

Collaborative Action-Oriented Learning for the Environment: Benefits and Challenges

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Abstract

Interdisciplinary collaborative action-oriented learning is making its way into the spotlight as a new way of training students to tackle problems in the real world while simultaneously learning about them in a more interactive sense. However, this newer style of education, while researched to some degree, has yet to be evaluated from the student perspective. This study investigates student perceptions of two collaborative, action-oriented environmental projects at two institutions: “Intersession” at the Environmental Charter High School (ECHS) and “the Practicum” at UCLA’s Institute of the Environment and Sustainability (UCLA IoES). Data was collected about student opinions of the programs, and recommendations were made for improvement based on these findings.

Executive Summary

Collaborative, action-oriented, and interdisciplinary education strategies are increasingly utilized to facilitate student learning. Furthermore, environmental education provides incredible potential and opportunity to bring together these strategies to address a complex, real-world problems. However, despite the general acceptance that these strategies improve student learning outcomes ranging from academic success to improved self-efficacy, empirical evidence remains fairly scarce - particularly within K-12 education. In this project, the team investigates collaborative, action-oriented learning through student perceptions gathered via surveys. Two schools who utilize interdisciplinary environmental projects, Intersession at Environmental Charter High School (ECHS) and the Practicum at UCLA's Institute of the Environment and Sustainability (UCLA IoES), were evaluated over the course of a year. Seniors in each program were the focus of the research given their extensive experience with the programs. These two programs both portray innovative yet different approaches to environmental education that can serve as models for other schools.

First, this paper includes a literature review to establish the current state and gaps in - knowledge regarding action-oriented, interdisciplinary, and environmental education. Further background is then provided on Intersession at ECHS and the Practicum at UCLA's Institute of the Environment and Sustainability. Next, the team outlines survey methodologies and includes research results. The paper concludes by highlighting challenges in effectively implementing comprehensive environmental education programs along with recommendations to improve student perceptions and maximize the potential impact of Intersession, as well as future research ideas.

Introduction

Environmental education provides a complex, interdisciplinary lens to look at the world and enrich one's knowledge. However, teachers face an incredible challenge in conveying the vision and purpose of environmental education to their students (Forbes 2009; Hudson 2001). Those teachers who successfully impart both knowledge and drive into their students seek to create life-long stewards that will change the world. More and more educational districts are recognizing the value in interdisciplinary, action-oriented programs and are moving away from traditional, passive lectures (Prince 2013, Pedler et al., 2016). However, this value is largely anecdotal or speculative as limited empirical evidence exists on both the effectiveness and the perception of these active educational programs. The current state of literature does not adequately address many challenges involving teaching and inspiring students about environmental issues, strategies for more effective group work, and motivating students to look beyond the classroom (Hattie et al., 1997; Pearson 2008 et al., 2008). This study strives to start closing this knowledge gap using student perceptions as a foundation for evaluating the impact of nontraditional educational programs.

In this report, we offer a review of the literature on action-oriented education, environmental education in the United States, and the foundations of effective education. Then we provide a brief background of information on Intersession at ECHS and the Practicum at UCLA's Institute of the Environment and Sustainability (UCLA IoES) (see Appendix A). Next, we discuss our survey methodology and results. Student perceptions in both projects inform recommendations provided in order to improve the learning, the outcome, and the impact of the Intersession program.

Literature Review

This section provide brief overview of literature review regarding how action-oriented, action and active-learning in classes can improve the learning of environmental education and the foundation of effective learning.

Terminology: Action-Oriented, Action, Active

While action-oriented education has been gaining momentum, the current state of the literature has yet to even reach a consensus on the terminology used. Several studies either attempt to identify action-oriented, action learning, and active learning with distinct definitions or address how problems defining the area of focus remain a key problem in drawing conclusions from education research (Prince, 2004; Yung et al., 2017). Other times, the literature appears to use the terms action learning and action-oriented learning interchangeably (Onyango et al., 2004; Lieblein et al., 2012). In addition, elements used to categorize active learning (collaborative learning, cooperative learning, problem based learning, etc.) significantly overlap with elements of action and action-oriented learning. While these three terms refer largely to shared education philosophy, more research is necessary to substantiate claims extrapolated from active learning to action-oriented learning.

Action-Oriented Learning

A thorough search of online databases reveals an extremely limited quantity of articles using the specific terms “action-oriented learning” or “action-oriented education.” One of the few publications that demonstrates a research study on the impacts of “action-oriented” education on students found that action-oriented education enabled conceptual changes but how these conceptual changes affected individual action were beyond the scope of the study

(Onyango et al., 2004). Another study on “action-oriented learning that connects understanding of the broader problem with actions that the player can immediately take” based on the climate change game GREENIFY (Lee et al., 2013). This study found this action-oriented game contributed to informed action, positive pressure, and a fun experience (Lee et al., 2013). Literature on action-oriented learning is particularly scarce at the K-12 education level (Gillies, 2004). For the purposes of this paper, “action-oriented” refers to a broad educational philosophy in which students work collaboratively to achieve common goal with an emphasis on active learning and reflection (Yung et al., 2017).

Action Learning

Literature using the term “action learning” rather than “action-oriented learning” is comparatively more prominent. Despite the prevalence of reported success of action learning programs, relatively little quality research has been done to demonstrate the true effectiveness of these programs (Leonard and Marquardt, 2009). Evidence based research demonstrates that action learning develops leadership skills and improves ability to resolve conflict and identifies questioning, taking action, learning collaboratively, listening, diversity, a safe environment, and presence of a coach as factors critical to successful action learning programs (Leonard and Marquardt, 2009). An alternative approach relies primarily on philosophy to build an argument for action learning and provides a mental framework called the Cycle of Effective Problem-Solving to facilitate understanding of the action learning model (Leonard, 2014). However, action learning tends to address learning theory geared towards professional development rather than students (Raundenbush and Marquardt, 2008; Leonard, 2014). This observation may be connected to the origin of “action learning” with Revans and his theory of applying this learning process to organization and business development (Revans, 1980). For action learning in an

academic context, more literature and research has focused on post-secondary education rather than K-12.

Active Learning

Although active-learning is defined separately from both action-oriented and action, many of the goals and principles are shared; thus, research on active learning provides useful context for exploring the impacts on students. Proposed learning outcomes of active learning from various studies include academic achievement, improved interpersonal interactions, improved self-esteem, improved perceptions of greater social support, and improved liking among students (Prince, 2004). Despite difficulties found in analyzing less tangible benefits and defining what counts as success, research on active learning found support for all types of active learning studied (Prince, 2004). Additional studies have explored more specific learning outcomes and, for example, found the active learning approach has a positive impact on students' perspectives (Demirici, 2017; Hyun et al., 2017). From studies previously mentioned above showed that active-learning can provide and improve students' learning experiences.

Environmental Education: Definition and Efforts in the United States

Environmental education (EE) is a relatively new concept in the field of education. Numerous sources cite the Tbilisi Declaration as a foundational document in EE (NAAEE, 2017; Archie, 2010; Archie, 2017; Ardoin, Bowers, Roth, & Holthuis, 2017; Carter & Simmons, 2010; Crim, Moseley, & Desjean-Perrotta, 2017; Fraser, Gupta, & Krasny, 2015; Hungerford, 2010; McBeth & Volk, 2009; McDonald & Dominguez, 2010; Moseley, Utley, Angle, & Mwavita, 2016; Stohr, 2013). The Tbilisi Declaration defines EE as:

“A learning process that increases people’s knowledge and awareness about the

environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action” (UNESCO, 1978). Carter and Simmons point to goals found in the Tbilisi Declaration as fundamental to work in the field of EE (2010). The listed goals are: “to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas; to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; to create new patterns of behaviour of individuals, groups and society as a whole towards the environment.”

The literature calls for an interdisciplinary approach to EE (Archie, 2010; Archie, 2017; Ardoin, Bowers, Roth, & Holthuis, 2017; Carter & Simmons, 2010; Crim, Moseley, & Desjean-Perrotta, 2017; Hungerford, 2010; McDonald & Dominguez, 2010; Moseley, Utley, Angle, & Mwavita, 2016; NAAEE, 2017; Saylan & Blumstein, 2011; Stohr 2013; Warner & Elser, 2014). Due to nascent interest in EE, education standards on EE concepts are sparse (Pruitt, 2014; Feinstein & Kirchgasler, 2014), but EE professionals are working to recommend EE standards that incorporate EE across grade levels and disciplines (Archie, 2010). Research on the outcomes of EE programs is growing as well (Ardoin, Bowers, Roth, & Holthuis, 2017). A nationally adopted environmental literacy assessment does not exist, although there is a research based framework for environmental literacy assessment (Hollweg et al., 2011). The sparsity of environmental educator training also reflects the lack of EE standards and assessment (Crim, Moseley, & Desjean-Perrotta, 2017). A shift in teacher education culture is needed to address the many obstacles to implementing EE (Greenwood, 2010; Ashmann & Franzen, 2015).

The literature reviewed for this paper consistently highlights the gap between the goals of

EE and the current practice of EE. Saylan and Blumstein highlight the “failure of environmental education” given significant barriers to implementing EE with relatively few supports (2011).

The overall increase in research on EE, programs in multiple states advocating for and including EE, and the first explicit mention of “environmental education” in federal education policy indicate slow signs of progress (No Child Left Inside Coalition, n.d.; Itza, 2017). However, this progress must accelerate to educate citizens on the severity of the environmental problems humanity faces.

Foundations for Effective Learning

The success of a classroom relies not only on a valuable curriculum, but also on prepared teachers. Foundations for effective learning include the foundations of effective teaching, how those foundations have evolved overtime, and what the modern use of teacher programs and workshops are in building effective teaching models. The literature identifies nine main teaching techniques (Marzano et al., 2000; Hattie, 2012; Shepherd et al., 2015; Terry 2016):

1. ID similarities and differences
2. Summarizing and notetaking
3. Reinforcing effort and providing recognition
4. Homework and practice
5. Nonlinguistic representation
6. Cooperative learning
7. Setting goals and providing feedback
8. Generalizing and testing hypotheses
9. Activating prior knowledge

As evident by the list of teaching techniques, the inability to effectively standardize student learning contributes to the current lack of comprehensive guidelines on "how to teach." Historically, standardized tests have served as a primary evaluation method as they can easily be

distributed to all students (though with debatable measuring merit). Recently, more studies highlight the importance of and challenges in effective implementation than simply defining these teaching strategies (McKnight, 2009, Bidabaldi, 2016). Recent studies have also addressed improving educational outcomes through techniques such as optimizing class size and utilizing technological classroom aides. However, these papers rarely define the term “success” in evaluating these outcomes. As a result, the “success” of a strategy depends on the goals which can include literacy, higher grades for students, increased self-efficacy, etc.

Some researchers also narrowed their scopes to address teacher development courses both in the long-term and the short term. One of the goals of short-term teacher training was to improve teacher-child interactions (Hamre, 2012). Overall, outcomes of these courses were favorable. Teachers also generally preferred this form of training to coaching or personal development training methods (Hamre, 2012). Another goal was ushering teachers into the program by pairing them up with another more experienced teacher (Ackerson, 2006, Strong, 2009). This more unique "only-teacher" approach made educators more comfortable teaching without involving students. The third short-term study focused on increasing teachers' factual knowledge, confidence, and effectiveness in teaching skills (Shepherd, 2015). Outcomes suggested that the success of training programs were as important as the programs focused on student betterment (Shepherd, 2015).

Long-term programs were conducted over the course of three years, in one case for elementary school teachers forth nature and science (Ackerson, 2006). Teachers had monthly workshops and classroom visits, resulting in an increased exposure and familiarity of the material, and improvements in teacher productivity. Overall, in the papers reviewed, long and short-term training sessions for teachers gave them the confidence to teach more effectively,

working in tandem with student improvement programs. Though metrics for measuring success and effectiveness are quite vague, continued educational research reveals important trends and models for teachers and schools to follow. These methods will pave the way for more specific data collection on different teaching methods.

In summary, there seems to be a need for clarification and further investigation of the terms “action”, “active”, “collaborative”, and “cooperative” learning. The need for these types of learning strategies is however much more agreed upon than the terms used to describe them. For the purposes of this study, the term “action-oriented” learning was used to most broadly fit the programs that are being evaluated. It is also evident from the current body of literature that the K-12 sphere has been largely ignored in research, and instead most studies have focused on the professional world or higher education. But the importance of the K-12 sphere comes into play not just with more interactive forms of learning, but with EE especially. Stewardship and active roles are built into the definition of environmental learning, and need a teaching style to match. The literature reviewed for this study shows the disconnect between the goals of EE and the practices used to teach students, so one of the goals of this study is to evaluate the programs that put forth a curriculum that aligns more with theories in literature. Other types of evaluations were also considered, based on literature about teacher efficacy and standardized testing, but based on the unique viewpoint student perceptions gave the data, it was the angle that was chosen.

Background

This section provides brief context on the background of Intersession, which high school students at ECS undergo every year. Results from the perceptions of Intersession are the backbone of our study and evaluation of environmental education in this paper. Background on Intersession is then followed by the background of Practicum, which senior students at UCLA IoES undergo.

Intersession Background

Environmental Charter Schools (ECS) provides free, interdisciplinary education to underserved communities in the Southern Los Angeles region with a creative, environmental lens. ECS is comprised of three public schools: one high school (ECHS) and two middle schools, located in Lawndale, Inglewood, and Gardena, respectively. ECS' mission is to “create and deliver vibrant, innovative, interdisciplinary learning opportunities using the environment to engage students and connect them to the wider world” (Environmental Charter Schools). ECS has ranked in the top 10% of schools in the United States and has been recognized as a Green Ribbon School based on efficiency in using resources, focusing on wellness, promoting public health, and including environmental courses (Environmental Charter Schools, 2012). ECHS has also achieved a 98% graduation rate with about 63% of students being first generation college students and roughly 91% coming from low-income families (Environmental Charter Schools, 2012).

Our research evaluates and measures student perceptions of a school wide, research-based project called Intersession. In Intersession, students spend one month apart from their usual academic schedule exploring real-world, environmental issues and demonstrating their newfound knowledge via presentations in a community forum at the end of the month. The objective of Intersession is for students to demonstrate environmental leadership and to prepare

students both for college and as community leaders.

Practicum background

At UCLA IoES, the senior year Practicum, is a year-long capstone project required for all Environmental Science majors for graduation. The program focuses on application of theoretical study to real world environmental issues (UCLA IoES, 2018). Clients from outside UCLA present project topics from which students rank their top choices and are subsequently teamed up with five or six other students and a faculty advisor or expert in the field. Teams then work with clients to isolate a research question based on environmental systems and sustainability, which the team will work on for the course of the year. In addition, at the IoES, there is one Practicum director that is the main contact person for all Practicum projects, managing all components in the Practicum including finding clients, connecting students with advisor and clients, sending out updates and emails, and administering the progress of all the practicum projects.

The Practicum is broken down into three, ten week long quarters. On the first day of class, the Program Coordinator gives an overview of all the deadlines and expectations that are going to be present for the remainder of the year. A Practicum Handbook is sent to the students with the administrative information students need to plan out their projects in the coming weeks. Then, students learn about the clients and projects offered for the year, and apply for the projects in which they are most interested and passionate. Concurrently, students take a technical class involving Geographic Information Systems (GIS), that is beneficial to some of the proposed projects. Those who are not going to immediately use GIS are taught the value of GIS as a transferable skill in their future career endeavors, which gives students reason to value the coursework. In the same quarter, students also start writing literature reviews related to the topics or projects that have now been assigned.

In the second quarter, each group has weekly meetings with both the group and the advisor. Our advisor is assigned to our team by the Practicum Director. Each advisor oversees the process of the entire project for the rest of the remaining two quarters. The team plans out the work and prepares a project proposal in order to solve the client's proposed issues or requests, or to propose a different scope to the clients under the advisor supervision. Among other things, this proposal includes a detailed timeline of how groups intend to complete their tasks, as well as a contract of assigned roles and expectations all students have agreed upon and have promised to fulfill. Once the project proposal is complete and reviewed by the client, the data collection phase begins. In this phase, students and advisors discuss the progress made during each meeting while maintaining close communication with the clients. Field trips, research, testing, surveying, or actual site visits to study more in depth about the project also take place in the second quarter.

Finally, in the third quarter, students collect results. Then, students analyze the results, and put the information into a preliminary report that is reviewed by the advisor. Also during this quarter, a class-wide presentation is done to all the students to update the entire senior class on what everyone has been working on, and where projects have reached. Finally, students wrap up their findings and turn in a final report as well as a final presentation in symposium-style (see Appendix B).

Though there are notable differences between the two projects, each exemplifies collaborative action-oriented learning and as such we sought to identify trends common between perceptions of the projects and areas in which they may draw inspiration from each other. To examine these two projects we set out to empirically research perceptions on such projects through a survey of students participating in Intersession and the Practicum.

Methods

This section below is about the methodology that we performed to study and evaluate the students perception on environmental action-oriented and active-learning. Details about survey design, administration, and data collection will also be included in this section.

Survey Preparation and Development

The survey included questions about students' experiences during the time they were involved in Intersession throughout all four years at ECHS, with special emphasis on their senior year project. In developing the survey, our team incorporated questions both from our research and our own experiences in UCLA's Environmental Science Practicum project to design questions that capture the experience and skills learned during the project. Majority of the questions in the survey employed a Likert Scale rating system. We also included open-ended questions to gain a richer understanding of what students liked the most and the least about their experience. Additionally, a subset of pre-determined benchmark questions from the literature were used to gauge environmental behaviors and attitudes. The surveys themselves were designed using Qualtrics because of its ability to conduct more detailed analysis than SurveyMonkey or other similar programs. All researchers in this study were certified using the Collaborative Institutional Training Initiative (CITI) program. The surveys sent were both approved by the Institutional Review Board (IRB). The surveys underwent multiple edits and reviews before its final submission for Institutional Review Board (IRB) approval and distribution to students.

Survey Distribution and Data Collection

The survey was tested first with a small group of sixteen ECHS seniors. Based on the

student comments, the survey instrument was revised, and then administered to the whole senior class. Four researchers and one faculty member distributed the survey in 5 classrooms to students using computers provided by the school. The survey was then modified slightly to represent the Practicum experience and was administered to current Practicum students (see Appendix K). The Practicum students were contacted by email and asked to take the survey on their own time.

Once data was collected, questions involving the Likert Scale rating system were assessed by mean, and evaluated by gender and major specifically. Open-ended questions were coded according to key words and phrases used by the students, and then divided into percentages for assessment. Reports and figures were generated using Qualtrics and Google Sheets. (see Appendix C).

Results

This section below includes demographic information regarding the ECHS senior students and Practicum students that answered the survey. Survey responses and analyses are reported through coding and numerical analysis. Finally, results are compared to find similarities and differences between the two perceptions.

Demographics

From the survey administered to the ECHS seniors, 95 out of 114 students (83%) responded to the survey. The gender profile of the respondents were 53 male students (58.2%), 28 female students (30.8%), and 10 (11%) students who identified as “other”, while 4 students did not answer to this question. While students had more flexibility in self-identifying with gender, the school records indicate the senior class has 72 males (63.2%) and 42 females (36.8%). Typically, ECS has a nearly 50/50 gender breakdown, but the senior class is an anomaly which is reflected in our survey respondents. It was noted by the administration that the senior class had a greater ratio of male to female students (approximately 2 male:1 female) compared to the demographics of the high school overall. Most respondents were 17 years of age (55.7%), and the next most common was 18 (40.9%), with one 16-year-old and two 19-year-old students. These students expressed overall agreement with both environmental concern and personal responsibility. On a scale of 1 (strongly disagree) to 5 (strongly agree) students averaged a 3.89 for “if things continue on their present course, we will soon experience a major ecological catastrophe” as well as a 3.67 for “my personal actions can greatly improve the well being of people I don’t know” (See Appendix G).

From the Practicum Survey, 45 out of 66 students (68%) involved in the program

responded to the survey. Regarding the gender distribution, 30 out of 45 students identified their gender, showing results of 26 females and 4 males-- predominantly female in contrast to Intersession's predominantly male respondents. The ages of the Practicum survey respondents had a greater range: two 20-year olds, six 21-year olds, eighteen 22-year olds, one 23-year old, and three students above the age of 24. Practicum students also expressed strong environmental preferences. On a scale of 1 (strongly disagree) to 5 (strongly agree), the students averaged a 4.47 for "if things continue on their present course, we will soon experience a major ecological catastrophe" as well as a 4.1 for "my personal actions can greatly improve the well being of people I don't know" (See Appendix H).

Findings: Intersession

Overall Score and First Impression

Students were asked to rate their respective program out of an overall rating on a scale of 1 to 5, 1 being the lowest and 5 being the highest. Intersession students rated their program at 2.81 out of 5. Students were also asked to give an initial "one word" depiction of their program to concisely and generally describe their experience, and give the team an idea of their baseline feeling. Words used to describe the Intersession varies largely from very negative terms to positive ones. Frequently used negative words included "stressful" and "boring", the most used word ("interesting") was categorized as neutral, and the most-used positive words included "helpful" and "great." Generally, negative words were used much more than positive ones (see Appendix D)

Skills: General

One of the survey questions asked students "What was the most significant skill you

obtained from Intersession?” in order to gain insight into which skills students found most valuable (*Table 1*). Survey results show that the skills that senior students of ECHS found most significant were: working in a group (27.8%), leadership (18.9%), presentation skills (18.9%). On the opposite side of the spectrum, few individuals selected writing reports (1.1%), problem solving skills (2.2%), and time management skills (3.3%) as their number one most valuable skill attained.

Table 1: Skills

Most Significant skill obtained from Intersession	Percentage	Count
Working in a group	28%	25
Presentation skills	19%	17
Leadership	19%	17
Research skills	11%	10
Communication skills	7%	6
Professional dress code	6%	5
Using software programs	4%	4
Time management skills	3%	3
Problem solving skills	2%	2
Writing reports	1%	1
Total	100%	90

Skills: by major

One criterion used to evaluate the results at a deeper level was a breakdown by intended major. Students were asked about what major they intend to study once in college (see Appendix E). All other questions were then sorted according to these data. One interesting finding from this breakdown was that students intending to go into STEM fields were more inclined to select research and software as the skill they valued the most. This shows an extra dimension to the

skills the students valued over others, because they appreciated the skills that related mostly to their major. Non-STEM students reported working in groups, presenting, and communication as their most valued skill, but not research, software, and problem solving.

What students liked the most

Open-ended questions in the survey asked students to write detailed impressions and reflections about more nebulous issues in Intersession. One of these questions asked the students to reflect on what they liked the most about Intersession (*Table 2*). The most common responses dealt with social aspects of Intersession and presentations. Making new friends or meeting new people through Intersession was the single most popular response at 15.8%, and group work in general was also a popular response at 13.7%. A small portion (4.2%) of respondents expressed satisfaction that they felt they got to choose their topic in their senior year project. Over 20% answered that they had no favorite part of Intersession or left the answer blank. Gendered differences existed in blank responses versus responses of “nothing” or “N/A.” Females were more likely to leave this question blank (10.7%) while equally reporting that they liked “nothing” about Intersession (10.7%). Males were more likely to explicitly respond that they liked “nothing” about Intersession (13.2%) and rarely left the question blank (1.9%). In addition, 11.6% of respondents reported their favorite part was getting a break from normal school work.

Generally, a common theme in the data were correlations between the most valuable skills learned during Intersession and the things students liked the most. The most widely reported things that students liked during Intersession were making new friends (15.8%), working in a group (13.7%), and learning presentation skills (12.6%). The second and third favorite aspect corresponded directly with the top two favorite skills, showing that students saw the value of Intersession directly relating to the skills they obtained during the experience.

However, it is important to acknowledge the frequently negative perception of Intersession within the senior ECHS students. A high percentage (34%) of respondents left this question blank, citing “nothing” as their favorite part of Intersession, or enjoying Intersession only for the break from other classes. This shows clear proof of student dissatisfaction with the project.

Table 2: What students liked the most about Intersession

Coded responses	Percentage	Count
Nothing/Blank	22%	21
Making new friends	16%	15
Working in a group	14%	13
Presentations	13%	12
Break from other classes	12%	11
Feeling the work is impactful	8%	8
Educational aspects	6%	6
Other	9%	9
Total	100%	95

What students liked least

A separate open ended question asked students to reflect on what they liked the least about Intersession (*Table 3*). One of the most common responses (22%) was that students did not like that they couldn’t choose their own group members. This seemingly goes against the idea of liking to meet new people and working in groups as reported before, but students further clarified by reporting about unequal work distribution within their groups (19%). That some students did

not do as much work as the others. Many students were dissatisfied with the way the groups were set up. Additionally, certain survey respondents (12%) reported dissatisfaction with their inability to choose their topics of study. Others had issues with the length of Intersession. Students expressed that one month was not enough time and that they experienced stress due to this time constraint. Another portion of respondents (8%) found Intersession to be a waste of time because they saw no clear purpose in the work they were doing, and also complained about Intersession being disorganized, with a lack of communication and unclear formatting and instructions for the project.

Table 3: What students liked least about Intersession

Code Response	Percentage	Count
Unable to choose group	22%	9
Work Distribution	19%	16
Unable to choose topic	12%	10
Time Constraint	8%	7
Disorganized Structure	8%	7
Time Wasted	7%	6
Liked Everything	7%	6
Other	7%	6
Intersession as a whole	6%	5
Non-beneficial	4%	4
Total	100%	86

Findings: the Practicum

Overall Rating and First Impression

Students were asked to rate their respective program out of an overall rating on a scale of 1 to 5, 1 being the lowest and 5 being the highest. Practicum students rated the program 4.27 out of 5.

Students were also asked to give an initial “one word” depiction of their program to concisely and generally describe their experience, and give the team an idea of their baseline feeling.

Words used to describe the Practicum were generally positive. The most used word was “challenge”, which has a positive connotation, grouped with other words like “valuable” and “commitment.” (see Appendix F)

Skills

The Practicum survey results show that the skills that students found most significant were: working in a group (30.6%), communication skills (22.2%), and leadership and software skills (11.1% each). The skills least reported by the students as most significant were: writing reports(2.8%) and time management skills (2.8%).

The top three most significant skills indicate skills that respondents perceive as most significant from their respective programs. It is imperative to recognize that the significance of the selected skills are from the perspective of students, which are highly subjective with respect to the holistic components of the programs. A more objective dataset of skills that the programs helped foster would require a specific before-and-after assessment of each skill set. The surveys reflect biases and limited perceptions of students that make metric assessment of gained skills difficult to analyze. However, it provides some insight on the potential need for administrators and instructors to develop new components or changes to programs that would

help foster some of the less appreciated skills.

What students liked the most

According to Practicum survey response, students expressed that what they liked most about their projects were: dealing with problems that have real world applications and challenges (33%), which was a very practical skill for students after graduation (*Table 4*). Additionally, students (29%) expressed that they liked the sense of working in a group together with people of similar passionate and interest toward a common goal. The project allowed the students to take lead and tackle the issues. In addition to that, another aspect that students liked about the Practicum (21%) was the fact that the courses offered were relatable to many of the projects, such as Geography Information System (GIS). This allowed the students to utilize their skills learned in the classroom and apply them to solve the challenges given to them, which students stated felt like a transferable skill for post-graduation life as well. These top three choices were what students liked the most from their time in the Practicum.

Table 4: What students liked the most about Practicum

Coded responses	Percentage	Count
Real World Solving & Connection	33%	8
Teamwork	29%	5
Transferable Skill	21%	7
Advisor & Clients	13%	3
Other	4%	1
Total	100%	24

What students liked the least

Conversely, what students found challenging about the Practicum was similar to complaints in the Intersession survey regarding logistical difficulties (*Table 5*). Certain students (17%) reported issues with time management, saying that there was often a time crunch with certain parts of the project running more smoothly than others. Some students (roughly about 17% too) wishing that the communication between team members were more transparency and that the teamwork were more efficient. The largest percentage of complaints (25%) reported with students tended to relate to the unclear boundaries of responsibilities between advisor and student. Often students felt that their advisor would be too involved, or not involved enough, which would make the collaborative nature of the project difficult.

However, out of the 44 survey respondents, only 24 filled in complaints in this section in the survey. This suggests that students did not have overwhelming issues in the program, since they would have been articulated there, which was the case in the Intersession survey. One potential reason for the low response rate for issues could be that the Practicum already employs several tiers of evaluation within the program. Peer evaluations, course evaluations, and advisor evaluations are implemented every quarter in the Practicum, where students rate their performance, their peers' performances, and the performance of the instructor(s) involved. This gives each student various opportunities to bring up issues anonymously to faculty to be dealt with.

Table 5: What students liked the least about Practicum

Code Response	Percentage	Count
Advisor	25%	6
Timeline of the Project skills	17%	4
Communication & Efficiency	17%	4
GIS	13%	3
Work Distribution	8%	2
Lack of Interaction with Other Projects	4%	1
Other	12%	3
None	4%	1
Total	100%	24

Summary of Results

In terms of attitudes and perspectives, a holistic view of the results of the Intersession survey indicates that students carry a slight dislike to neutral attitude for Intersession as seen by the overall score of Intersession having a mean of 2.81. Going into the nuances behind the neutral or negative feelings expressed in the average of 2.81, the responses to what they liked revealed that students' favorite part involved socialization-- making friends or working in a group, with many students also reporting to like "nothing." On the other spectrum, the students' least favorite parts of Intersession also involved social or group work problems: not being able to choose groups and uneven distribution of work. While Intersession set high expectations with its unique application of collaborative-action oriented learning, its implementation was not received well by students. In the next section we discuss the issues students had with Intersession and make recommendations to remediate such issues, based on the successes seen in the Practicum, and with our complex knowledge of the inner-workings of the Practicum itself as a guide.

Discussion

Environmental Charter High School's Intersession aims to not only provide students with hands on experience in the environmental field and help students become well-versed in their environmental knowledge, but also aims to encourage students to become environmental leaders and stewards in their communities. However, the results from a survey taken from their seniors indicates that in the students' point of view, Intersession did not have a significant impact on their future prospects, but did facilitate group-work and improve their individual presentation and leadership skills.

The Focus on Environmental Education

While the skills students acquired are beneficial in a broader educational and career sense, they do not adequately demonstrate that students have become well-versed in environmental subjects and stewardship, as the school hopes. From our discussion with the focus group, students voiced that they did not understand the connection between previous Intersession topics and the environment. One example was urban planning and gentrification, which was "confusing" to the students, which hindered their learning and enjoyment of the project. This correlated with the majority of student responses from the survey saying that they did not enjoy their Intersession experience and that the program did not change their career goals in any significant way. Some students went as far as to say that Intersession was a waste of their time, imposed on them by the school. They expressed that they would have rather focused on AP courses that they believed would have improved their chances of being accepted into the colleges of their choice. This further proves that students do not realize that the skills they have acquired during Intersession are marketable ones, even if their intended college major is not an

environmentally-centered one.

The critical aspect missing from the Intersession curriculum is interconnectedness, according to the impressions students had of the usefulness of the program. Another response from a student stated that “I never knew why we have these project and I felt it was never intended for my education.” By not seeing how environmental issues can span the full spectrum of jobs and subjects, students find their time in Intersession to be useless, since they have no desire to go into the “pure” environmental sciences.

Student Choice Factor

The choice factor also had an overwhelming presence in the results. While students expressed their desire to choose their Intersession topics, they also expressed their desire to choose their own group members. Some students wanted to work with their friends, but most students complained of group members not doing their part and the workload not being evenly distributed.

Administrative Organization

Since Intersession focuses on an environmental-based curriculum, it is much different from conventional academics. This, along with the month-long time constraint and the fact that ECHS is a relatively new school having been founded in 2000, caused some teachers to simply be ill-prepared for the fast-paced program. In turn, this contributed to students being unprepared and not having a solid vision for their month in Intersession, which partially explains why some students said that preparing for their projects took the majority of the time instead of actually conducting the projects. There were instances in which students felt lost, without any concrete goal given to achieve, and did not understand the purpose of the project.

Recommendations

Conveying the Importance of Environmental Education

Students have demonstrated in many of their open-ended responses, that there was a large disconnect between what they saw as “environmental” and “non-environmental” subjects. Students also anecdotally took the word of college students over their day-to-day instructors when they were told about the importance and relevance of their work in Intersession. For this reason it is recommended that ECHS should implement a curriculum prior to Intersession which conveys to students the value of Environmental Education and explains the connection between the topics covered and the environment. This would give them a comprehensible sense of why their projects matter and that their time is being devoted to learning about topics that will impact not only themselves, but their communities and beyond. Speakers that have worked or volunteered in the field can also be brought in to talk to the students about their personal experiences and provide advice and encouragement so that students can understand the environmental value and be exposed to real-world events vicariously. Since our opinions in our field visit to the Intersession presentations alone were taken so seriously by students, we recommend ECHS collaborate with college health, psychology, and engineering clubs to speak to students in conjunction with environmental clubs, to show the interconnectedness of the aforementioned fields and the relevance of work in Intersession to college-level work.

Student Choice in Topic

A lack of interest in the project students are asked to complete will lead to difficulty in group dynamics, and an overall disenchanted feeling with the subject-matter when the project is over. One solution to this problem would be for students to be allowed to choose their

Intersession project, using this as a precursor to assigning groups.

As an example case, the UCLA Environmental Science Practicum allows students to rank their top three topic choices and are assigned according to 1) the demand, since not all students could participate in one project, and 2) their passion and explanation as to why they want to participate in their chosen topics. While there is no significant evidence to support whether this method is efficient, we see the more positive reviews of the Practicum as indicative that they are doing something right. Based on the results from the survey given to Practicum students, this method of having students select a topic will greatly decrease complaints about team members and wanting to choose their own groups. Students often contradicted themselves in saying that they both wished they got to choose their groups members and were glad they got to meet new people. By grouping students based on common interests, students are more likely to be active participants and develop better group relationships further enhancing their Intersession experiences with those who share their passion for a subject.

Allowing students to choose a topic could add another layer of complexity with respect to logistics and the quantity of topics offered if teachers were to add many projects for each different grade level. Because of this, another potential strategy would be mixing grade levels for students in 10th-12th grade. This method would prevent the need to offer many topics for each grade level (e.g. 5 topics per grade) and instead focuses on a variety of topics that all students could choose from (e.g. 8 topics total). Students in the 9th grade could be introduced to Intersession on their own in a more intimate and focused environment, with more guidance and remaining students who have at least been exposed to Intersession could be mixed together. Mixing of grades would also help students practice serving as community stewards, which is another major goal the school has for their students. Giving students the ability to not only

choose a topic, but work along those who are younger than them could help develop leadership skills without forcing leadership upon individuals by virtue of lack of participation from other group members.

Though the administration can try to maximize the compatibility of students by sorting based on interest, there will still be the need for peer-evaluations after the end of Intersession. A standardized sheet filled out by students that lists the group members' names along with how they carried their own weight in the project will help students feel that their concerns are being heard, and that the work of one person will not dictate the grade of the whole group.

Giving students a choice in their Intersession topic can also address student concerns about dedicating time to focus on their college and career prospects. For example, students who are looking to become a part of the engineering field may be more interested in projects focused around CAD (Computer-Aided Design), GIS (Geographic Information System)s, and urban planning, whereas students who are looking to go into law may be more interested in environmental law and policy making. Those who are looking to go into mathematics may be more interested in conducting environmental impact assessments for green energy. Students who are interested in majoring in psychology, a subset of students which consistently rated the project poorly, would benefit greatly from projects centered around green space and psychological improvements in disadvantaged communities. Students are more likely to actively participate and be more motivated if their projects pertain to their interests or skill-set. For more skill-specific preparation, workshops such as resume building and leadership workshops may be provided.

Logistical Restructuring

The issues with logistics can be broken down into issues with teacher preparedness, student-teacher communication, and teacher work distribution. To remedy the uneven opinions

of Intersession among teachers, there should be a set amount of time dedicated to teacher training and preparation for Intersession. By giving teachers the vision of what ECHS is hoping to accomplish with Intersession as a whole, why Intersession is important, and how much students are capable of doing with the right guidance, teachers will be able to better guide their students throughout the projects.

After teachers have been shown what students could do with Intersession, and after students themselves go through Intersession, it is important to receive feedback from students themselves. This will test the success of the information chain set forth to inspire all those involved in the Intersession process. A way of testing student-teacher communication effectiveness would be asking for student feedback on both their progress on their project and their opinions throughout Intersession. From previous meetings, ECHS' administration predicted that the results of the knowledge and action-based environmental-related questions of the survey would be majority 4 to 5, from agree to strongly agree. However, the average of the results were an astounding 3 (rounded), neutral. This exhibits a disconnect and need for communication between the administration and the student body. Taking into consideration these results and the negative feedback obtained from the survey overall, implementing a feedback system can offer students an area to vent as well as provide recommendations for improvement in a concrete and specific way. Evaluations for Intersession itself could be structured as a course evaluation, and peer feedback could be given to educators to see how teams broke down their work and if the process was fair and smooth (see Appendix J, Appendix I).

The research team recognized that these recommendations will require much more work than many educators have time for in their busy schedules. Along with teaching students, teachers and administrative staff would have to hunt for potential topics, secure group mentors

and possible clients, design surveys for student and teacher feedback, and organize speakers that represent an even distribution of environmental interdisciplinary learning. One key to the Practicum's organization and success is its Program Coordinator. This is a specific position held by a faculty member who serves as a central hub for all communication between prospective clients and students. This person organizes logistical matters with faculty advisors, and focuses on the betterment of the Practicum each year. The team strongly recommends having a person in an equivalent position at ECHS, to make the implementation of these suggestions easier for the administration, teachers, and students.

Future Research

While our research constitutes an important first step in assessing the impacts collaborative-action oriented learning projects have on students in Environmental Education settings, there is much room for further research. Our data are limited in that they only reflect the perceptions of one class of ECHS students on the Intersession project. To get a better picture of student perceptions across the school, our survey instrument can be utilized in future class years to gauge the perceptions of more students. We also see the value in surveying ECHS alumni to find out if perceptions of Intersession have changed with time, and if students recognize the value of the project more as they advance to college and career. ECS recently hired an alumni coordinator so we believe with a stronger network of alumni, alumni surveying will be possible.

In addition to student perceptions of the projects, we are curious as to how teachers perceive of the projects. As we found in the literature, teacher self-efficacy is an important foundation for effective teaching and ideally impactful learning. Using pre-existing environmental teacher self-efficacy instruments or creating a new one specifically addressing teaching collaborative action-oriented learning projects would help to establish an understanding of how teachers feel about these experiences. Of ultimate curiosity to the team is how short-term changes we've recommended to ECHS will impact student perceptions of the project. If some of the recommended changes are implemented, follow up surveys of ECHS students can gauge whether the changes improve the experience.

Conclusion

This study investigates student perceptions of two significantly different collaborative, action-oriented environmental projects: Intersession and the Practicum. These student perceptions provide a foundation to understand student learning outcomes. Towards a sustainable future, effective Environmental Education (EE) must become standard education. Learning institutions such as Environmental Charter High School and UCLA's Institute of the Environment and Sustainability are pioneers in EE, seeking not just to teach students facts about the environment but to move students to environmentally conscious action. To do this, they employ a new approach to education.

Collaborative action-oriented learning enables students to learn not just facts but the skills necessary to take action together to address monumental problems in the environmental sciences. Understanding student perceptions of such projects is an important first step in understanding the effectiveness of such projects. Our survey of student perceptions of two collaborative action-oriented learning projects highlights the student experience within these projects. Originally, the two were compared alongside one another to see similarities and differences between them, and what the implications of these findings could be. After looking into the results of the surveys, the goals of the project shifted to not just comparing the two programs, but identifying just what was making one considerably more successful than the other. Based on the breakdowns of both programs, and the student perceptions of them, the team provided a list of checkpoints that have been the key to the Practicum's success based on the responses of one year of students. Future research is needed from several more years of students to account for any biases that may be present in the groundwork of this foundational study.

However, it is our opinion that the work that is being done at ECHS is critical and trail-blazing in the K-12 sphere on environmental education, and if modified correctly, could be a model that can be implemented not just in high schools and middle schools all around the nation. Further research is critical in this field of study for the future of environmental stewardship, and it is our goal to evaluate and perfect the model, so that it can then be applied and tailored to any school that wishes to implement it.

The direction of EE is inspiring, as we see in case studies such as ECHS and UCLA IoES, but there is always room to improve. We believe our survey instrument is an effective tool in measuring student perceptions of environmental collaborative action-oriented learning projects and can continue to be utilized in this way. There is, however, much room for research in this area of education. Beyond survey methodology which measures student's self-reported attitudes, measures of the effectiveness of such projects in inspiring environmental action are vital. We are inspired by the state of EE scholarship and look forward to the introduction of further measures of effectiveness.

References

- Archie, M. (2010). *Excellence in Environmental Education: Guidelines for Learning (K-12)* (4th ed.) (L. Mann, Ed.). Retrieved January 7, 2018, from https://cdn.naaee.org/sites/default/files/learnerguidelines_new.pdf
- Ardoin, N. M., Bowers, A. W., Roth, N. W., & Holthuis, N. (2017). Environmental education and K-12 student outcomes: A review and analysis of research. *The Journal of Environmental Education*, 49(1), 1-17. doi:10.1080/00958964.2017.1366155
- Ashmann, S., & Franzen, R. L. (2015). In what ways are teacher candidates being prepared to teach about the environment? A case study from Wisconsin. *Environmental Education Research*, 23(3), 299-323. doi:10.1080/13504622.2015.1101750
- Carter, R. L., & Simmons, B. (2010). The History and Philosophy of Environmental Education (A. Bodzin, B. S. Klein, & S. Weaver, Eds.). In *The Inclusion of Environmental Education in Science Teacher Education* (1st ed.). doi:10.1007/978-90-481-9222-9_1
- Crim, C., Moseley, C., & Desjean-Perrotta, B. (2017). Strategies Toward the Inclusion of Environmental Education in Educator Preparation Programs: Results from a National Survey. *School Science and Mathematics*, 117(3-4), 104-114. doi:10.1111/ssm.12211
- Environmental Charter Schools. (n.d.). Our Approach. Retrieved from <https://ecsonline.org/our-approach/>
- Feinstein, N. W., & Kirchgasler, K. L. (2014). Sustainability in Science Education? How the Next Generation Science Standards Approach Sustainability, and Why It Matters. *Science Education*, 99(1), 121-144. doi:10.1002/sce.21137
- Forbes, C. T., & Zint, M. (2009). Elementary Teachers' Beliefs About, Perceived Competencies for, and Reported Use of Scientific Inquiry to Promote Student Learning About and for

- the Environment. *The Journal of Environmental Education*, 42(1), 30-42.
doi:10.1080/00958961003674673
- Fraser, J., Gupta, R., & Krasny, M. E. (2015). Practitioners' perspectives on the purpose of environmental education. *Environmental Education Research*, 21(5), 777-800.
doi:10.1080/13504622.2014.933777
- Gillies, R. M. (2004). The effects of cooperative learning on junior high school students during small group learning. *Learning and Instruction*, 14(2), 197-213. doi:10.1016/s0959-4752(03)00068-9
- Greenwood, D. (2010). A Critical Analysis of Sustainability Education in Schooling's Bureaucracy: Barriers and Small Openings in Teacher Education. *Teacher Education Quarterly*, 37(4), 139-154. Retrieved January 7, 2018, from <http://www.jstor.org/stable/23479464>
- Hattie, J., Marsh, H. W., Neill, J. T., & Richards, G. E. (1997). Adventure Education and Outward Bound: Out-of-Class Experiences That Make a Lasting Difference. *Review of Educational Research*, 67(1), 43-87. doi:10.3102/00346543067001043
- Hollweg, K. S., Taylor, J., Bybee, R. W., Marcinkowski, T. J., McBeth, W. C., & Zoido, P. (2011, December 1). *Developing a Framework for Assessing Environmental Literacy: Executive Summary* (Executive Summary). Retrieved January 7, 2018, from North American Association for Environmental Education website:
<https://cdn.naaee.org/sites/default/files/envliteracyexesummary.pdf>
- Hudson, S. J. (2001). Challenges for Environmental Education: Issues and Ideas for the 21st Century. *BioScience*, 51(4), 283. doi:10.1641/0006-3568(2001)051[0283:cfeeia]2.0.co;2

- Hungerford, H. R. (2009). Environmental Education (EE) for the 21st Century: Where Have We Been? Where Are We Now? Where Are We Headed? *The Journal of Environmental Education*, 41(1), 1-6. doi:10.1080/00958960903206773
- Itza, F. (2017). Environmental Education in the Every Student Succeeds Act and the Role of Advocates. *The Georgetown Environmental Law Review*, 29(2), 417-434. Retrieved January 7, 2018, from <https://gelr.org>.
- Lee, J. J., Ceyhan, P., Jordan-Cooley, W., & Sung, W. (2013). GREENIFY: A Real-World Action Game for Climate Change Education. *Simulation & Gaming*, 44(2-3), 349-365. <https://doi.org/10.1177/1046878112470539>
- Lieblein, G., Breland, T. A., Francis, C., & Ostergaard, E. (2012). Agroecology Education: Action-Oriented Learning and Research. *Journal of Agricultural Education and Extension*, 18(1), 27-40. <https://doi.org/10.1080/1389224X.2012.638781>
- McBeth, W., & Volk, T. L. (2009). The National Environmental Literacy Project: A Baseline Study of Middle Grade Students in the United States. *The Journal of Environmental Education*, 41(1), 55-67. doi:10.1080/00958960903210031
- McDonald, J. T., & Dominguez, L. A. (2010). Professional Preparation for Science Teachers in Environmental Education. In A. Bodzin, S. Weaver, & B. S. Klein (Eds.), *The Inclusion of Environmental Education in Science Teacher Education* (1st ed.). doi:10.1007/978-90-481-9222-9_2
- Mobley, C., Vagias, W. M., & DeWard, S. L. (2009). The influence of environmental literature and environmental attitudes. *Environment and Behavior*, 42, 420-447.

- Moseley, C., Utley, J., Angle, J., & Mwavita, M. (2016). Development of the Environmental Education Teaching Efficacy Belief Instrument. *School Science and Mathematics, 116*(7), 389-398. doi:10.1111/ssm.12189
- No Child Left Inside Coalition. (n.d.). Environmental Literacy Plans by State. Retrieved January 07, 2018, from <http://bb.cbf.org/page.aspx?pid=924>
- North American Association of Environmental Education. (2017, August 22). NAAEE Policy Initiatives. Retrieved January 07, 2018, from <https://naaee.org/our-work/programs/naaee-policy-initiatives>
- Onyango-Ouma, W., Aagaard-Hansen, J., & Jensen, B. B. (2004). Changing concepts of health and illness among children of primary school age in Western Kenya. *Health Education Research, 19*(3), 326–339. <https://doi.org/10.1093/her/cyg034>
- Pearson, S., Honeywood, S., & O'Toole, M (2008). Not Yet Learning for Sustainability: The Challenge Policy Challenge of Environmental Education in a University. Retried May 29, 2018, from <https://www.tandfonline.com/doi/abs/10.1080/10382040508668349>
- Pedler, M., & Garratt, B. (2016). *Action Learning in Practice*. Retrieved June 2, 2018, from <https://www.sciencedirect.com/science/article/pii/S0959475203000689>
- Plavsic, Sonja, "An Investigation of Gender Differences in Pro-environmental Attitudes and Behaviors" (2013). Honors Scholar Theses. 404.
- Prince, M. (2013). Does Active Learning Work? A Review of the Research. *Journal of Engineering Education, 93*(3), 223-231. doi:10.1002/j.2168-9830.2004.tb00809.x
- Pruitt, S. L. (2014). The Next Generation Science Standards: The Features and Challenges. *Journal of Science Teacher Education, 25*(2), 145-156. doi:10.1007/s10972-014-9385-0

Saylan, C., & Blumstein, D. T. (2011). *The Failure of Environmental Education: (And How We Can Fix It)*. Berkeley: University of California Press.

Stohr, W. (2013). Coloring a Green Generation: The Law and Policy of Nationally-Mandated Environmental Education and Social Value Formation at the Primary and Secondary Academic Levels. *Journal of Law & Education*, 42(1), 1-111. Retrieved January 7, 2018, from <http://www.law.sc.edu/jled/>

United Nations Educational, Scientific, and Cultural Organization. (1978). Tbilisi Declaration. *Connect*, 3(1), 1-8.

Warner, B. P., & Elser, M. (2014). How Do Sustainable Schools Integrate Sustainability Education? An Assessment of Certified Sustainable K–12 Schools in the United States. *The Journal of Environmental Education*, 46(1), 1-22.

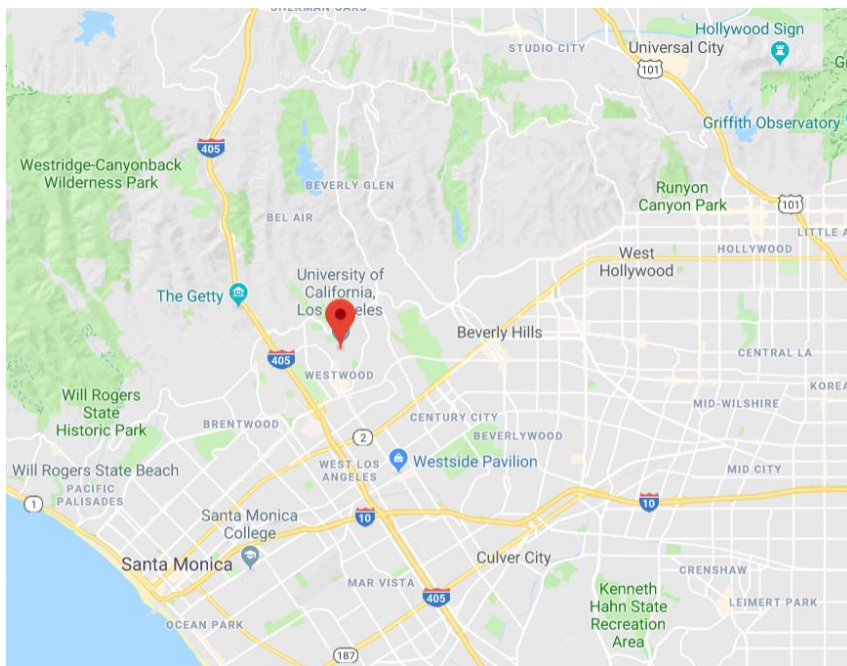
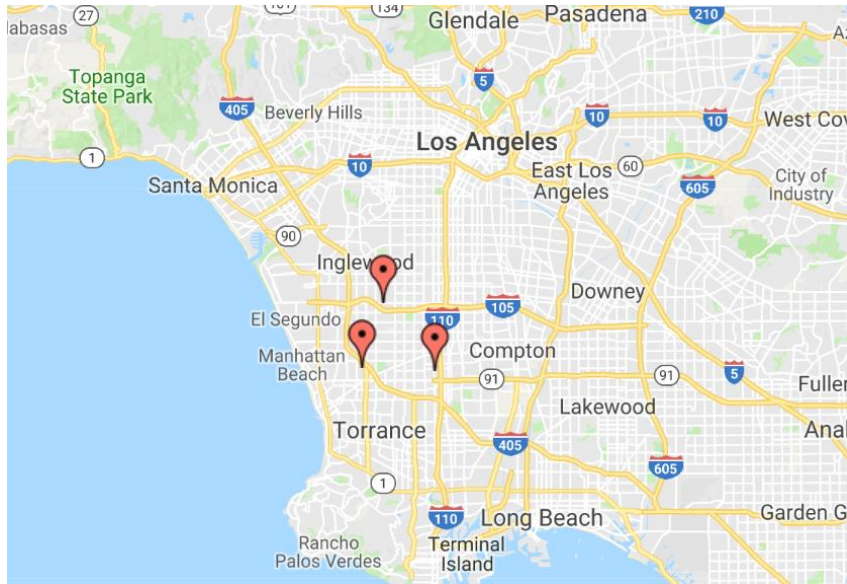
doi:10.1080/00958964.2014.953020

Yung, C.-Y., Chang, T.-Y., & Hsieh, C.-L. (2017). Applying Action-Oriented Learning Approach on Campus Practicum. *Journal of Tourism & Hospitality*, 6(1), 1–5.

<https://doi.org/10.4172/2167-0269.1000271>

Appendix

Appendix A



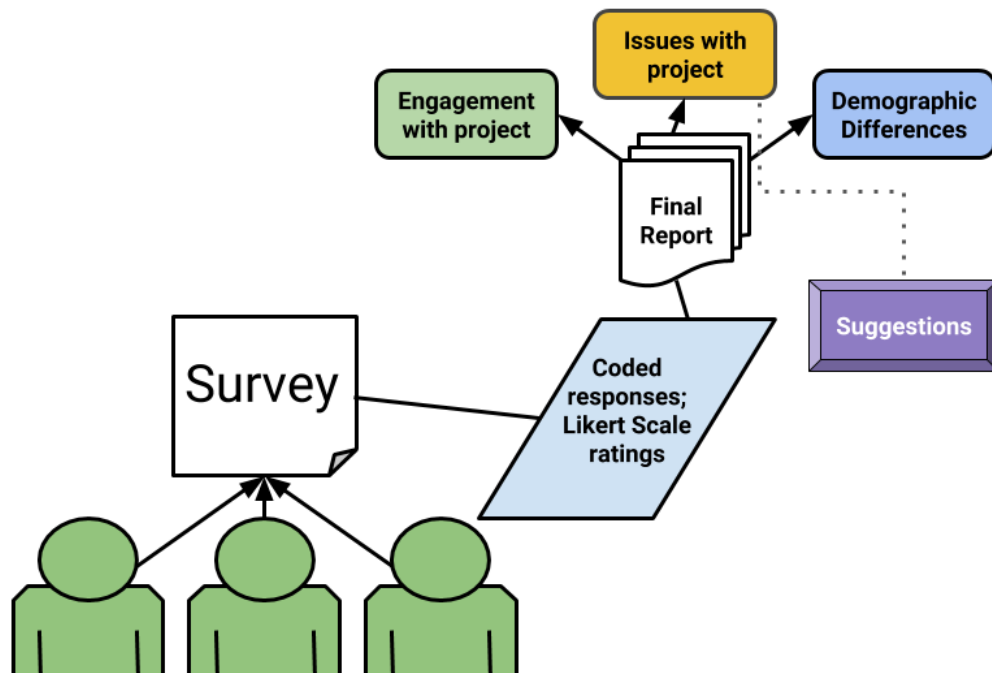
First image: map of ECS school locations. Second image: map of UCLA location. Source: Google Maps.

Appendix B



Image of Practicum team at the final presentation of UCLA's IoES Practicum Presentations with one of our clients, Sammy Lyon. From left to right: Sammy Lyon, Meleeneh Hairapetian, Melonie Fong, Julia Park, Madelene Hem, Sarah Paset, Audrie Francis, and Magali Delmas.

Appendix C



Graphical Representation of survey data analysis. Survey responses are coded using the Likert Scale, and the final report findings show critiques as well as recommendations for Intersession.

Appendix D



Word map generated by Qualtrics when students were asked to describe Intersession in “one word.”

Appendix E

Major	Count	Male	Female	Other	Parental Education
Art	8	2	1	5	3.13
M&S	2	2	0	0	6
Science	12	6	6	0	3.33
EnviSci	3	2	0	1	5
Engineering	13	11	1	1	3.77
ComSci	6	6	0	0	1.83
Social Sci	3	0	3	0	2.33
Psych	6	3	3	0	3.67
Health	12	7	5	0	3.17
Education	1	0	1	0	3
N/A	1	1	0	0	2

Table coding demographics in terms of intended major for college (ECHS)

Appendix F



Word map generated by Qualtrics when students were asked to describe the Practicum in “one word.”

Appendix G - Survey Results Reporting on Student Environmental Actions and Perceptions

Intersession student attitudes

# ▼	Field	Mean
1	Plants and animals have as much right as humans to exist	3.89
2	If things continue on their present course, we will soon experience a major ecological catastrophe	3.91
3	Human ingenuity will insure that we do not make the earth unlivable	3.38
4	The balance of nature is strong to cope with the impacts of modern industrial nations	3.11
5	I worry about conserving energy only when it helps to lower my utility bills	3.24
6	Households like mine should not be blamed for environmental problems caused by energy production and use	3.09
7	My responsibility is to provide only for my family and myself	3.14
8	My personal actions can greatly improve the well being of people I don't know	3.67

Appendix H

Practicum student attitudes

#	Field	Mean
1	Plants and animals have as much right as humans to exist	4.47
2	If things continue on their present course, we will soon experience a major ecological catastrophe	4.40
3	Human ingenuity will insure that we do not make the earth unlivable	3.10
4	The balance of nature is strong to cope with the impacts of modern industrial nations	2.43
5	I worry about conserving energy only when it helps to lower my utility bills	1.80
6	Households like mine should not be blamed for environmental problems caused by energy production and use	2.17
7	My responsibility is to provide only for my family and myself	1.86
8	My personal actions can greatly improve the well being of people I don't know	4.10

Appendix I

Practicum Student Peer Evaluation Sample:

Peer & Self Evaluation Form

The purpose of this form is to rate the overall quality of your fellow Group Project members' work. Your advisors will use it to evaluate and document your progress. List all group members' names, including yourself in the designated sections below. Please note that this form is confidential and will not be shared with your group members.

Please include yourself in the evaluation.

Reviewer:

Project Advisor:

Group Project:

Quarter: ____

Please suggest an overall grade for yourself and the other students.

For each student (including yourself), please provide one or two sentences to describe the contribution to the project, quality of work, teamwork, communication and time management (see below for a description of each of these items).

SUGGESTED OVERALL GRADE:

	1	2	3	4	5	6
Group Member Names						
Suggested overall Grade						

STUDENT 1

STUDENT 2

STUDENT 3

STUDENT 4

STUDENT 5

STUDENT 6

ADDITIONAL COMMENTS AND RECOMMENDATIONS:

Appendix J

UCLA | EIP Evaluation of Instruction Program

UCLA Department
Instructor Class Section

Welcome to Online Evaluation from the Evaluation of Instruction Program

Your careful and candid evaluation is important. Student course evaluations provide feedback to the instructor to help improve teaching and they provide information for faculty evaluation and promotion. Summaries of these evaluations are returned to the instructor and to the department chair. Please provide thoughtful and constructive comments regarding the instructor and course at the end of this evaluation.

1 Background Information:

1.1 Year in School:

☐ Freshman ☐ Sophomore ☐ Junior ☐ Senior ☐ Graduate ☐ Other

1.2 UCLA GPA:

☐ Below 2.0 ☐ 2.0 - 2.49 ☐ 2.5 - 2.99

☐ 3.0 - 3.49 ☐ 3.5+ ☐ Not Established

1.3 Expected Grade:

☐ A ☐ B ☐ C ☐ D ☐ F ☐ P ☐ NP

1.4 What requirements does this course fulfill?

☐ Major ☐ Related Field ☐ G.E.

☐ None

2 To What Extent Do You Feel That:

2.1 Instructor Concern – The instructor was concerned about student learning.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable
2.2 Organization – Class presentations were well prepared and organized.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable
2.3 Interaction – Students felt welcome in seeking help in or outside of the class.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable
2.4 Communication Skills – The instructor had good communication skills.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable
2.5 Value – You have learned something you consider valuable.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable
2.6 Overall – Your overall rating of the instructor.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable
2.7 Overall – Your overall rating of the course.	Very Low or Never	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Very High or Always	<input type="radio"/> Not Applicable

3 Your View of Course Characteristics:

3.1 Subject interest before course	Low	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High	<input type="radio"/> N/A
3.2 Subject interest after course	Low	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High	<input type="radio"/> N/A
3.3 Mastery of course material	Low	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High	<input type="radio"/> N/A
3.4 Difficulty (relative to other courses)	Low	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	High	<input type="radio"/> N/A
3.5 Workload/pace was	Too Slow	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Too Much	<input type="radio"/> N/A
3.6 Texts, required readings	Poor	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Excellent	<input type="radio"/> N/A
3.7 Homework assignments	Poor	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Excellent	<input type="radio"/> N/A
3.8 Graded materials, examinations	Poor	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Excellent	<input type="radio"/> N/A
3.9 Lecture presentations	Poor	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Excellent	<input type="radio"/> N/A
3.10 Class discussions	Poor	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Excellent	<input type="radio"/> N/A

4 Comments:

(maximum of 5,000 characters allowed)

4.1 Please identify what you perceive to be the real strengths and weaknesses of this instructor and course. (maximum 5000 characters)

PLEASE NOTE: Each year, the Academic Senate Committee on Teaching gives awards to outstanding faculty and teaching assistants. If you wish to nominate an instructor or teaching assistant for such an award, please contact the instructor's department.

THANK YOU! Your assistance in improving teaching is appreciated.

[Close Window](#)

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Image of the UCLA course evaluation form distributed to all students for class evaluation at the end of each quarter.

Appendix K

ECHS and Practicum Surveys: Attached in PDF form.

Introduction & Skills

Study Information Sheet

University of California, Los Angeles

Evaluating the Impacts of Collaborative, Interdisciplinary Environmental Research on Students

Melonie Fong, Audrie Francis, Meleneeh Hairapetian, Madelen Hem, Julia Park, and Sarah Paset, under the advisement of Magali Delmas PhD, from the Institute of the Environment and Sustainability at the University of California, Los Angeles (UCLA) are conducting a research study. You were selected as a possible participant in this study because of your participation in the senior Intersession project at Environmental Charter High School (ECHS). Your participation in this research study is voluntary.

This study is seeking to assess the impacts of all four years of Intersession on senior students at ECHS. We want to evaluate Intersession from grades 9-12 to know what students' opinions of it have been, and how their experience in Intersession has affected their college and career goals and plans for their future. In doing so, we hope to improve Intersession for future students. We also seek to understand the effects of Intersession and ECHS on student environmental attitudes.

What will happen if I take part in this research study?

If you volunteer to participate in this study, the researcher will ask you to do the following:

You will be asked to complete a survey consisting of 39 questions which will take approximately 15 minutes to complete.

The questions in this survey ask about your experiences at ECHS and in Intersession, particularly what skills you developed through participation in Intersession. There are also questions asking about your attitudes about the environment, as well as your sense of community belonging.

How long will I be in the research study?

Participation will take a total of approximately 15-20 mins.

Are there any potential risks or discomforts that I can expect from this study?

There are no anticipated risks or discomforts.

Are there any potential benefits if I participate?

You will not be directly benefited from your participation in this study. However, the results of the research may go on to help future ECHS students have a better experience during Intersession. Based on the results collected, ECHS will be able to assess the role Intersession has played in your time here, and what can be done to make it better for future students.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of an anonymous questionnaire and aggregated data reporting. Since the data is anonymous, there will be no connections between information provided and your identity. Only the UCLA research team will have access to the data.

What are my rights if I take part in this study?

You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time. Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled. You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can I contact if I have questions about this study?

If you have any questions, comments or concerns about the research, you can talk to the one of the researchers. Please contact:

The Study Team: Communications Liaison: Meleeneh Hairapetian (mhairapa@gmail.com); Principal Investigator: Professor Magali Delmas (delmas@ioes.ucla.edu).

UCLA Office of the Human Research Protection Program (OHRPP): If you have questions about your rights as a research subject, or you have concerns or suggestions and you want to talk to someone other than the researchers, you may contact the UCLA OHRPP by phone: (310) 206-2040; by email: participants@research.ucla.edu or by mail: Box 951406, Los Angeles, CA 90095-1406.

Electronic consent:

Clicking on the "agree" button below indicates that:

You have read the above information Your participation in this research is voluntary

If you do not wish to participate in the study, please decline by clicking the "disagree" button

☐ Agree

☐ Disagree

Please describe your Intersession experience in "one" word.

(Note: Throughout the survey Intersession means your experience with Intersession throughout high school unless specified otherwise.)

Skills

Please indicate the extent to which you disagree or agree with the following:

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
Intersession helped me learn time management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intersession increased my interest in doing research projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intersession helped me feel more confident about presenting in front of audiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During each intersession, I learned something valuable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Among all the roles/skills you have learned and obtained from Intersession:

Please select your first most valuable skill here:

Please select your second most valuable skill here:

Please select your third most valuable skill here:

Section B. Process

Process

Please indicate the extent to which you disagree or agree with the following:

	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
In general, I felt my suggestions during Intersession over the years were taken seriously by teacher/faculty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to return to ECHS after graduation to help implement the suggestions I made for the Senior Intersession Project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working on this year's topic for Intersession was better than the ones I did in previous years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt like I received adequate guidance from teachers for my project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Process

Please indicate the extent to which you disagree or agree with the following:

	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
Working with my group members was conflict free	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Previous years' Intersessions prepared me for this year's project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt like I had a valuable role in Intersession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
The length of time for intersession is appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Process

Please indicate the extent to which you disagree or agree with the following:

	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
I wish I got to choose my Intersession group members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I made new friends during Intersession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend other high schools implement Intersession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, Intersession was a positive experience for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Process

What was your role during Intersession this year?

-
- ☐ Leader
 - ☐ Writer
 - ☐ Presenter/Communicator
 - ☐ Researcher/Data Collection
 - ☐ Social media/marketing
 - ☐ Others

If you selected "others", please indicate:

How many times did you present (including practices) for Intersession? (E.g. presentation...etc)

Section C. Preparation & ECHS Connection

Preparation & ECHS Connection

Please indicate the extent to which you agree or disagree with the following:

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
My classes helped me prepare for Intersession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D. College & Career

College & Career

Please indicate the extent to which you disagree or agree with the following:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Intersession made me want to study something related to the environment in college and/or pursue an environmental career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intersession made me excited for college	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My career interests have changed due to Intersession project(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What major do you want to study in college? If you don't plan on going to college, please choose "N/A"

Open-ended Questions

How has Intersession changed or shaped your future career or school goals?

What is the one topic you didn't cover during Intersession that you wish was covered?

What was your favorite Intersession project? Why?

What did you like the most about Intersession? Why?

What did you like the least about Intersession? Why?

What is your overall rating of Intercession?

Very Low

☐

Low

☐

Neutral

☐

High

☐

Very High

☐

Section E. Actions

Environmental Actions

How often have you participated or influenced your family to participate in the following activities in the past 12 months?

	Always	Often	Sometimes	Rarely	Never	N/A
Sorted glass, cans, plastics, or paper for recycling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bought organic fruits and vegetables, which are grown without pesticides or chemicals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refused to eat meat for moral or environmental reasons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composted food, grass clippings, or other materials or fertilizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reused plastic bags or containers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bought a product because it had less packaging than others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Purchased locally made products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used environmentally safe products (e.g. detergents, paper)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Always	Often	Sometimes	Rarely	Never	N/A
Used less water in your household	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduced your household's energy use by turning off lights, electrical appliances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section F. Questions from NEP/ALT

Environmental Attitudes

Please indicate the extent to which you disagree or agree with the following:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Plants and animals have as much right as humans to exist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If things continue on their present course, we will soon experience a major ecological catastrophe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human ingenuity will insure that we do not make the earth unlivable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The balance of nature is strong to cope with the impacts of modern industrial nations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry about conserving energy only when it helps to lower my utility bills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Households like mine should not be blamed for environmental problems caused by energy production and use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My responsibility is to provide only for my family and myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
My personal actions can greatly improve the well being of people I don't know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section G. Demographic information

Demographic information

Did you attend Environmental Charter Middle School?

☐ Yes

☐ No

Your age:

What is your gender identity?

What is your ethnicity?

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ Hispanic or Latino
- ☐ Prefer not to say
- ☐ Other

What is the highest level of education achieved by your parents/guardians?

- ☐ Less than high school

- ☐ Some high school
- ☐ High school diploma/GED
- ☐ Some college
- ☐ Associate's degree
- ☐ Bachelor's degree
- ☐ Master's degree or higher

Block 11

Thank you for your time in answering the survey! Do you have any questions, comments, concerns or suggestions?

To know more about us, please visit our website :

<https://www.ioes.ucla.edu/project/evaluating-impacts-environmental-education/>

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Introduction & Skills

Study Information Sheet

University of California, Los Angeles

Evaluating the Impacts of Collaborative, Interdisciplinary Environmental Research on Students

Melonie Fong, Audrie Francis, Meleneeh Hairapetian, Madelen Hem, Julia Park, and Sarah Paset, under the advisement of Magali Delmas PhD, from the Institute of the Environment and Sustainability at the University of California, Los Angeles (UCLA) are conducting a research study. You were selected as a possible participant in this study because of your participation in the senior Environmental Science Practicum at UCLA. Your participation in this research study is voluntary.

This study is seeking to assess the impacts of the Practicum on senior students at UCLA. We want to evaluate the Practicum program to understand students' opinions of it, and how their experience in the Practicum has affected their goals and plans for their future. In doing so, we hope to improve the Practicum for future students. We also seek to understand the effects of the Practicum and UCLA on student environmental attitudes and how attitudes of Practicum students compare to those of Environmental Charter High School senior students.

What will happen if I take part in this research study?

If you volunteer to participate in this study, the researcher will ask you to do the following:

You will be asked to complete a survey consisting of 30 questions which will take approximately 15 minutes to complete.

The questions in this survey ask about your experiences at UCLA and in the Practicum, particularly what skills you developed through participation in the Practicum. There are also questions asking about your attitudes about the environment, as well as your sense of community belonging.

How long will I be in the research study?

Participation will take a total of approximately 15-20 mins.

Are there any potential risks or discomforts that I can expect from this study?

There are no anticipated risks or discomforts.

Are there any potential benefits if I participate?

You will not be directly benefited from your participation in this study. However, the results of the research may go on to help future UCLA environmental science students have a better experience during Practicum. Based on the results collected, the researchers will be able to assess the role Practicum has played in your time at UCLA, and what can be done to make it better for future students.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of an anonymous questionnaire and aggregated data reporting. Since the data is anonymous, there will be no connections between information provided and your identity. Only the UCLA research team will have access to the data.

What are my rights if I take part in this study?

You can choose whether or not you want to be in this study, and you may withdraw your consent and discontinue participation at any time. Whatever decision you make, there will be no penalty to you, and no loss of benefits to which you were otherwise entitled. You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can I contact if I have questions about this study?

If you have any questions, comments or concerns about the research, you can talk to the one of the researchers. Please contact:

The Study Team: Communications Liaison: Meleeneh Hairapetian (mhairapa@gmail.com); Principal Investigator: Professor Magali Delmas (delmas@ioes.ucla.edu).

UCLA Office of the Human Research Protection Program (OHRPP): If you have questions about your rights as a research subject, or you have concerns or suggestions and you want to talk to someone other than the researchers, you may contact the UCLA OHRPP by phone: (310) 206-2040; by email: participants@research.ucla.edu or by mail: Box 951406, Los Angeles, CA 90095-1406.

Electronic consent:

Clicking on the "agree" button below indicates that:

You have read the above information Your participation in this research is voluntary

☐ Agree

Please describe your Practicum experience in "one" word.

Skills

Please indicate the extent to which you disagree or agree with the following:

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
The Practicum helped me learn time management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Practicum increased my interest in doing research projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Practicum helped me feel more confident about presenting in front of audiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During each quarter of the Practicum, I learned something valuable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Among all the roles/skills you have learned and obtained from the Practicum:

Please select your first most valuable skill here:

Section B. Process

Process

Please indicate the extent to which you disagree or agree with the following:

Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
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	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
In general, I felt my suggestions during the Practicum were taken seriously by teachers/faculty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want to continue working on my project after I graduate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working on the Practicum project was better than previous research projects I've participated in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt like I received adequate guidance from advisers for my project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Process

Please indicate the extent to which you disagree or agree with the following:

	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
Working with my group members was conflict free	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Previous UCLA coursework and projects prepared me for the Practicum project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt like I had a valuable role in Practicum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The length of time for the Practicum is appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Process

Please indicate the extent to which you disagree or agree with the following:

	Strong Disagree	Somewhat Disagree	Neither Disagree nor Agree	Somewhat Agree	Strongly Agree
I wish I got to choose my Practicum group members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I made new friends during the Practicum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend other universities and/or majors at UCLA implement the Practicum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, the Practicum was a positive experience for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Process

What was your role during the Practicum this year?

- ☐ Leader
- ☐ Writer
- ☐ Presenter/Communicator
- ☐ Researcher/Data Collection
- ☐ Social media/marketing
- ☐ Other

If you selected "other", please indicate:

How many times will you have presented (including practices) by the end of the Practicum? (E.g. project proposal, preliminary results, final presentation, client presentations, etc.)

Section C. Preparation & ECHS Connection

Preparation & Connection

Please indicate the extent to which you agree or disagree with the following:

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
My classes helped me prepare for the Practicum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D. College & Career

College & Career

Please indicate the extent to which you disagree or agree with the following:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The Practicum made me want to pursue an environmental career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Practicum made me want to pursue graduate studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My career interests have changed due to the Practicum project(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What do you plan on doing after graduation?

What was your intended field of study upon entering college?

Open-ended Questions

How has the Practicum changed or shaped your future career or school goals?

What is the one topic you didn't cover during the Practicum that you wish was covered?

What was your favorite component of your Practicum project? Why?

What did you like the most about the Practicum? Why?

What did you like the least about the Practicum? Why?

What is your overall rating of the Practicum?

Very Low
☐

Low
☐

Neutral
☐

High
☐

Very High
☐

Section E. Actions

Environmental Actions

How often have you participated in the following activities in the past 12 months?

	Always	Often	Sometimes	Rarely	Never	N/A
Sorted glass, cans, plastics, or paper for recycling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bought organic fruits and vegetables, which are grown without pesticides or chemicals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refused to eat meat for moral or environmental reasons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Composted food, grass clippings, or other materials or fertilizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reused plastic bags or containers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bought a product because it had less packaging than others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Purchased locally made products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used environmentally safe products (e.g. detergents, paper)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used less water in your household	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduced your household's energy use by turning off lights, electrical appliances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section F. Questions from NEP/ALT

Environmental Attitudes

Please indicate the extent to which you disagree or agree with the following:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Plants and animals have as much right as humans to exist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If things continue on their present course, we will soon experience a major ecological catastrophe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human ingenuity will insure that we do not make the earth unlivable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The balance of nature is strong to cope with the impacts of modern industrial nations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I worry about conserving energy only when it helps to lower my utility bills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Households like mine should not be blamed for environmental problems caused by energy production and use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My responsibility is to provide only for my family and myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My personal actions can greatly improve the well being of people I don't know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section G. Demographic information

Your age:

What is your gender identity?

What is your ethnicity?

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ Hispanic or Latino
- ☐ Prefer not to say
- ☐ Other

What is the highest level of education achieved by your parents/guardians?

- ☐ Less than high school
- ☐ Some high school
- ☐ High school diploma/GED
- ☐ Some college
- ☐ Associate's degree
- ☐ Bachelor's degree
- ☐ Master's degree or higher

What year did you participate in the Practicum?

- ☐ Prior to 2016
- ☐ 2016 - 2017
- ☐ 2017 - 2018

Block 11

Thank you for your time in answering the survey! Do you have any questions, comments, concerns or suggestions?

To know more about us, please visit our website :

<https://www.ioes.ucla.edu/project/evaluating-impacts-environmental-education/>

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