmental issue. These educational outings also provide opportunities for active co-learning between and among students, faculty, and societal partners. The benefits of Field trips within the Environmental Studies planning unit embodies the core themes of The Evergreen State College. Ultimately, the theory that was grounded in my data was that field trips within the Environmental Studies program at Evergreen offer a learning process that helps faculty become more engaging and effective educators.

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Introduction

Studies within Geography, Ecology, Engineering, Anthropology and other disciplines consistently show value both in standardized test scores and qualitative learning objectives resulting from higher education field trips not shown within classroom education alone (Charles-Edwards, Bell and Corcoran 2014; Jacobson, Seavey and Mueller 2016; Lei 2010a-b; Stumpf, Douglass, and Dorn 2008; Collinsfree 2014). Field trips challenge students to contextualize their abstract knowledge based on well-designed educational material. These valuable learning experiences were only possible with substantial effort and planning by the faculty leading the field trips.

Though many studies exist about field trips within higher education, however, after a considerable search of relevant academic literature I have found very little information about the effect these experiences have on the faculty themselves, those leading, organizing or facilitating these trips. The question remains, why would a faculty take on the extra logistics, work and liability to incorporate field trips in their courses (not just once but in the case of the senior faculty hundreds of times over the span of their career)? More specifically: What benefits do faculty derive from leading field trips at The Evergreen State College (TESC)?

TESC has a unique pedagogy that focuses on experiential learning; a key feature to this learning strategy is the use of field trips. In the near fifty-year history of TESC, an average of one third of the classes within the Environmental Studies curriculum included a field trip component, resulting in thousands of field trips. This institutional knowledge is a valuable source of data about the educational use of field trips, since many faculty members have led multiple field trips over years of teaching.

Field trips represent a critical hands-on learning experience that can give rich context to environmental issues. Field trips often incorporate a service component benefiting the community directly. On these trips, relationships for learning are fostered, and students can be transformed by these experiences. By pursuing effective education on environmental issues grounded in experience, educators foster real world connections with conservation, restoration, and community health. This thesis research shows that it is not just the students who benefit and learn from field trips in higher education, but also the faculty leading these trips who increase their knowledge base and understanding of the world around them.

Literature Review

Field trips have long been a valuable teaching tool in higher education, taking us to place-based experiences that explore more than just our theoretical understanding. In this section, I will explore and discuss the benefits of field trips in higher education, as well as the unique pedagogy of TESC. These will be discussed in more detail in the sections that follow. Field trips have an emergent quality; when students and faculty are cognitively, emotionally, and kinesthetically involved with what they are studying they gain a better awareness of place and the real-world realities of the natural and social environment (Algona & Simon, 2010). Field trips allow students and professors an informal environment in which learning occurs that give context to environmental studies (Foster, 1999). Studies within fields directly related to Environmental Studies such as Geography, Geology, Ecology, Engineering, and Anthropology consistently show value resulting from field trips, both in standardized test scores and qualitative learning

objectives (Charles-Edwards, et al. 2014; Jacobson et al. 2016; Lei 2010a-b; Stumpf et al. 2008; Collinsfree 2014). The Evergreen State College (TESC), and, in particular, the Environmental Studies planning unit, have a rich history of programs incorporating or even being built around one or many field trips. These trips could take an hour on campus, or take weeks to trek across the globe.

This literature review will be broken into two main sections:1. The Benefits of Field Trips in Higher Education.2. Historical & Current Pedagogy of TESC Which Emphasized Environmentally-themed Field Trips. In the first section I give some background about field trips in higher education as part of experiential learning and the specific benefits that are gained by students, in an attempt to explain why educators would take on this increased logistical work and liability. Next, I examine the particular benefits resulting from field trips within environmental studies (and related fields). I investigate the evidence that field trip leaders in higher education directly benefit from leading these trips. Finally, I explain the gap in that literature within which I situate my study. From my extensive search in relevant academic journals I have found very little information focusing on the benefits experienced by faculty leading environmental studies field trips; though many studies look at the effects of field trips on students learning, and leadership skills.

The second section sets the historical context in which early pedagogy at Evergreen developed and how this pedagogy has continued into the present. I argue that the unique pedagogy at TESC helped to develop and sustained Environmental Studies field trips as a core element of most past and current environmental studies programs. TESC has a long history of field trips, collaborative learning environment, and detailed

narrative evaluations of courses by students. It offers frequent learning opportunities for teaching faculty and I argue that leading field trips is one such opportunity. In the last section, I transition into a discussion on critical reflexivity, in which I discuss the methodology used in the study. I argue that my study topic is complimented by the use of Grounded theory methodology and what my philosophical stance is.

The Benefits of Field Trips in Higher Education

Field trips are often associated with fun times during elementary school, usually consisting of short walks through the local natural history or art museum, or attending a play at the local theater. However, in many higher educational disciplines, field trips become valuable educational tools. Academic literature concerning the use field trips within higher education often include information about experiential education. I will begin by giving some brief background information about experiential education, and how field trips fit within this educational style.

Field Trips in Higher Education as Part of Experiential Learning

Experiential learning is a basic component of how humans learn about the world around us, we experience events then create heuristics based on our experiences. As an educational philosophy, Experiential Education owes it modern roots to John Dewey. Dewey asserted that we make meaning, and learn from events, through the combination of experiences and reflections on these experiences (Dewey,2009). This kind of experience-based learning was then expounded in 1975 by Kola and Fry. In their 1975

"Towards an Applied Theory of Experiential Learning," Kolb and Fry explored concrete issues related to the learner and the learning context. They theorized that knowledge developed through the grasping and transformation of an experience (1975). This learning style emphasizes that experiences are not always educational or meaningful, but rather that it is through a person's reflection and elaboration on their experiences that they gain knowledge and meaning; meaning is socially constructed and can be shared and reflected upon after the experience. In 1984 Kolb proposed that experience is the source of learning and thus educational development.(1984)

Kolb also believed learning from experience occurs in a cycle. The cycle has four phases, not necessarily ordered, and students can enter the learning cycle at any stage: (1) concrete experience, characterized by learning by encounter; (2) abstract conceptualization, or by learning by thinking; (3) reflective observation, characterized by learning by reflecting; and finally (4) active experimentation, also known as "learning by doing" (Kolb,1984). In my limited experience with field trips at evergreen I feel that my learning followed the phases. I learned directly by surveying vegetation with quadrats in Pack forest, representing active experimentation. I learned from various speakers on our trip from to the northern most point of the Olympic peninsula. Local tribal members from the Makah spoke of the toll that the forces of colonialization have taken on their traditional way of life and through abstract conceptualization I came to understand how these forces are still effecting these people. Reflecting on my experience taking an extended trip filming an environmental educational video I learned the amount of time and work that goes into producing educational videos about energy.

These four phases are well represented in most field trips. By studying information about the area or topic of the trip students are using abstract conceptualization. Being in the field gives concrete experience, and offers an opportunity for active experimentation, and most field trips studied in higher education incorporate some reflective observation during and after the trip.

Experiential learning focuses on relationships and emotional connections to content and the learning community (Goralnik et al., 2012). Studies involving emotional and cognitive learning suggest that the two are enmeshed elements of a single learning process (Goralnik et al., 2012; Zembylas,, 2007). By engaging students emotional, cognitive, and physical relationships with the area of study, experiential education creates a more holistic approach to learning than more conventional educational styles.

How Field Trips Benefit Environmental Studies and Related Fields

Experiential learning in higher education often takes the form of field trips, internships or service-learning opportunities. Field trips to natural settings have been shown to help students conceptualize human-environment relationship, important for shaping their beliefs and values; these direct experiences in nature have been shown to foster environmental awareness and care (Bogner, 2010). Erdogan et al.'s meta-analysis of 15 ecology research studies undertaking field trips from 2000-2011 in higher education in Turkey found that the selected studies benefitted students' knowledge, perception, and behaviors regarding the environment, as well as enhancing students understanding of natural sciences (Erdogan et al., 2012). Students increased their knowledge about the detrimental cost to the natural environment that humans pose (Jacbson et al., 2016) These

benefits are in keeping with the many studies reviewed in fields directly related to Environmental Studies. Studies in Geography, Geology, Ecology, Engineering, Anthropology, Sociology and many more disciplines consistently show value resulting from field trips in higher education both in standardized test scores, and qualitative learning objectives (Charles-Edwards et al., 2014; Jacobson et al., 2016; Lei, 2010a-b; Stumpf et al., 2008; Collinsfree, 2014).

Some examples are as follows. Stumpf et al. indicated field trips appear to be "effective methods for teaching students' basic knowledge about desert geomorphology in introductory physical geography classes, regardless of background and interest in outdoor activity" based on standardized pre and post tests conducted. They also "found that the passion and enthusiasm that instructors show in the subject matter instilled a deeper sense of physical geography operating at the field site." Colinsfree's study of the opinions of undergraduate engineering students towards a project based field trip experience describes some qualitative benefits achieved.

> Students compared the project favorably to their usual work due to its real-world content and the chance to think and express their opinions. They saw its potential to drive social change and wished for it to continue and expand for the benefit of all students. The researcher saw the contrast in behavior before and during the project, showing that students preferred out-of-class interaction to exclusive in-class study (Collinsfree, 2014).

Jacobson et al's study titled "Integrated science and art education for creative climate change Communication" reported,

> A comparison of the pre-post surveys demonstrated that after the field trip, descriptions of the causes and potential impacts of climate change in Florida became more detailed, with more correct components. Fewer misconceptions

about weather and climate were evident after the field trip. Improvement in mean scores in knowledge about the extent that climate change is viewed as controversial among climate scientists was statistically significant. (Among art class students, the pre-trip average was 3.55 and the post-trip average was 4.55 (paired t-test, $t = -.268$, $p < 0.05$). Among natural resources class students, the pre-trip average was 4.4, and the post-trip average was 5.22 (paired t-test, $t = -3.50$, $p < 0.05$).) Based on the pre-post surveys, students in both classes provided a greater number of and more diverse ideas for images and illustrations to communicate about climate change after the field trip (Jacobson et al., 2016).

Benefits of Leading Field Trips in Higher Education

Field trips as educational opportunities have been a part of ecological studies and the earth-science curriculum, especially at the post-secondary school level, since the University of California at Berkeley first introduced them as a requirement for a degree in 1890 (Manner, 1995). Much has been written about the effect of field trips on students' learning, but very little has been written about the benefits of field trips for teachers/faculty. "Taking students on field studies is based on the premise that both students and teachers benefit from such activities." (1995) Good faculty are always looking for ways to expand their students' horizons as well as improve upon their own teaching skills; field trips provide an opportunity to do both. Being well prepared for a field trip makes the field experience an enjoyable, meaningful one for both faculty and students.

Faculty can use field trips to hone their preparation skills. Planning a new field trip begins with decisions made to link the classroom learning objectives to the field experience to enable both the students and the teacher to derive maximum benefit from the experience. Advanced preparation is the key here, and it involves reviewing available information, setting identifiable goals and logical structures, visiting the site prior to the trip—integrating the trip into the class with a sense of purpose. (Manner, 1995) The

number of field trips TESC's Environmental Studies program takes requires the faculty to acquire preparation skills quickly, resulting in a more confident, attentive staff. "The building of better human relationships between students and between students and teachers, and improvements of self-concept are additional benefits of field studies." (Manner, 1995) Even at the university level, there have been significant increases in self-concept, resulting from environmental investigation of field studies. (Hamm, R.W., 1985).

A sense of cooperative learning develops as students work together in any activity-based program of which field study is a component. Students learn to explain things in ways that make them more understandable to fellow students. In addition, students may find it less threatening to present ideas as a peer group rather than as an individual. (Smith, 1993.) A student who finds a particular subject difficult may prefer this method as well, many of these students may not feel as confident, and like the security, and reinforcement that a supportive group provides. Observing students in an informal cooperative learning situation also allows the faculty to evaluate the different learning styles of each student. This helps faculty determine the best method to deliver material to each individual student or group of students.

Field trips often promote bonding. Putting students and faculty together in unique, unfamiliar situations creates opportunities for bonding and team work to occur. I experienced this kind of team-bonding outcome when in 2016 I was included in a group of four environmental studies students and one faculty from TESC that collaborated on an educational video about energy production. We produced hours and hours of video together, working collaboratively on editing and scouting locations for filming. At the

end of this extended field based class we were all good friends and could anticipate what each individual's strong suits were, and who to assign what parts of the project.

Being in an informal learning environment also allows students and faculty to relate to each other in ways different than in a classroom. Faculty are no longer standing in the power position at the front of the classroom. Traditional student/teacher roles begin to break down when everyone needs to pitch in to achieve a desired outcome or perhaps when everyone gets drenched in a unexpected downpour. Faculty may begin to see the student in a new light as new abilities are discovered. Communication skills can be improved by both faculty and students, skills that can carry over to the classroom setting. Students may now feel more at ease to ask questions, or to ask for help, after interacting with faculty in an informal setting. According to Manner, field trips also provide "teachable moments... A teachable moment enables the teacher to explain a single concept of interrelated concepts in the outdoor situation. These 'teachable moment' are also useful in dispelling preconceived notions of students." (Manner,1995, p43)

During field trips, younger members of the faculty can observe and learn from more experienced faculty members, benefiting both. The team teaching approach that TESC offers is an excellent example of how first or second year faculty members can develop their leadership skills, while having a senior member close by to assist if any questions or problems may occur. This can result in a more relaxed, secure situation for all. Faculty members feel a sense of accomplishment and confidence after leading a successful field trip, further enhancing their leadership qualities.

Finally, most teachers/ faculty from kindergarten through college level aspire to ‘make a difference’ in a student's life and, as I have discussed earlier in this thesis, field trips allow instructors to do just that, by providing opportunities to enrich lives, spark interest, become better citizens, expand horizons, and even expose students to possible future careers, this provides the educator an intrinsic reward.

History of Evergreen

The 1960's were a decade that changed our nation in many ways: people began to question class values, protests for social rights burst out as the nation seemed to wake up and demand change. Activists protested against war and for peace, women's rights, and racial justice. The country seemed to try to begin to right itself when the 1964 Civil Rights Act ostensibly guaranteed equal rights for all at least on paper. Demanding quick changes, some young people often supported the violent call for justice, even as other young adults turned to pacifism, becoming hippies, flower children, and responded with "sit-ins". During this time, a reform movement in education was also stirring teachers were encouraged to be creative, and experiment with new and innovative curriculums like ‘new math, new science, even new music’ this was a time of theoretical upheaval changing of the bases in math from 10, introducing a generation of high schoolers to symbolic logic and teaching new music theory (Tomson, 1967). During this time coordinated studies were burgeoning, experiments in team teaching at Berkeley and Santa Cruz California as well as the development of a little-known college in the woods of western Washington (Jones, 1981). The Evergreen State College was born.

The air was ripe for the acceptance of educational change. In 1967, the Washington state legislature set up a new four- year college. Olympia was chosen as the

site. It was originally set up by Temporary Advisory Council of Public Education (TACPHE) in 1967, as an answer to the desperate need to accommodate the (projected) 10,000 new college students by 1975.

Believe it or not, the college was not originally mandated to be innovative. Neither TACPE or the legislature was specific about the curriculum to be developed, other than in the identifying degrees to be authorized. (The Evergreen State College Newsletter April 25, 1986) “The college was indeed born out of demographic and geographic considerations." The innovate approach was traced to two key factors: a report by a consulting firm, Arthur D Little, "who proposed the new college give a greater role in planning to the educators... and academic offerings be organized along problem lines and taught in an interdisciplinary context," and John McCann the President of the new college, along with his planning faculty who included Mervyn Cadwallader, one of the three founding deans. (The Evergreen State College Newsletter April 25, 1986)

President McCann encouraged innovation. Cadwallader had freshly arrived from San Jose State College where he implemented an experimental program there based on *The Experiment at Berkeley* which had taken place at the University of California at Berkeley from 1965 to 1969 under the auspices of Joseph Tussman. Cadwallader also was a disciple of Alexander Meiklejohn, the author of " The Liberal College," and a strong advocate of interdisciplinary liberal education.

Cadawaller suggested the planning faculty all read Tussman's book, (*Experiment at Berkeley* 1969) They did so, and "the rapid result was the structural, stylistic, delivery

features of the Meilkejohn-Tussman model were made the center of the Evergreen curriculum. Inter-disciplinary programs would predominate at Evergreen." (Jones, 1981). Evergreen's planning committee also decided against a letter grade system and instead used a system of portfolios and written evaluations for the students as well as the faculty, much like today. The Meiklejohn-Tussman pedagogy model remains in place today at TESC.

"Meiklejohn insisted from the beginning that his curriculum's rationale was the need for decision making citizens in a democracy to be educated enough to take advantage of their own individual freedoms -not just for their own individual sakes, but also for the sake of the society." (Jones, 1981) Parts of this seem to be similar to TESC's current mission statement today:

> As an innovative public liberal arts college, Evergreen emphasizes collaborative, interdisciplinary learning across significant differences. Our academic community engages students in defining and thinking critically about their learning. Evergreen supports and benefits from local and global commitment to social justice, diversity, environmental stewardship and service in the public interest.(Evergreen's current Mission Statement)

Evergreen's four core principles interdisciplinary studies, collaborative learning, learning across significant differences, student engagement and linking theory with practice--all relate back to the early days when the college's visionaries adopted The Meiklejohn-Tussman model. The team-taught interdisciplinary studies, learning communities rather than departments, narrative evaluations of student work instead of grades, no faculty rank or disciplinary departments all make Evergreen a unique learning environment for not only students but also for the faculty and adjunct teachers.

The Environmental Studies program at TESC, use field trips as learning opportunities. Field trips create a unique atmosphere and enable teachers to put the four core principles in practice. One example from my own experience, in 2016 I was included in a group of environmental studies students from TESC that collaborated on an educational video about energy production. This extended field trip enabled us to get involved with community stakeholders, those producing the energy and to see how this energy was produced. Learning takes place between all participants, teacher-student, student-student, and student-teacher, many times as well. For this research however, the primary question concerning the academic system is not, "What is its effect upon the students?" But rather, "What is its effect upon our teachers? "If we can get them rightly placed in their relations to work, nothing in the world could prevail against them." (Meiklejohn, 1981)

Reflexivity statement

To study the effect that leading field tips had on faculty I chose to use the Constructivist Grounded Theory method to organize and analyze my data. In the following sections I will discuss the methods I used and define some key terms. Before these methods are discussed I will provide a reflexive statement. The reflexive statement is especially necessary when using grounded theory methods in order to shed light on my perspective and philosophical position that may shape my views as a researcher.

Reflexivity is a key tenant of research that probes a particular phenomenon and seeks to induce theoretical concepts from the data collected about it. By viewing the

research as constructed rather than discovered researchers are required to examine their conceptual predisposition or reflexivity. The constructivist approach to grounded theory dispels notions of a value-free neutral observer (Charmaz,, 2014). Personal philosophy of the researcher becomes a very important aspect of this type of research (especially for those conducting qualitative analysis). Our personal philosophy defines what we consider to be real and how we view legitimate knowledge about the world. Holding a bachelor's degree in philosophy, I have always found myself inexorably drawn to the study of this discipline, and how our situated-ness within a philosophical position leads us to various methodologies. In my undergraduate studies, I was influenced by constructivists and existential phenomenology along with the qualitative methods that these epistemological traditions developed. I was drawn in particular to the openness of these positions to help understand a phenomenon from various perspectives.

Phenomenological methods within qualitative research focus on the participant's experience, in order to obtain comprehensive accounts of those experiences. Phenomenology uses deep description focusing on meaning, and intention to be found in the lived experience (Mustakus, 1998). Phenomenological studies result in rich descriptions of lived experiences, serving to provide understanding but not a causal explanation of these experiences. For this research, I considered Phenomenology; however, I was not interested in what it is like (in rich detail) to plan, organize and facilitate a field trip at Evergreen within the Environmental Studies Planning unit. More than that, I wanted to know about a process of human action and interaction. Namely, I

wanted to know what benefits do Evergreen Environmental Studies faculty derive from facilitating field trips?

To answer this question, I turned to Constructivist Grounded Theory. Grounded theory is used to study empirical events experiences and pursue potential analytic ideas about them. Early Grounded theory studies emphasized causal relationships, however, now many scholars use grounded theory for interpretive understandings. Constructivist Grounded theory offers explicit guidelines and procedures that are also in line with my personal epistemological stance that subjectivity is inseparable from social existence (Charmaz, 2014).

Using Constructivist Grounded theory developed by Charmaz, I begin with the assumption that social reality varies person to person, that it is constructed, and process driven. Grounded theory methods serve as a way to learn about the socially constructed worlds we study and develop theories to understand them. As opposed to an objectivist approach to Grounded theory, Charmaz's constructivist approach emphasizes that the interaction between the researcher and participants in interviews cannot be neutral. It is through active engagements with interview questions that ideas are formed and discussed, constructing a mutual knowledge about the topic at hand. The researcher and the participants both participate in a process known as data generation (Mills, Bonner and Francis, 2006; Charmaz, 2014).

Methodology overview

Grounded theory begins with purposively (not randomly) sampled rich qualitative data usually in the form of intensive interviews. The methods help to: first break down the qualitative data into abstract codes, then to group these codes to common categories or code families linking commonalities within the groups. These code groups then build an abstract central theory grounded in the data that illuminates a process or phenomena under study (Charmaz, 2014). This methodological structure was eluded to in Glaser and Strouse's early sociological work (Glaser and Strouse, 1975), and has been substantially developed and refined with subsequent grounded theorists in wide ranging disciplines according to Grounded Theory a Practical Guide from Mills and Burks 2015. Today qualitative studies reporting Grounded theory methods are among the most numerous in qualitative academic journals (Mills and Burks, 2015). Some studies using Grounded theory methods fall short of creating a centralized theory that attempts to explain and or predict a phenomenon; however, even when this is the case Grounded theory can excel. The hallmark of Grounded Theory is the investigative process in which data is generated and collected by the researcher to form a theory that is abstracted from, or grounded in, the research itself. Grounded theory uses both inductive and deductive thinking, using strategies of data collecting and analysis to generate a theory that develops a phenomenon from the perspective and in the context of those who experience it (Birks and Mills 2015). Though it is difficult to draw common core codes from qualitative data coming from many sources, when successfully created from this core, a Grounded theory provides something powerful and directly applicable to the area under study.

My study utilized the main methodological tenets of Grounded theory: **simultaneous data collection and analysis, avoidance of pre-formulated hypothesis, systematic coding, constant comparison, theoretical sampling, and theoretical saturation (as developed and defined by Charmaz, 2014).**

Simultaneous data collection and analysis, grounded theory method allows for and promotes simultaneous data collection and analysis (Charmaz, 2014). This allows for the continual analysis to drive the collection of subsequent data. **Avoidance of pre-formulated hypothesis** requires extant concepts to earn their way into a grounded theory analysis by being evident in the data and not adopting them from the outset. **Systematic coding**, the process of labelling single lines of text, sentences or incidences within data with a short and descriptive name. During systematic coding the framework of analysis develops leading to theoretical coding, critical for identifying themes and subsequent theory development (Charmaz, 2014). **Constant comparison** involves making comparisons during each stage of the analysis, comparing codes with other emerging codes, as well as various data sets (often interview responses) with each other. **Theoretical sampling** which is employed as an analysis technique that guides data collection as the study progresses. The concepts and categories that have already emerged from initial interviews on a topic and will be explored in more detail with follow up interviews with the same or new participant. Finally, **theoretical saturation** reflects the point at which gathering more data on the topic under study reveals no new codes or insights about the emerging grounded theory (Charmaz, 2014).

> The logic of theoretical sampling distinguishes grounded theory from other types of qualitative inquiry. Theoretical sampling brings explicit systematic checks and refinements into your analysis. You conduct theoretical sampling by sampling to

> develop the properties of your categories until no new properties emerge. Thus, you saturate your categories with data and subsequently sort and/or diagram them to integrate your emerging theory. Conducting theoretical sampling can keep you from becoming stuck in unfocused analyses. (Charmaz, 2014)

I conducted nine Intensive interviews with participants, which provided the data for this study. Participants were selected based on their prior facilitation of field trips for Environmental Studies courses at TESC, in order to discover the benefits of field trips for faculty from the faculty standpoint. I provided participants with a list of seventeen questions designed to prompt a discussion concerning the role of field trips in Environmental Studies (included in appendix A.). Subsequent conversations loosely followed these questions, allowing ample time for insightful comments not directly related to the questions. These questions were then amended with more specific questions added for subsequent interviews with new participants. This process represents "theoretical sampling" the iterative process in Grounded theory whereby the analyst simultaneously collects codes and analyzes data to decide what data to collect next and where to find it.

Charmaz sees theoretical sampling as central to Grounded theory, and many qualitative researchers follow but may not explicitly define (2014). Theoretical sampling helps to raise the conceptual level of the categories thereby extending their reach. This means that sample based on the constant analysis focusing future research on categories that emerge from the data through analysis. As I developed and refined my codes and categories, I gained insights to the major categories in my analysis. By engaging in theoretical sampling, saturation, and sorting, I created robust categories and penetrating analysis that were constantly compared, refined and grounded in the data.

Interview questions were open ended and some were omitted if the participant covered the topic sufficiently while answering other questions. Interviews were audio recorded and later transcribed (word for word) serving as data. The data was coded using Nvivo qualitative data analysis software, with best practices adapted from *Grounded Theory: A Practical Guide* and *Charmaz's Book Constructing Grounded Theory* (Mills and Burks 2015)

After transcribing each interview, I coded responses using various levels of analysis. Grounded theory methods involve multiple conceptual levels of analysis initial, intermediate and advanced, each stage is marked by abstraction and the collapse of previous codes into a higher-level code to develop a more inclusive grounded theory (Charmaz, 2014). 'Memoing' drove all the stages of my qualitative study using grounded theory. Memos serve as unstructured notes about the process see figure 1 (Charmaz, 2014; Mills and Burk, 2015). Memos can cover any thought about the process, notes about critical reflexivity to the first drafts of the final grounded theory. I used memoing to create common code categories, collapsing those into core or axial codes that dominate the final results in this study.

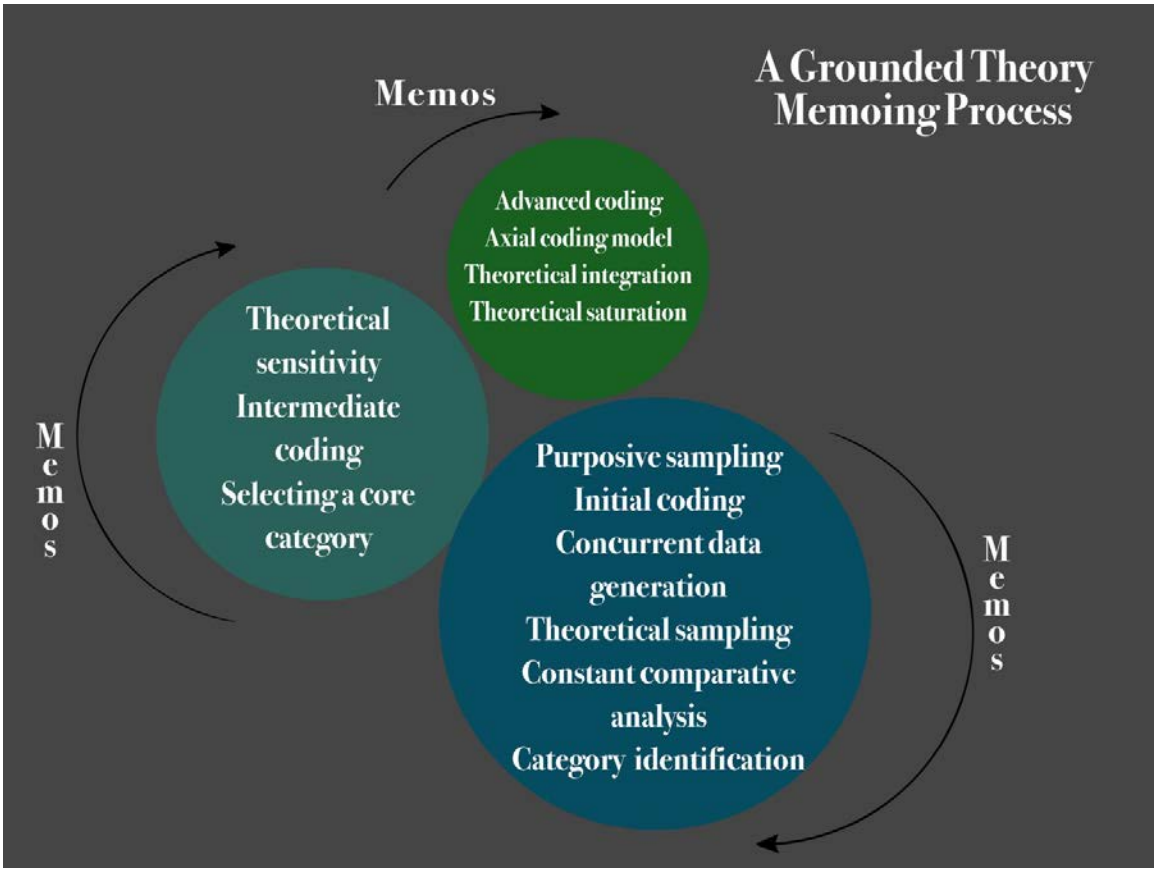

Figure 1 Memoing Drives the Grounded Theory Process

According to Charmaz "Axial coding is a type of coding that treats a category as an axis around which the analyst again into a coherent whole after the researcher has fractured them through line-by-line coding" (2014). Once initial and intermediate coding is completed, some grounded theorists suggest searching for theoretical codes existing in the literature. It is only at this fully developed stage (after the theory has been created and grounded in the qualitative data) that we can look for similarities between the emergent theory and existing theory.

As mentioned above, throughout the project, theoretical sampling continued as attention was given to the developing categories and deeper observations emerged about initial data. These observations were then factored in when gathering subsequent data. In keeping with theoretical sampling, I elaborated on my initial questions with subsequent interview participants. Also, to better understand some responses of the participants, I conducted addition archival research into the foundational philosophy and current pedagogy of TESC.

I continually looked-for data saturation of codes. Data saturation in Grounded theory occurs when analyzing new data that reveals codes which fit in already existing categories, and when these categories' properties and dimensions are sufficiently explained. The advanced codes represent codes that are theoretically saturated in other words they are codes that are constant throughout all interviews (See figure 2)

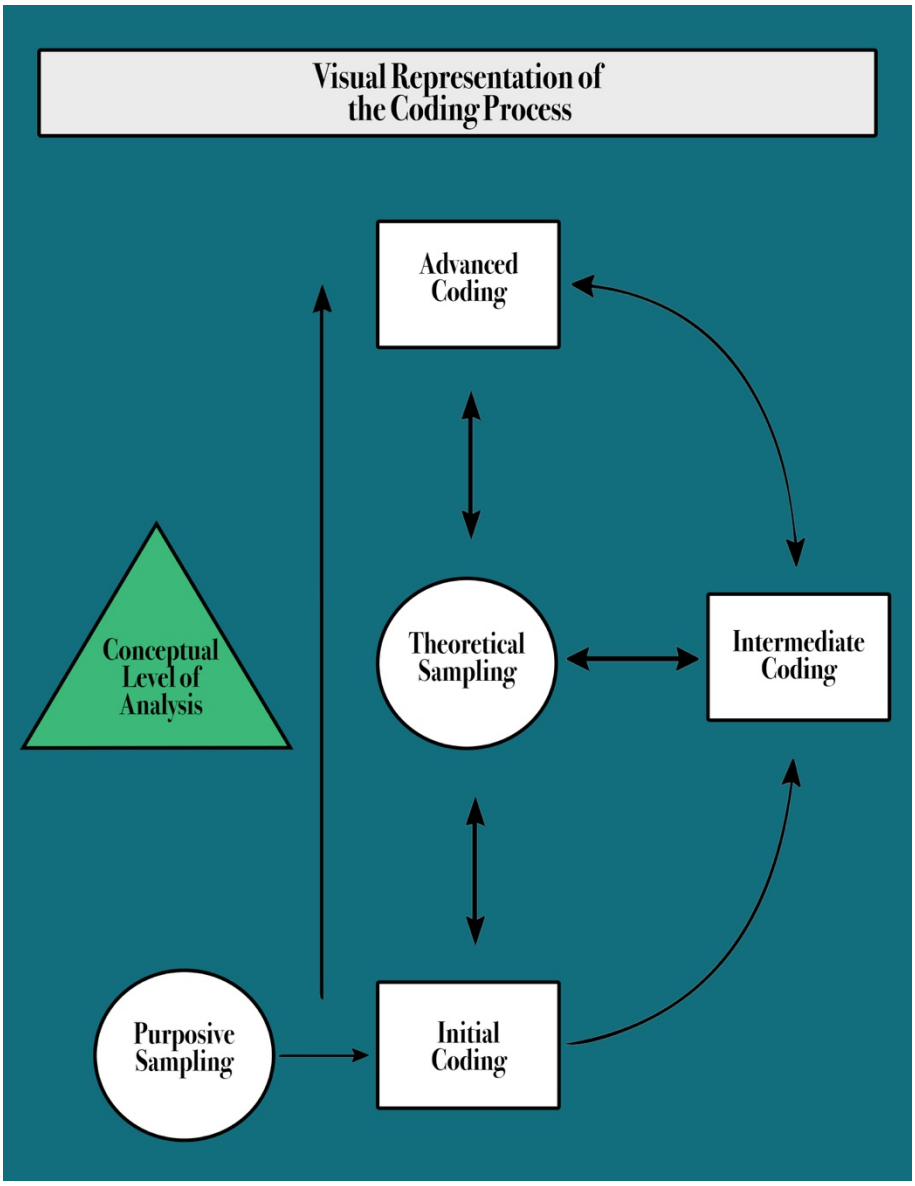

Figure 2 Visual Overview of Grounded Theory Process

Coding stages

In Grounded theory methodology, *initial* or open coding is the first stage of the coding process. In involves the several iterative coding processes, I began by reviewing the data line by line to develop a rich code book, then I consolidated and abstracted codes by reviewing the data looking incident by incident seeing what codes are redundant or not

pertinent (Charmaz, 2014). In this way, I identified key words or phrases, and labeled them for future analysis as codes. Below is an example of line by line coding I conducted.

	Codes:	Data:
2	the role of field trips	22:09.8 - 22:15.8 K: What educational role do field trips play within environmental studies in higher education?
3	Nature as natural parks	22:15.8 - 24:55.3 Going back to the ways in which we think about nature and natural parks in a more
4	Using students interest	complicated way. We can use these field trips where students enjoy these national parks and the hikes through the
5	Parks for who	wilderness, to also see that part of creating these spaces involves creating disenfranchised populations. Then what does
6	One stakeholder's desire is another's tragedy	it mean to see the ways in which one set of environmental desires are met by creating environmental tragedies for
7	Prioritizing certain stakeholders	another set of constituents. I feel that environmental studies in general tends to be very based on the priorities and
8	ES values a certain class/group	values of a certain group and class of people. Then to arrive at more diverse ways in which to understand what it means
9	Putting yourself in someone else's shoes	to be an environmental studies student is necessary, and we can only do this by putting yourself in situations that you
10	Stakeholders experience environment differently	are seeing how different people interact with or are affected by the environment.

Figure 3 Example of Line by Line Coding

Intermediate coding is the second major stage of data analysis in grounded theory methodology. This process maps the relationships between codes and helps uncover some cohesive themes in the qualitative data (Charmaz, 2014). In this stage I began linking, grouping and eliminating codes from the initial coding stage, eventually leading to axial codes. Consistent themes emerge from the various data sets under study and lead to more advanced coding procedures like Axial coding. In this stage codes that are relevant to the phenomena understudy are condensed and redundant codes are eliminated. Below is an example of some intermediate codes visualized to help draw out the relationship between codes.

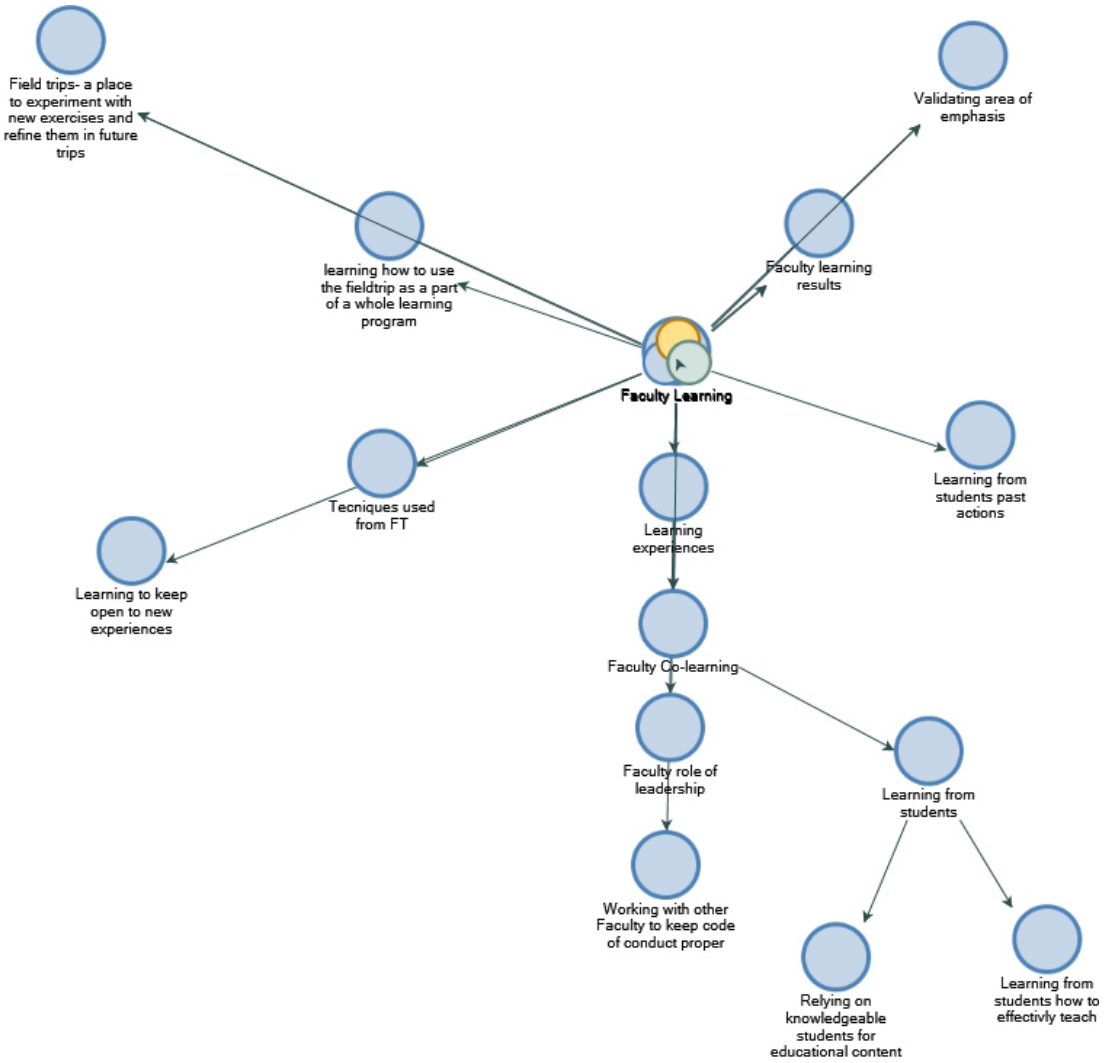

Figure 4 Visualized Intermediate Codes

Advanced coding furthers the analysis of relationships between codes and helps uncover a cohesive theory in the qualitative data. Axial codes join various codes into categories or themes to build a general framework that can help organize the results of the coding process. Though not necessary, Charmaz, 2014 states that "[r]esearchers who prefer to work with a preset structure will welcome having a frame." The frame developed by Strauss and Corbin applies a set of scientific terms to make connections between categories visible. Axial coding arranges the data in new ways by creating a

coding paradigm which (1) identifies a central phenomenon, (2) explores conditions that facilitate this phenomenon, (3) identifies the context this phenomenon occurs, (4) Specifies strategies involved in the central phenomenon, and (5) delineates the consequences resulting from the phenomenon. In my study to organize I first used the axial codes to structure the intermediate codes relating to faculty's opinions about field trips in Environmental studies. Next, I used the coding category of 'faculty learning' as the basis of another axial coding process to dive deeper into the phenomena of faculty learning on these field trips.

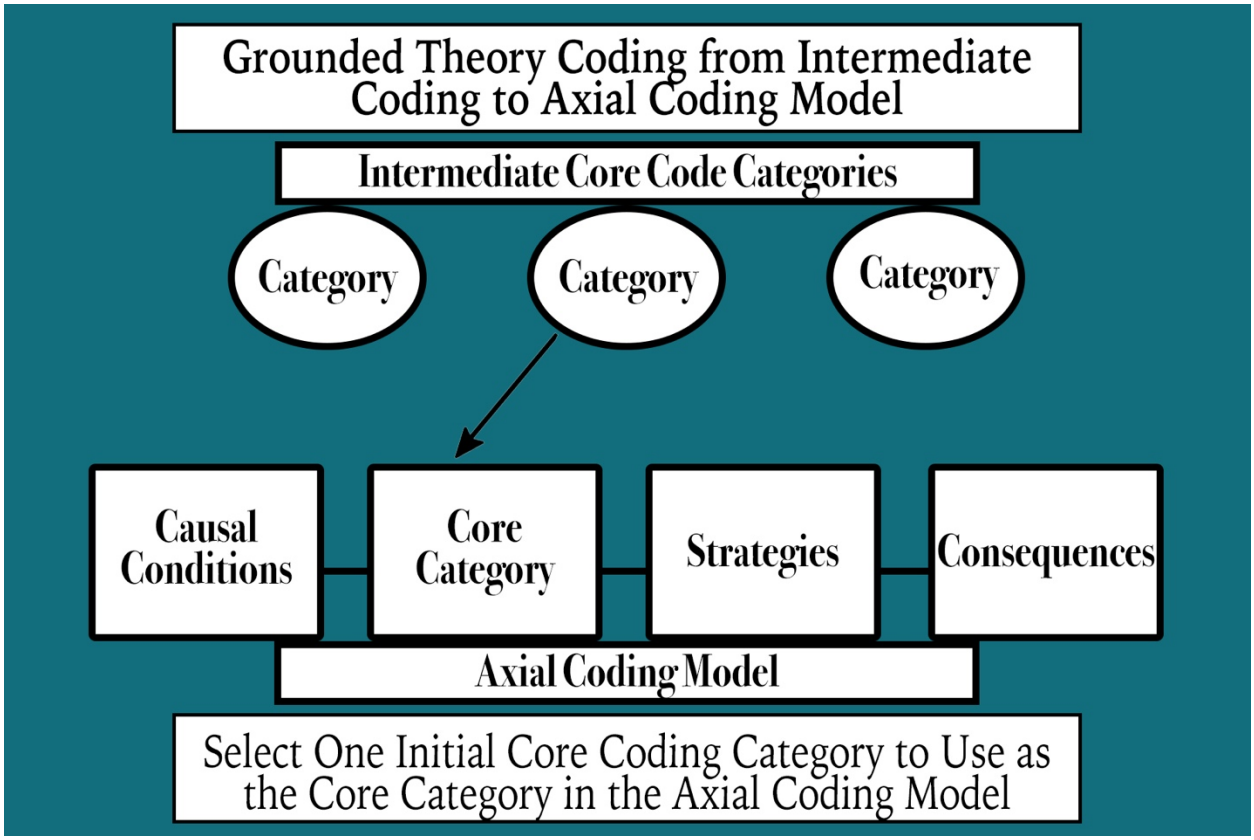

Figure 5 Creating Axial Codes From Intermediate Coding Categories

Generating Theory: The final product of some Grounded theory studies is an integrated theory that explains a process or scheme linked to a phenomenon under study (Glaser and Strauss, 1967). The researcher generates this theory based on an extensive understanding of the data, using it to explain or predict observed processes or schemes, and, if done well, can inform practice in the area being studied.

Participant background

My study utilized an open-ended survey designed to aid in interviewing nine current and prior environmental studies professors at TESC. The survey questions asked participants to reflect on the significance of these field trips on faculty learning, leadership development, and adapting to shortcomings. These interviews were then transcribed and coded, generating over 50 pages of interview transcripts and over 150 initial codes.

I choose my participants based on these sample criteria: Each participant had to be employed as a faculty member of the Environmental Studies planning unit who facilitated a team-taught field trip. My study included nine faculty members who were asked to describe their experiences leading memorable field trips. The participants consisted of eight current and one retired faculty. The participants had a range of expertise that encompassed both social sciences and natural sciences (see table for individual expertise). Participants' teaching experience at TESC varied from three to thirty-three, with the average median age being 20.5 years. As may be expected, the number of field trips varied, with more experienced faculty facilitating more field trips;

the two most experienced faculty members had facilitated approximately 200-300 field trips and the least experienced faculty member oversaw four field trips. Most faculty estimated facilitating more than two field trips in an average quarter.

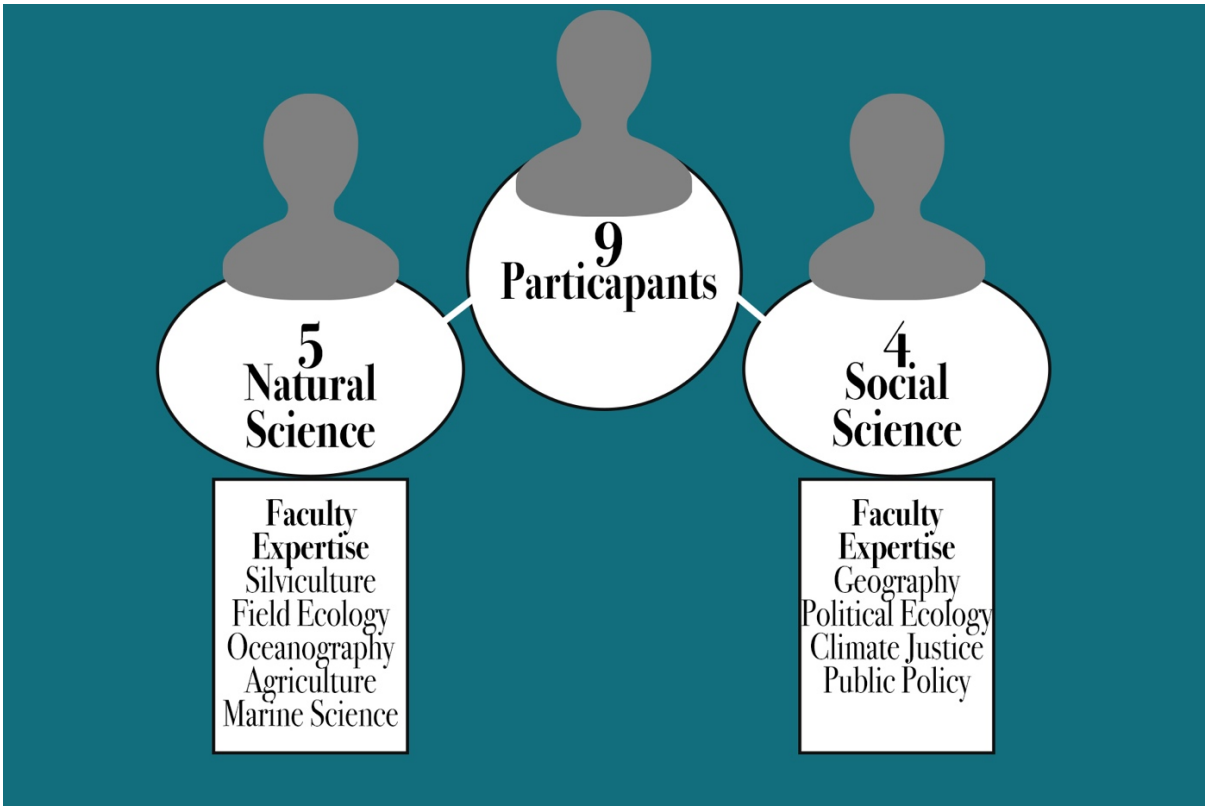

Figure 7 Participants Areas of Expertise

Data generation

During the interviews, I asked participants about the role field trips fill within Environmental Studies. From the transcriptions of these responses I developed my initial codes and axial codes Then, as explained above, I set all of those codes within the more comprehensive axial coding framework. The example of the general categories for the

axial coding paradigm follows (Figure 3).

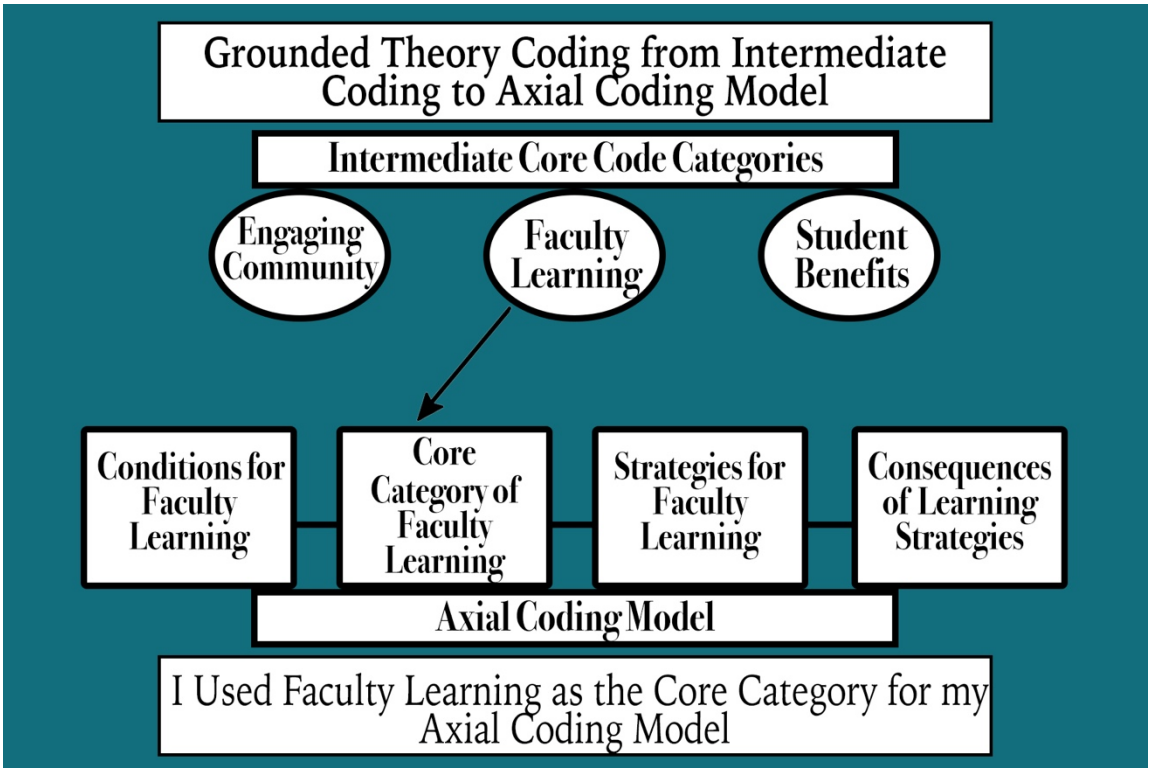

Figure 8 Axial Coding Paradigm

. By utilizing intermediate coding, I was able to identify three main benefits of facilitating field trips. Each of the core code categories represents quotes from all participants. Later, in the advanced coding stage I created a diagram that includes all intermediate codes as a way to visualize my axial coding. Results of this research indicated that field trips help individuals actively engage in community, inspire students to learn and develop new interests, and create a space for faculty learning. Below are some short examples taken from the data that briefly illustrates these three core benefits.

Field trips engage people actively with the community

Martha Henderson, speaking about her goal when conducting field trips to involve the wider community:

> Ultimately my goal when taking people on a field trip is to get them to be aware of the environment around them, to participate and understand see how other groups of people around them may see them and define them, to get under the skin of those people in a very respectful way, and to come to respect who those people are, you may not agree with them but to offer them the same respect you are asking from them.

Students Benefit from field trip experiences

Students can take inspiration from field trips and developed it into a career. Richard Bigley indicated that a some of his previous students were inspired by the work they did in the field and now work with him in the Department of Natural Resources for the state of Washington. These students got interested and involved due in part to the interactive field trips that Richard Bigley organized.

Lee Lyttle in the following quote talks about students learning from complex experiences on field trips.

> On environmental field trips, we study concepts and ideas, and processes, then you get out there and you realize that these boundaries aren't as crisp as you see them or as they appear in some textbooks or some articles or even in some labs, students realize that things are not just black and white. There is an immense amount of gray areas that are valid, and need to be a there, and how do you recognize those and see the relationship between those? You can talk about how important a creek or a river is, and when you look at it outside you see how it's lined, and how in nature how plants and animals use it. What it does in terms of cleansing the land and nursing the land, that's different then just reading or talking about it.

Faculty Learn from Field Trips

Field trips create an opportunity for faculty learning: Through this study eight main codes represented ways in which the faculty reported learning from the process of facilitating field trips. Because faculty learning is the core code that I will be

examining I did developed another axial coding model that resulted in Figure 9 below (also see appendix A.). In the section to follow as well as the conclusion I will give examples of these eight main strategies and the consequences that faculty reported within my interview data.

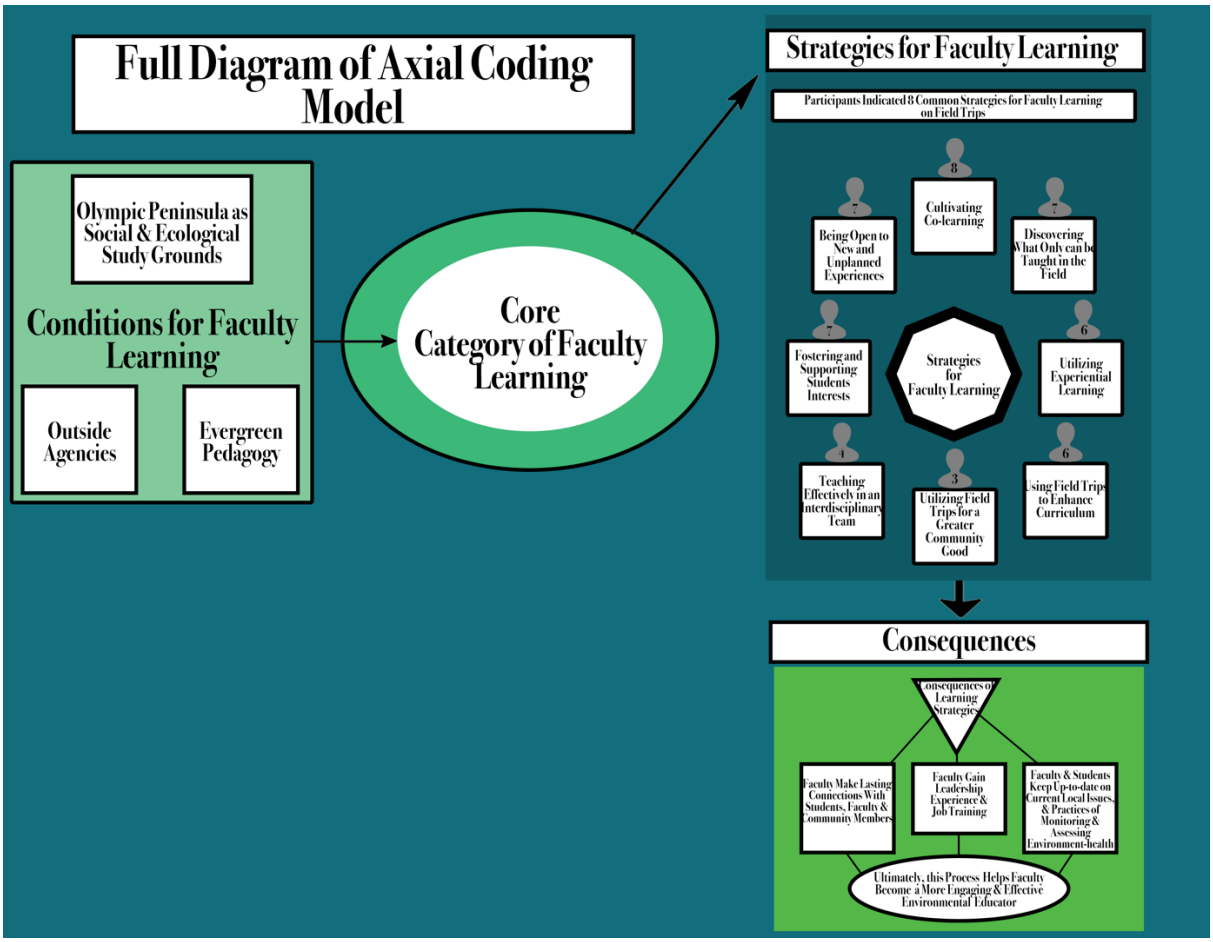

Figure 9 Axial Code Using Core Category of Faculty Learning

Finally, because the focus of my thesis is on the faculty learning which occurred on field trips, a considerable length is dedicated to the eight main ways in which faculty reported learning from field trips. Below are some direct quotes that help to illustrate these eight strategies for faculty learning.

1. How to utilize field trips to enhance an environmental curriculum. 2. How to teach effectively in an interdisciplinary team teaching environment. 3. How to cultivate co-Learning, with other faculty, students and community members. 4. How to be open to new and unplanned learning experiences. 5. Learning through experience (Experiential learning theory developed by Kolb will help illustrate the four phases of learning from experience witnessed in the study (A) concrete experience, learning by encounter; (B) abstract conceptualization, learning by thinking; (C) reflective observation, learning by reflecting; and finally (D) active experimentation, learning by doing" (Kolb,1984) 6. How to foster and support student's interests, and career goals 7. How to utilize field trips for a greater community good 8. Discovering what only can be taught in the field. For field trips to be a meaningful and effective learning tool, they must be relevant to the class curriculum.

1 How to utilize field trips to enhance an environmental curriculum

Ted Whitesell responding to the question of how he has learned to organize field trips as part of the curriculum.

> I try to organize my field trips in a way that students are doing hands on learning and not, a tour. I have seen field trips where it is more like a guided tour ... where it's like, 'ok, we are going to go here and we are going to listen to these people talk to us then we are going there and let some other people talk to us and it's almost like inviting guest speakers to class except it's outdoors. Which I think can be a little mind numbing.
>
> It is great to meet with people and I always do that, so that people that have a rich local experience and knowledge… can meet students and they [the students] can ask questions… [however,] Field trips need to be a coherent part of an overall program so their needs to be related readings and seminar books and assignments that are associated with the field trips so that they're not standalone lessons, but are part of a much broader curriculum.

> so, when we are planning our courses (I generally teach in teams you know,) we start out early in the courses thinking about field trips and try to design readings, and lectures and course activities around these field trips so they are really a central part of the conceptualization and detailed planning from the very beginning… So that means that students will have read some things that have prepared them and have talked in class, and all of the lectures or maybe seen some films, or have done all of the above before they go on the field trip and have a sense of follow up as well. So hopefully it's a seamless whole.

2. How to teach effectively in an interdisciplinary team teaching environment

The Evergreen State College provides unique team teaching opportunities through field trips. Through these field trips Faculty learns that there must be a single leader among the group. Martha Henderson indicated learning from her past team-taught field trips that "when you are on a field trip there can be only one leader"

> You can collaborate on things but the idea of multiple leaders I don't think works well. It is just like when kids develop the sense that they have two parents to manipulate, and pit one against the other. I am more comfortable when there is one leader. I have been careful about those boundaries.

Gerado Chin-Leo and others echo this statement saying…

> So, there has to be one person that's leading and there has to be some consistent rules. So that was the basic thing that we discussed, to allow opportunities in case things that were unanticipated occur, to allow some time for group discussion before we make a decision for that would affect the group.

3. How to cultivate co-Learning, with other faculty, students and community members

Most field trips provide many different learning opportunities to both Faculty and students. Faculty learn from each other, they also learn from the Environment that the field trip takes place in, as well as any other stakeholders, for example; Native tribes, Government agencies, or other community members.

Faculty to Faculty Co-Learning

Often field trips at TESC include at least two team members who have different expertise and experiences that are shared between the Faculty members. This can help Faculty learn from one another. Shangrila Wynn when asked, 'do you feel like field trips are a way for you as an educator to push yourself out of your comfort zone?'

> [Field trips] are tremendous learning opportunities for faculty as well. For some one that has been doing this for years would have a very clear idea of how to prepare students before the field trip... Since I am fairly new here I had been taking advantage of the opportunity to tag along with the more senior faculty members who led these field trips. I use these trips as opportunities to learn more about the local communities, and to figure out how I might design my own field trips. This has been very wonderful for me, to be able to tag along and try and learn more about the area's landscape and people. I want to incorporate certain strengths this region has into my 2017 and 2018 classes.

Pauline Yu also indicated that she learned from fellow faculty members.

> When I started out my first Fall and Winter quarter it was very Lab based, and then in the Spring of 2015 I taught Marine Biodiversity with Eric, and because he was the program coordinator and had arranged everything in advance. That was really good for me because I could sort of be like one of the students, I could start to learn how the Marine Science faculty at Evergreen approached teaching Marine Science and learn about the field sites that they liked to go to. That was definitely a really great learning experience for me as a kind of faculty training. I am really grateful that Eric had the foresight to plan [the field trip] in advanced since I was going to be attending as the junior faculty.

The Evergreen State College provides a hands on learning program to junior faculty members by allowing them to team up with another more experienced faculty member. They often teach by example, but also provide a non-threatening learning environment at the same time, allowing the junior member to gain valuable experience and confidence.

Student to Faculty Co-Learning

Faculty also can learn from students and often have particularly knowledgeable students help add educational content to field trips. Lee Lyttle expressed that faculty learn to involve students to help add educational components to the Field trips.

> The other thing I learned is that you start to depend on students more, the more experienced faculty actually seek out students that can make a field trip more exciting, productive, and engaging.

Faculty Community Co-Learning

Other outside community members or Government agencies provide information and share their knowledge and wisdom students, and Faculty alike.

Lee Lyttle said,

> I connect with many agencies, tribes and Government identities. The world is full of people with much to teach us. So, whether it is us talking to the tribes or us talking about how the government works, and the interactions between these different agencies, yes, there much to be learned.

Ted Whitesell, expressing some of what he has learned from being out on field trips

> It is so easy to live in a bubble and just make a lot of assumptions about the way the world works. You really have to get out and meet with people and different walks of life to see the land yourself and then that challenge is the preconceived notions and assumptions that you start with, so it's really important for that reason.

4. How to be open to new and unplanned learning experiences

Being continuously open to new experiences helps Faculty stay current while at the same time allowing them to take advantage of new learning opportunities, as well as dispel any preconceived notions that may have had.

> Martha Henderson said,
>
> What do you learn from leading field trips?
> You learn that students respond in ways that you never anticipated. You always have to be ready for the unknown and cross your fingers that nothing bad happened, right? But that's always in the background, and we're so thankful that the college allows us to do this. I think that we have to keep ourselves open to new ideas and being out in the field helps that. Back off, enjoy life, because you are really trying to get the students to take the leadership and figure out how to do that.

Shangrila Wynn tells about learning to confront her preconceived notions by directly meeting with tribal members.

> I guess I did not really have any interaction with the Quileute tribe, I just read about it in the case study. But it was really great to see the community members in person. In terms of how my preconceived notion changed, --remember what I was picturing when I first heard about the drum circle... a fire and some people walking around it with drums-- well the drum circle actually happened in an elementary school building. It felt like a very modern space, and I think that speaks to the ways in which we tend to have stereotypical ideas of what tribes are like, or what they are supposed to be like. And when we see them wearing western clothing with athletic symbolism, it does not have to shock us. It is just part of how cultures have changed in response to colonial forces. In this way, my own preconceptions were challenged by what I saw.
>
> In class, we read…. a case study detailing the youth in that tribe being very proactive in drawing attention about the threats of climate change. At this time, the tsunamis in the Indian ocean were all around the media, so the tribal youth conducted civil disobedience, protests and such in order to draw attention to their need for higher elevation land. That was an example of the use of tribal agency to be empowered, as opposed to paying into a victimization narrative. We heard of this work of the tribe, and the tribal youth with the guest speaker the following morning [after the drum circle] so that was part of the learning experiences.

5. Learning through experience

Faculty engages in Kolb's four stages of learning; effective learning is seen when a person progresses through a cycle of four stages: (A) concrete experience learning by encounter; (B) abstract conceptualization, learning by thinking; (C) reflective observation, learning by reflecting; and finally (D) active experimentation, learning by doing.

A. Concrete Experience (Learning by Encounter)

Ted Whitesell indicates that he learned from encountering unprepared students, what to expect from inexperienced students.

> So, I would say earlier field trips were a lot more ambitious and I guess I learned how well prepared the students were for the outdoors in difficult conditions. (Laughs)
> And so I didn't want to ask too much of students, so on some of the earlier ones so some of the students got really cold and wet, and you know I am somebody who has spent a lot of times outdoors and I guess I am assuming too much of other people, so I kind of learned those things as I scaled back on some of my ambitions.

B. Abstract Conceptualization (Learning from thinking)

Shangrila Wynn talked about learning how an abstract concept like colonialism and the tragedy of the commons is lived out within a community. She talks about attending a drum circle at the Quileute tribal reservation, and subsequent guest speakers.

> It was a learning opportunity for me, and I know from what students shared with me after the trip that this trip was a very moving and very significant teaching moment for the students as well... It was really a wonderful learning moment... to see what happens when a people are removed from their access to land and resources because the economic circumstances of the tribe was very clear to see. Then hearing from the community members during the drum circle was very informative as well, to cap that all up as a learning experience, I had arranged for

a guest speaker from the tribal office, that spoke to the various concerns and the challenges that the tribes were facing vis a vi the national park services, where they were not able to pursue their traditional hunter gather practices. The speaker also talked about some of the victories that the tribe has won. One such example is that the tribe was given a higher altitude 100-acre piece of property. So that the tribe would have land if sea levels rise or in the event of tsunamis to relocate to. This was motivated by climate disturbances. That was a nice update to the what the students had learned about the case study

All of this came together as a teaching and learning moment, because we have been discussing in class the tragedy of the commons Garrett Hardin's supposed seminal work in environmental studies. In which he really incorrectly characterized what it means to use the commons. Traditional resource users have use the commons in sustainable responsible ways. And it was with colonization where these people were disenfranchised that certain kinds of environmental conflicts arose for them. Just to see a real-world community --not in the third world far away that is the subject of our readings and discussions in the classroom-- but a community right here in our back yard serves as an example of a disenfranchised community that were severed from their traditional commons. And to see the real-world ramifications of this displacement was a very powerful learning moment!

C. Reflective Observation (Learning by Reflecting)

Faculty learn to reflect on pervious experiences and plan for contingencies, especially when they are far away from campus.

Peter Robinson

You also learn, once you're out in the field you don't have the resources you have if you were at the college itself, it's like being on a road trip and you realize you forgot something well you forgot it, well you don't have it, you have to make do with what you have. You have to figure out plan to Plan B or Plan C.

So you learn, that wheels fall off, things happen, not only is that good for the faculty to be reminded of constantly but it is a learning process that the students may not know, the faculty knows it and they just have to remind themselves sometimes. For the students to learn that this is business as usual, wheels fall off things break, things get lost and that kind of thing. So, what are we going to do about it what's the plan? Talk about it, think about it, and make a plan, keep on moving. Field trips will teach you more than if you were in the labs and your 60 seconds away from running upstairs and grabbing another one and coming back again, you can't do that in the field.

Faculty often reflect on what learning components were especially valuable or effective within field trips.

Richard Bigley

> [A good field trip] gives the students a chance to build on their previous foundation and give them a foundation to take all this information and synthesis it into knowledge and something it hasn't been before... Field trips may be a relatively small amount of time in a learning program, but I think the impact of this is disproportionately high. The greatest example of that this was a year ago I took a tropical ecology class to Costa Rica with another faculty member, and we had the quarter to prepare and then the field trip was during spring break.
>
> Each student kept a journal and the last entry I had them make was, "How has this field trip impacted you?" I had been traveling the tropics for 30 years and I remember my first trip, and reading how insightful and thoughtful their comments were, and how deeply it impacted them, totally convinced me that a field component for Environmental Studies is essential.

Martha Henderson

> [Field trips can be] transforming experiences.
> The undergraduate trips that I did that really stand out in my mind, one of them was extremely successful and the other one upon reflection, I learned a hell of a lot from, and I don't think I would ever do it again. That was taking a group of undergraduates from a class called ‘Exploration.’ I took this group of students and we started on the Idaho border and we walked all the way to North Bend [across the state of Washington] on the ‘Rails to Trails’ project.

D. Active Experimentation (Learning by Doing)

I asked Peter Robinson how he developed his strategy for teaching on field trips. He responded by saying...

> I developed my strategy just like I did to work on cars. I've been with people who say how do you know how to do that? I say well let me show you my busted knuckles, you know you break a lot of stuff. I had a teacher who was a physicist, best teacher I ever had, for various reasons but he used to build nuclear bombs before he decided to stop that and start teaching instead. He used to talk about the

> "Smoke test", whenever we were setting up a complex lab experiment, and we all had to learn, what do you mean by the smoke test? And he said, well, get all the equipment that you think you would need, you check the equipment, you check the setup, you hook everything up, if you think it's done right, and then yes you turn it on, if it smokes you turn it off. And I thought, well that's good! That is the smoke test. And you learn these things by, (I could say unfortunately but it is the way all of life works) you learn them by doing your best. Then you see what works and why it doesn't work. And there will always be corrections, always be things you didn't think of, no matter how careful you do it, at some point you have to move from thinking, to planning, to doing… It is like reading a book on cooking, you can read a thousand books on cooking, and you're not a cook. You got to turn the stove on, you got to chop stuff, you have to do things... This is what happens in the field.

6. How to foster and support student's interests, and career goals

There are many ways either, inadvertently or overtly that faculty can shape a student's future. Through field trips Faculty provide many new experiences to students that may lead to new ways of thinking, inspiration, or even career choices. Ted Whitesell illustrated field trips transformative effect with his statement below.

> [Field trips] also can be a launching pad or try to make it a launching pad for students to get involved with the things that were looking at so for example, when we meet with any kind of natural resources manager with the municipal, state, federal government, or tribal government, I ask them as part of what they talk about with the students, to include their own personal trajectory , how they found opportunities , how they got involved with the profession that they have , it models for students the options for them, and gives them things to think about, someone to bounce ideas off of. It opens up opportunities for internships and things like that. So besides just teaching about the issues, and challenging the students to think in different ways and to question their own assumptions, and some of the things I was talking about before, we can open up some practical options and inspire people to think in some new ways of some potential options for them.
>
> Richard Bigley

> Well a number of my past students are employed in the Natural resource management arena and I've worked with many of them. One of my previous students, matter-of -fact three previous students are now employed at the Department of Natural Resources. One is employed at a technician level, one that

is a frontline supervisor, and one is an assistant division manager. So, they have not only get to apply the information but bring all their other strengths together.

Gerado Chin-Leo

I have seen many students that a field trip has really helped them make a decision about what to do and what to pursue.

Martha Henderson

For our Arctic class, we took people to the North Cascades...Another person from this class got so connected with a bunch of other women researchers who do research on Antarctica, that she is going to go to graduate school and her hope is to get hooked up with these people and now I have hooked with these people (in Antarctica) so now it's become this international connection.

Shangrila Wynn

Where if students are really engaging with local communities even in such limited field trip experiences this might make them better prepared to engage with community members as part of their job eventually. Using these field trips to understand issues in their fuller complexity, I hope that it is not a big surprise, when student go out into the world as environmental scientists that they encounter push back against what you are trying to do as environmental work.

7. How to utilize field trips for a greater community good

Evergreen has been involved in many projects that have benefited our local community. In some instances, the knowledge and information gained from field work done through TESC has had a national and global impact. Faculty learn how to incorporate an end goal that will help community stakeholders as an outcome of a field trip.

Oscar Soule reflected on a project based field trip that he had taken with his freshman students in 1971.

A group of freshman did the first quantitative assessment of hospital waste anywhere in the country. My wife was an epidemiologist at the hospital, and I had

been reading about cities having to pay in absorbent amount of money to dispose of hospital waste because of contamination because it had to be handled very carefully or you will get sick. I found out the people behind the movement to get cities to get hospital waste categorized as dangerous, where the waste disposal companies because they could charge more to dispose of it. So, I looked into it and tried to find out how much waste was generated per patient, there were no data fields.

The city of Olympia was in the process of shifting their landfill. So, I came up with the idea that we would do a survey of all the waste that was generated in the hospital, except for what was generated by the offices, and we wrote a report and gave it to the city of Olympia. My wife was connected to many people all across the country and one of the people happened to be from The University of North Carolina, and a person there, who was outstanding in the field of handling hazardous waste, was very excited when she reviewed our survey about hospital hazardous waste, and took our results and published a report on them, which represented the first national data on something of this kind. And this was done by Evergreen freshman in 1971.

8. Discovering what only can be taught in the field

There are just some things in life that need to be experienced first-hand or close-up and personal, field trips provided these valuable experiences that a classroom cannot.

When asked what makes a good field trip, Ted Whitesell responded.

I think all good field trips have very similar traits in terms of how it opens student's minds, how it sheds new light on the subject that would not have otherwise existed by just studying indoors, how it builds solidarity between the students and more of a learning community so those are common traits I can't really think of one that stands way above the others in those aspects.

When I asked Peter Robinson what is special about learning on in field trips as opposed to learning that takes place in the classroom. He said,

I can describe and illustrate a lot about the forest but until you wander about, until you experience the smell of smoke from a burning fire, until you talk to landowners about their issues, there is a lot of things that I can say that won't have the same impact as if you experienced it yourself. Even simple things like, people say, ‘I have a lot of experience in the forest I hike all the time’ I say, ‘oh great we're going to climb up this hill and we're going to look at this gradient of soil from the bottom of the hill to the top of the hill’ and they look perplexed. They come back no say, ‘I didn't realize it was so soft off the trail, I didn't realize there

were so many things to climb over.' So, it takes what many people assume is familiar, and it rocks their confidence a little bit when I show them things that have been like right in front of their face, and they've never seen it. That's what they get out of a field trip.

Ted Whitesell talked about the learning from differing stakeholders at a field trip. This illustrates the different demands that specific groups place on a landscape.

> It was a nice field trip going from the Bonneville Dam up the Gorge and then to meet with the Yakima tribe. We have done that at their tribal center there, we take the students to the museum and meet with tribal leaders there who portray a very different picture of the Dams and I think it is very important to expose students to the different kinds of perspectives and the different types of authorities.
>
> The Army Corps of Engineers, for example, [who the students and faculty spoke with previously], knows a lot about their business and so do of course, the members of the Yakima tribe, and they can speak with so much more authority that I could on those issues that's another reason to take a field trip and You know I can translate, interpret, and simplify, but I can't authentically represent these viewpoints.

Conclusion

As Environmental issues threaten the very existence of the human species, Environmental Studies programs become vital to our survival. Field trips can be an important part of Environmental Studies programs. Ultimately, the theory that was grounded in my data was that field trips within the Environmental Studies program at Evergreen offer a learning process that helps faculty become more engaging and effective educators. All faculty interviewed agreed that field trips help both students and faculty learn together. Talented, educated, well-prepared faculty are needed to teach and lead our future environmental leaders, as well as prepare and inspire younger faculty and staff members. Field trips provide co-learning experiences for faculty and students, actively engaging all in attendance in hands on learning while developing critical learning skills. Perhaps just as important, they provide fertile on-site learning grounds for faculty

members; places for personal experiential growth, as well as a transfer of knowledge between faculty members. While on these field trips students and faculty are kept up-to-date on current and local issues and practices of monitoring and assessing the environmental health of the area. Another common consequence that was mentioned among all participants was when faculty lead field trips they make lasting connections with students, other faculty, and community members.

During interviews carried out for this thesis research, many of the faculty members at Evergreen mentioned the unique formative pedagogy that continues today at TESC, the idea of interdisciplinary, hands-on, co-learning approach to learning as the reason they were drawn to teach there. Field trips embody these ideas, as well as the four core themes of The Evergreen State College: Integrated, interdisciplinary learning; Individuals engaged in community; Environmental stewardship and social justice; and Diversity and equity. In this kind of atmosphere, an abundance of learning takes place between all involved but is especially beneficial to junior faculty members who attend field trips with a senior member. I cite many examples throughout my thesis where Junior faculty felt much more at ease and confident when accompanied by another more experienced member, resulting in a unique form of on-the-job training. Peter Robinson summed it up well in his interview:

> The draw for me to Evergreen was the collegial relationship, the co-learner relationship between students and faculty. The fact that we learn collaboratively, and teach collaboratively. We don't achieve by climbing on the backs of others, we do it by reaching out a hand and helping others learn. That just opens up worlds.

I was surprised when doing my research by how little studies have been done on the topic of the benefits of field trips for faculty members. A plethora of studies exist about the benefits of field trips for students, but very little is written about the faculty benefits. I believe this is an important issue that needs even more attention. There is much to be learned in this area.

Based on what I have learned, I would suggest TESC set up a formal program for pairing senior and junior faculty members on field trips. A formal program, spelling out goals and responsibilities for both, seems to be in order. Faculty members do a fantastic job leading field trips at Evergreen and at transferring their knowledge; such a program could only enhance the faculty's experience and knowledge transfer. By identifying strategies of potential learning there's a lot of room for study. I believe a mixed method study, as well as a pre and post field trip assessment; focusing on the reflection of Environmental Studies faculty would be a great place to start. This could take the form of a formalized reflection process which would be required by the faculty that facilitate this program.

All participants interviewed indicated that field trips were vital to the Environmental Studies program and to the learning of both faculty and students. The faculty interviewed agree that resources should be allocated for the continuance of field trips. Ted Whitesell agrees, stating,

> Evergreen needs to make a permanent commitment, (to field trips) as they are a part of our pedagogue so we need the commitment of resources… also faculty development, some Summer institutes that help faculty share information about field trips and how to lead field trips, and all these things are necessary from an institutional standpoint and important that they never go away...I think it's really important that the college has continual field trips, and especially ones here in our community.

Another benefit of field trips is the lasting and meaningful connections faculty make with students and community members. Ultimately, students can achieve career

goals by utilizing these connections. Richard Bigley noted that a number of his past students are employed in the Natural resource management arena and he has worked with many of them. “One of my previous students, matter-of-fact three previous students are now employed at the Department of Natural Resources” where Richad Bigley also works.”

These events transcend the merely practical. Field trips can provide an experience of awe and reverence for our shared natural environment. As Martha Henderson illustrates,

> We went to an observatory, there was this wonderful man that worked there that let us come and look at the stars and the constellations and then that brought up a chart that showed us the skies full of the stars over the Eastern Mediterranean 3,000 years ago. [caught up in conversation] I was worried and went looking for the students and found them in the parking lot on their backs, looking at the stars. The students said, we have never seen a place where there is no light pollution, we have never seen the Milky Way, and I just wept. And I said if I never do another thing in my Academic life, it's OK, this was the goal.

By combining classroom learning and field trip experiences, students and faculty alike connect to the environment in a much deeper and more profound way. This holistic approach helps to create caring and informed citizens, and inspire the next generation of champions for the environment.

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Appendices

Appendix A. Questions Asked Participants

1. Name

2.Date employed as Environmental Studies Faculty at TESC.

3. Roughly how many field trips have you attended at TESC as a teaching faculty (Including out of the class but on campus learning experiences) ?

4. What brought you to Environmental studies (is it connected with being in the field or directly exploring the environment under study)?

5. Did the chance to lead and arrange field trips factor in your choice to become a TESC Environmental Studies Faculty?

6. Please tell me about some of most memorable field trip within the context of a TESC program that you helped to facilitate.

7. What did you do (academically and logistically) to prepare for your trip, both for your class and personally as an educator?

8. Why was this trip memorable?

9. What challenges did you face before, during, and after, the trip?

10. How were challenges managed, mitigated, or overcome?

11. How did you incorporate outside agencies or groups to give context to students?

12. What significant learning experience have you gained from leading field trips at TESC?

13. Do you feel that leading multiple field trips effected how you teach within subsequent field trips, if so how?

14. What educational role do field trips fill within Environmental Studies?

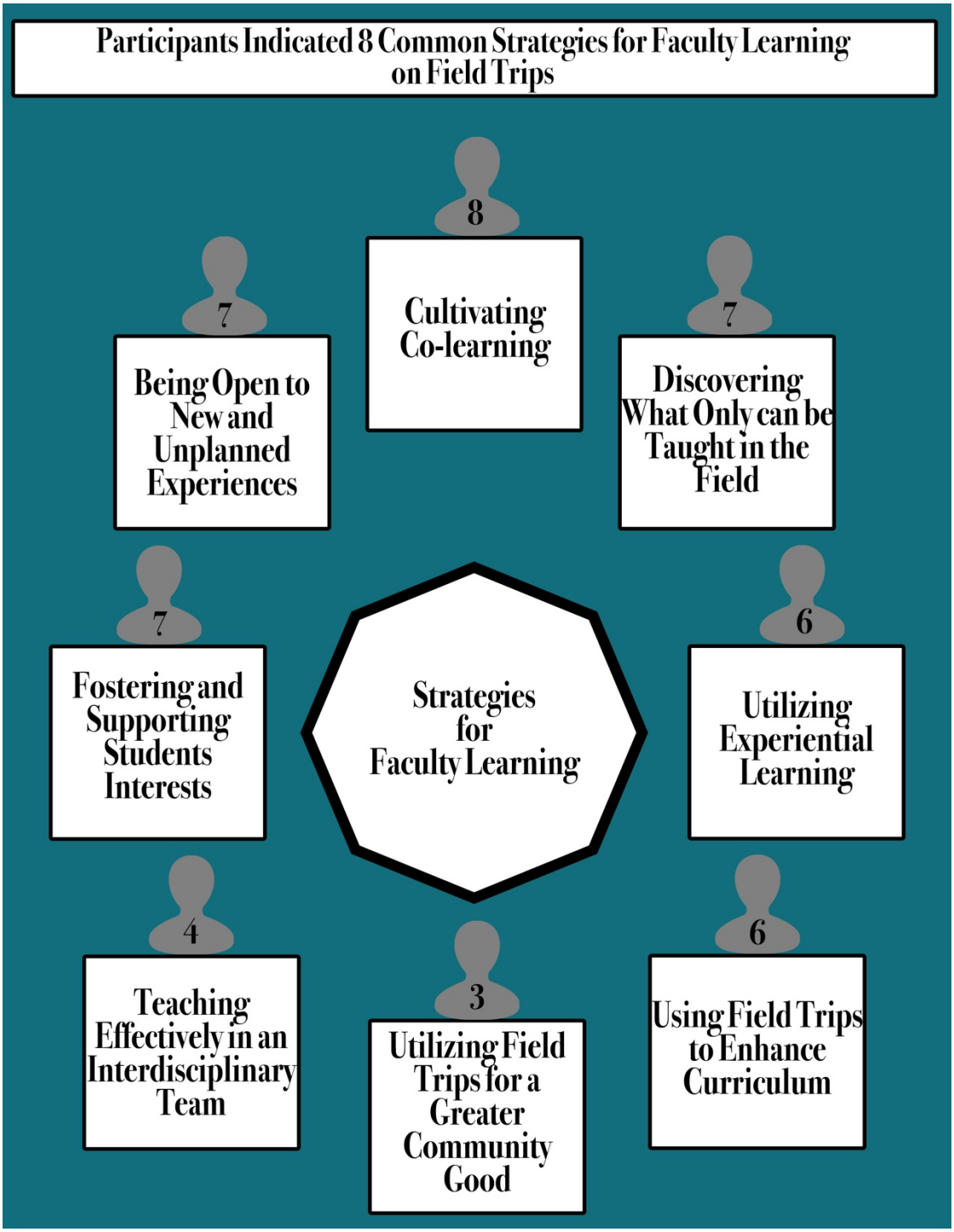
15. What can be gained conducting field trips as opposed to in classroom learning, are these benefits both for student and educator?

16. When planning your programs within Environmental Studies are field trips a central focus?

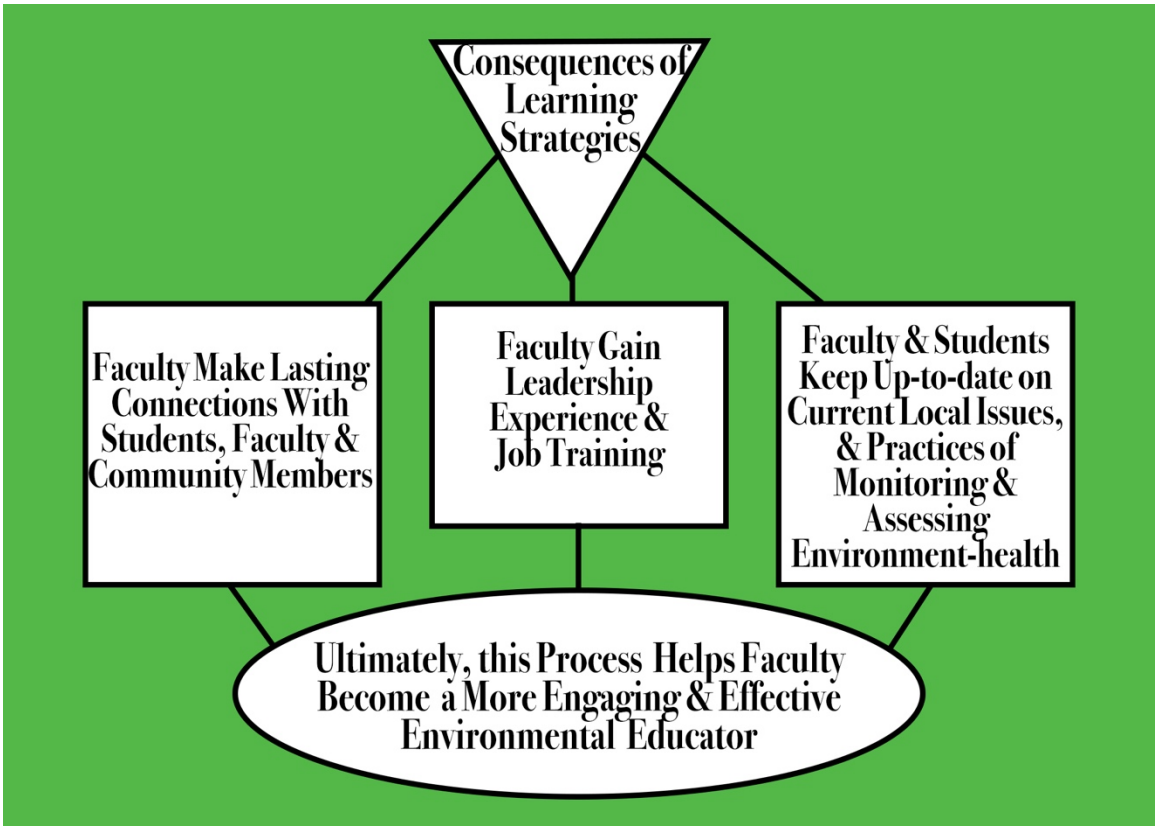
17. Is there anything else that you would like to add about your experiences teaching Environmental Studies using field trips; do you have any particular insights you would like to share?

Additional Graphic Support Appendix B

Details of figure 9



Details of figure 9 continued



Word cloud involving all interview transcripts representing word size as frequency used within data over five letters long