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'Do Not Go Through the System Passively': Integrating Environmental Studies and Ethnic Studies Through a Social Justice Outdoor Education Program for High School Learners

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Abstract: This study examines a social-justice-focused environmental education program serving marginalized students through fostering engagement with local communities and natural environments. It presents a focused ethnographic case study of teachers of color who designed and implemented an ethnic studies and environmental education curriculum intended to address the educational alienation experienced by many students as well as the intersection of social justice and environmental stewardship. The study considers how teachers at two very different urban schools—one a continuation school, the other a traditional college preparatory high school—provided a venue for students to advocate on behalf of oppressed communities with which they identified. Researchers collected qualitative data from a variety of sources: field notes from participant observation of outdoor and classroom activities, document review of curriculum and student projects, focus group interviews with 86 students, and semi-structured individual interviews with teachers and alumni. Students in this innovative program did not fit the classic climate justice activist profile by engaging in climate marches, raising money for environmental organizations, or lobbying Congress for better environmental legislation. However, a key finding from the program and the teachers who lead it is to broaden our understanding of what it means to be a climate activist.

Keywords: youth climate activism; climate change education; coloniality; ethnic studies; environmental education; marginalized youth; climate justice

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1. Introduction

With all the intersecting meta-crises we are living through today—from climate change to industrial pollution, from racial and economic injustice, from overexploited natural resources to withering democratic institutions—it is a particularly daunting time for educators tasked with guiding our next generation of students. Given the interconnected nature of these problems, most of our potential responses are resistant to simple solutions. How can teachers know where to begin to address these myriad issues in their classrooms? Furthermore, as indicated in this Special Issue's call, many schools and education settings are themselves "implicated in broader colonial-capitalist, industrial, and militaristic systems". Nonetheless, some teachers working within these education systems are committed to developing curricula that work to dismantle these systems student by student, through empowerment and academic rigor, and an understanding of the interconnected nature of our various social, economic, and environmental injustices.

In this paper, we present a case study of teachers of color who designed and implemented an interdisciplinary curriculum combining ethnic studies and environmental education. They aimed to address the educational alienation experienced by many of their students, while also exploring the intersection of social justice and environmental stewardship. The study focuses on two contrasting school contexts—one a continuation high school with no Advanced Placement (AP) classes and a 60% graduation rate, and the other a traditional college preparatory high school with numerous AP classes and a 96% graduation rate. In both settings, teachers created opportunities for students to engage in advocacy on behalf of marginalized communities with whom they identified. This work addresses a critical gap in the literature by examining how educators can simultaneously support students' academic development and nurture their sense of identity, agency, and connection to place—both socially and ecologically. Ultimately, this research considers how integrating environmental and ethnic studies can serve as a foundation for meaningful, justice-oriented education, and asks the following: how might educators in other contexts adopt and adapt this approach?

Education for sustainability has been critiqued from many angles. Scholars have expressed concerns that too much attention is given to climate change at the expense of other, arguably equally or more pressing concerns (Jimenez & Kabachnik, 2023; K. Richardson et al., 2023). Some scholars have critiqued climate change education in which teachers focus more on delivering facts and recommending specific actions for students to pursue instead of empowering change-makers to plot their own course for advocacy (Jimenez et al., 2020; Jickling & Wals, 2008; Jimenez & Moorhead, 2021). Additionally, research has often focused more on privileged students in environmental education programs, whereas the experiences of marginalized youth of color have received less attention (Jimenez et al., 2020). Little research has examined what activism might look like for marginalized youth who have little bandwidth to devote to causes beyond maintaining their own dignity, and perhaps even survival, in an oppressive system. As such, this paper examines in depth a social-justice-focused environmental education program that serves marginalized students through fostering their engagement with their local community and natural environments. This case study demonstrates how one environmental education program challenged such exclusion through an interdisciplinary approach rooted in and undergirded by environmental and ethnic studies.

2. Literature Review

To begin, it is helpful to consider the broader framing of environmental education. For instance, the North American Association for Environmental Education defines environmental education as "a process that helps individuals, communities, and organizations learn more about the environment, and develop skills and understanding about how to address global challenges" (NAAEE, 2009). The U.S. Environmental Protection Agency (EPA) similarly defined environmental education but added that "environmental education does not advocate a particular viewpoint or course of action. Rather, environmental education teaches individuals how to weigh various sides of an issue through critical thinking and it enhances their own problem-solving and decision-making skills" (EPA, 2025).[1] Neither definition includes mention of encouraging students to experience the environment firsthand; yet, researchers have consistently shown that immersion in outdoor settings offers numerous benefits, from reducing stress to boosting emotional well-being (Mann et al., 2022).

Increasingly, educators and researchers recognize the need to connect environmental education with social justice and cultural relevance, especially for marginalized youth (Trott et al., 2023).[2] Researchers have long criticized environmental education for overlooking

the students who might benefit most from outdoor environmental education (Norton & Watt, 2014). Historically, environmental education has inadequately incorporated both the perspectives and experiences of people of color both in outdoor spaces and in addressing broader social justice issues (Ruf, 2020). Outside of educational spaces, this phenomenon is mirrored in broader environmental movements as well (Jones, 2022). Speaking about climate activists, executive director of the U.S. Climate Action Network Keya Chatterjee stated:

> "The climate movement being mostly white has been a hindrance in making progress. We cannot win in this way. [...] The need for racial and economic justice to be at the heart of our work has been obvious for communities of colour for a long time". (Farand, 2020)

At the same time, ethnic studies—with its focus on the histories and experiences of marginalized groups—is being integrated into curricula to make learning more relevant and empowering for students (Lewis & James, 1995; Tintiangco-Cubales et al., 2019).[3] As such, this literature review surveys research at the nexus of environmental education, ethnic studies integration, and climate justice pedagogy, focusing on curriculum development, student outcomes, and educator practices in both formal and informal settings.

Mainstream environmental education and the "green schools" movement have historically been grounded in White, middle-class perspectives, emphasizing conservation and stewardship while often ignoring systemic injustices (Taylor, 2014). Pellow (2020) has shown that this traditional lens can ignore the environmental knowledge and experiences of Indigenous, Black, and other communities of color. In contrast, a justice-oriented approach—often termed *environmental justice education* or *climate justice education*—situates ecological issues within social, racial, and economic contexts (Whyte, 2017).

Ethnic studies pedagogy offers an interdisciplinary lens that can enrich environmental and sustainability curricula and engage students (Sleeter, 2011). While both ethnic studies and environmental education in the U.S. may come under greater scrutiny with the Trump administration, states such as California continue to move forward with educational initiatives that unite the two based on their common goals of encouraging students to critically examine systems of power and oppression (A. Allen, 2024). Notably, California is implementing ethnic studies as a high school requirement and has added climate justice to its education code (California Department of Education, 2021, 2025).[4]

This provides evidence that when environmental curriculum is made culturally relevant, socially conscious, and interdisciplinary, it can be a significantly more effective environmental education program tailored for marginalized youth.

3. Conceptual Framework

One curricular movement that has been keen to speak to issues of racial and economic justice—and undergirds the research presented here—has been the burgeoning movement to include ethnic studies courses in middle and secondary school and led by teachers who want "to create a course that would speak to our younger selves, to the students we were in high school" (Beckham & Concordia, 2019, p. 1). Educators with San Francisco Unified Public Schools have been on the front lines in spearheading such a movement, often with a particular focus on encouraging students to explore their intersectional identities (Moorhead & Jimenez, 2021). Many of these educators viewed their own struggle to institutionalize an ethnic studies curriculum at their schools as continuing the work of the 1960s activists who created the first ethnic studies program at the tertiary level, specifically, the College of Ethnic Studies at San Francisco State University. Originally, educators ran it as a pilot program for ninth grade students with "early warning indicators" (i.e., poor attendance, behavioral issues, and low course performance) (Dee & Penner, 2017). However, with evidence of causal linkages between ethnic studies enrollment and

measurable student improvement in attendance, grade point average, progress towards graduation, and students' math and science assessments (Dee & Penner, 2017), the San Francisco Board of Education eventually required at least one section be available at every high school in the district. Beginning with the class of 2028, San Francisco high school students will be required to complete at least two semesters of 10 credits of electives in ethnic studies (SFUSD, 2025). Further, starting with the class of 2030, California high school students will be required to pass an ethnic studies class to graduate (B. Allen, 2023). Other states across the U.S. are also moving to mandate ethnic studies in high school curriculum (Cabrera, 2019).

Within this tradition, several educators—Catherine, Conrad, and Ken, each working at a high school within the San Francisco public school system—created the Wilderness and Arts Literacy Collaborative (WALC) in 1999 for students of color and as an educational alternative to traditional classroom-based environmental education. Whereas ethnic studies courses in general do not explicitly address environmental issues and broader ecological understandings, WALC emphasized the infusion of social justice perspectives into its environmental education goals, with particular attention to the local context and experiences of its community members. According to the WALC founders, the program originated in racial conflict. Conrad, for instance, noticed that conflicts between students of different ethnic and racial groups had surfaced (reflective of issues taking place in the surrounding community), and he and Ken started a "Unity club" for students to come together to have fun and make friends. But, as Catherine explained, "because Conrad is Conrad, the way he did that was to take them outside", which became the spark for the WALC program. Now in its 25th year and having touched the lives of hundreds of young people, WALC offers educators elsewhere a model for developing environmental education programs at the intersection of social justice and environmental stewardship through the integration of environmental studies and ethnic studies.

4. Methods

We employed a focused ethnographic case study to explore WALC as a novel environmental education program in a cultural setting (i.e., school environments, field and camping trips) during a limited period (i.e., January to December 2024) (Hammersley, 2006; Creswell & Poth, 2017). Data came from a variety of sources: field notes from participant observation of outdoor and classroom activities, document review of curriculum and student projects, focus group interviews with students, and semi-structured individual interviews with teachers and alumni.

4.1. Program Description

WALC is a project-based academic program designed for students in their last two years of high school. The program serves primarily lower-income youth of color who have historically been underserved, with many at risk of academic underachievement or dropping out of high school. It embraces the view, supported by research, that taking students outdoors can improve students' well-being and aid in the process of students learning to better respect and understand each other (Mann et al., 2022; Norton & Watt, 2014; Castonguay & Jutras, 2009). The teachers designed WALC to address students' academic needs (e.g., credit for graduation, coursework for college preparation), as well as facilitate students' sense of self and sense of place as participants in both their local community and greater society, and in the ecological processes of an increasingly endangered planet.

Foundational to WALC is the integration of environmental studies and ethnic studies for an interdisciplinary educational experience. WALC relies on environmental themes such as biodiversity, interdependence, flux equilibrium, and sustainability to integrate

science, history, literature, writing, art, and math within rigorous and relevant curricula that centers the historical and contemporary experiences of people of color. While WALC occurs both in and outside the classroom, with students regularly exploring natural environments, including forests, grasslands, mountains, deserts, rivers, marshes and wetlands, volcanoes, and lakes, they also visit national and city parks and participate in native habitat restoration. Through extensive outdoor activities, WALC encourages students to examine how they might apply lessons learned about nature to themselves and their communities (WALC, 2025).

4.2. School Context

WALC operates at two public high schools in San Francisco. One is a project-based continuation school with close to 150 students, offering an alternative diploma program for students who are behind in credits or at risk of dropping out of traditional public school, or in some cases have already done so. The other is a traditional college preparatory school with approximately 1300 students. Both schools are organized into learning communities, or pathway programs, that begin in the junior year. WALC is one of the two-year pathways (at the continuation school, other pathways include acting, fashion, and music; at the preparatory high school, other pathways include creative arts, game design, law, and leadership).

At the continuation school, students participated in WALC Monday through Friday for the entire school day with the program integrating science, English, history, art, and math. On Wednesday, students enrolled in WALC typically volunteered at a nearby park or reserve to help with litter clean-up or restoration work. On Fridays, they participated in daylong field trips throughout the Bay Area. They also participated in two overnight camping trips (three to four days in length). At the preparatory high school, students participated in WALC two to three days a week and attended three integrated classes in science, social studies, and English (i.e., astronomy, U.S. history, and American literature for juniors and environmental science, American democracy and economics, and English/European literature for seniors). Because of the more structured school day and the need to attend classes outside of WALC, these students participated in two daylong field trips and two overnight camping trips (again, two to three days in length and inclusive of weekends).

Two of the founding WALC teachers Conrad and Ken, each with more than 20 years of teaching experience, lead their program at the preparatory high school. Catherine expanded WALC to her continuation school a year later; this school also employs a second teacher to co-lead their program, Rachelle, with 11 years of experience in the program and 15 years of experience in special education. The preparatory high school employs an additional teacher with 9 years of experience with the program and working as an Earth science teacher. All teachers are salaried employees with the school district and are not paid for their time outside the classroom with students (i.e., camping trips, field trips that extend past the school day). The WALC teachers fundraise for each school year to cover a range of costs, including food and camping supplies, cameras, and incidentals (e.g., maintenance of vans, tents, and sleeping bags). Additional educators at each school volunteer as chaperones on camping and field trips.

At the continuation high school, close to 78% of the student body was classified as socioeconomically disadvantaged and 21% were English learners. Sixty percent of students identified as Hispanic/Latino, 30% as African American, 7% as two or more races (other categories were below 4%). At the preparatory high school, nearly 64% of the student body was classified as socioeconomically disadvantaged and 21% were English learners. Forty-four percent of students identified as Asian American, followed by 30% identifying as Hispanic/Latino, 8% as Filipino, 5% as African American, 4% as White, and 3% as Pacific

Islander (other categories were below 3%). At both schools, most students signed up to participate in WALC; however, some students were placed in the program by the school.

4.3. Participants

Seven educators (two from the continuation high school and five from the preparatory high school) agreed to participate in this study through observations and/or interviews; however, as our data collection is not yet complete at the preparatory school (which will form the basis for other articles), this article will focus on the two primary teachers at the continuation school (Catherine and Rachelle). In total, 86 students (32 students from the continuation high school and 54 from the preparatory high school) also participated through observations, focus groups and/or informal interviews. Some of these interviews took place during field trips and others took place within the classroom. Nine alumni (four from the continuation high school and five from the preparatory high school) agreed to participate in semi-structured interviews.

4.4. Qualitative Data Collection

Interaction with the two founding WALC teachers began in January 2024 after researchers received IRB approval. Data collection commenced in February 2024 with observation of participants during a field trip and continued through December 2024 with focus group interviews with students, interviews with alumni and two additional teachers integral to the program, and observations of student coursework.

All participants could opt in or out of any part of the research and at any point, and no participant was compensated for participating in the study. Student participation rates for data collection efforts ranged from 80% to 100%, with all students allowing researchers to observe and take notes of their WALC activities and 80% of students participating in focus groups. Students, based on age (i.e., 18 or over or not), signed either assent or consent forms.

4.5. Types of Data Collection (Observations, Focus Groups, Interviews, and Student Work)

Observations. In total, researchers observed approximately 155 h of instruction with students over the course of 15 research trips. Both researchers took observation notes on paper, including what was seen and heard, as well as methodological notes, theoretical notes, and personal notes (Dennis, 2010; Jackson, 1990; Onwuegbuzie et al., 2010).

Focus groups. Researchers conducted two rounds of in-person focus groups with students in a classroom at their school or at a field trip site. Researchers employed the same interview protocol in each focus group. Generally, the protocol included "how" and "what" types of questions to elicit students' thoughts, perspectives, and opinions about their experience in WALC (Hammersley, 2006; Creswell & Poth, 2017). Each focus group lasted between 10 to 40 min and was recorded and transcribed by a researcher.

Interviews. Semi-structured interviews. Researchers conducted one-on-one semi-structured interviews with teachers and alumni. Interviews were conducted either in-person or via Zoom. Interviews lasted for one hour and were recorded and transcribed by a researcher. Researchers used the same interview protocol for each interview. Teachers were asked about their motivations, goals, and approaches for environmental and social justice education, and alumni were asked about their thoughts, perspectives, and opinions about their experience in WALC post completion of the program. *Informal interviews.* Throughout the fieldwork, researchers relied on informal interviews with participants to discuss concepts and questions that surfaced during observations and notetaking (Onwuegbuzie et al., 2010; Ortlipp, 2008; Rubin & Rubin, 2012). They worked to avoid projecting their ideas onto the participants and allowed participants to discuss their own perceptions of WALC (Wolcott, 2009).

Student work. Throughout, researchers analyzed field worksheets developed by teachers and completed by students at both schools. At the continuation school, we observed students' final presentations and read their final project, one semester a spiral-bound book of poetry and art (watercolor paintings overlayed with black-ink line drawings) and another semester a photo gallery (images of animals in their natural settings and images of animals overlaid with computer-generated graphics).

4.6. Qualitative Data Analysis

Researchers relied on grounded theory beginning with open coding (Creswell & Poth, 2017) in which each researcher individually applied emergent codes derived from interview and focus group transcripts. After two individual passes of each transcript, researchers collectively identified themes and developed codes for shared features of the lived experience of WALC. As themes emerged, researchers systematically coded data into "clusters of meaning" that represented the phenomenon of interest (e.g., social justice elements, intersection of environmental studies and ethnic studies). Researchers then moved into a second phase of coding (i.e., axial coding) to develop subcategories that contributed to explanations. In the final phase of coding (i.e., selective coding), researchers developed a stronger theoretical understanding of emergent themes.

Throughout, researchers used methodological note-taking to identify themes and patterns in the data (e.g., observations, student work, transcripts), which were then triangulated to enhance validity (Marshall & Rossman, 2014; Wolcott, 2009). Researchers considered their methodological notes alongside theoretical notes as a way to develop hypotheses and ideas that arose during data collection (L. Richardson & Adams-St Pierre, 2005; Sangasubana, 2011). Researchers worked to mitigate bias through the use of an interview protocol, member checking, and data saturation (Dibley, 2011).

For member checking, researchers shared their findings with study participants (i.e., teachers) to allow them to ensure that it aligned with their experiences (Candela, 2019). Additionally, the researchers (a Professor of Foundations and Social Advocacy who previously taught high school social studies in three different countries and a former journalist now working as an academic researcher and educator) met multiple times to reflect on the analysis. In these conversations, the authors recognized and discussed how their backgrounds and experiences facilitated their ability to be reflexive in the examination of the data.

5. Findings

Given that data collection is complete at one school yet incomplete at the second, and that the continuation high school had a final project specific to "climate justice" (the theme of this Special Issue), this paper focuses on the experiences of students and teachers at the continuation school. However, given that the WALC program at the continuation school was built upon an initial program designed by Conrad and Ken in the preparatory school, we also briefly discuss their influence in the development of the WALC program, with the aim to elaborate further on how a program like WALC can exist in a preparatory school setting in future papers. These findings prioritize letting our participants speak for themselves through direct quotations from interviews, as well as observation and field notes coinciding with their written projects and verbal presentations. The following begins with findings in relation to the participating teachers and then, more generally, in relation to educational outcomes. It ends with findings stemming from students and their experiences of WALC.

5.1. From Ethnic Studies to Environmental Education

While in college, the two WALC founders Catherine and Conrad pieced together a program of ethnic studies coursework for themselves, as Catherine explained, "before there were any ES [ethnic studies] classes". However, they realized that they needed to learn more about the subjects they would be teaching (biology, ecology, etc.) because they wanted their science instruction to be "substantive and rigorous", in order to "serve students better". Thus, they focused their professional development on acquiring this pedagogical content knowledge.

When the WALC founders started learning about environmental education, they were "accustomed to being the only teachers of color in the room" and noticed that "most [education] trips were either experiential learning [such as how to set up camp, do ropes courses, etc.] or mostly classroom-based learning with one or two field trips". Catherine said, "slowly people are starting to think about serving a more diverse student clientele and bringing up words like 'cultural competency' and now 'DEI'". However, she commented that in the "diversity equity inclusion context", the standard model has been to add social justice training components to science teachers (and those teaching them). Her own experience as a workshop leader flipped this approach:

> A lot of the time, when we share our model, people don't always like to hear what we have to say. When we're telling them: 'You need to diversify your organization', and they're like, 'Oh, that's so hard'. I have no idea how many times I've heard park rangers tell us all the reasons why people of color don't want to become park rangers. We tell them they have to go and read books and take ethnic studies classes. The way I learned science is how they have to go learn the background and contributions of people of color they report to want to include.
>
> So the training we did for teachers, instead of trying to recruit among science people, we recruited ethnic studies educators who wanted to take their kids outside, teachers who would say things like, 'Hey, how do I take these students outside to teach them about the environment and make it matter?' [...] They were totally on board with doing that, as opposed to when we get environmental people, and we're saying, 'Hey, you have to learn about people of color in our history and social justice'. There's a lot of resistance, with them saying things like 'that's not what we do'.

5.2. Teachers as Activists

A fundamental theme to emerge was how teacher participants perceived their work. Notably, they saw their role as social activists in educational settings. In this way, we're studying their actions through the lens of Universal Design (Hall et al., 2019). That is, we consider the teachers' end goal—having students learn to advocate for themselves and others—and then explore how they worked to achieve it.

Rachelle, for instance, considered her job a form of activism and said activism "looks a lot different to everybody". She doesn't believe that her students

> have to go be a leader, like, sign these petitions, donate, join marches—those sorts of things [. . .] Capitalism sucks, and they'll probably follow what they need to follow for the sake of earning [a] livelihood. There's a lot of small things we teach them environmentally, and I do know a lot of them make conscious choices. Students will say things like, 'I now know a lot about the beef industry in central South America', so they'll make a conscious effort to eat less fast food. They're

> trying their best. But I hope they have the knowledge they can say something [to] speak up when something is happening.

Similarly, Catherine explained,

> Almost every one of our students lives in poverty; many of them are first-generation high school graduates. Very few of our students go on to graduate college [. . .] If they continue to advocate for the environment for the rest of their lives, that's fantastic. But if they conclude they're a capable change-maker, but the issue they choose is public housing or minimum wage, that's great. One of our mottos is, Do not go through the system passively. If you use these tools to impact your own personal life, then we're proud of you.

She also added how she sees success in more ways than just producing environmental activists:

> Some of our students who keep in touch with us—some of them have totally gone on an entirely environmental route [. . .] majored in environmental studies, even master's degrees—come back talking about environmental ethics, like recycling, composting, being conscientious about energy or plastic consumption [...] A lot of those things stick with them, and we're happy about that. But it's not as if I'd be unsatisfied if they went into the world and made their lives better and it wasn't related to the environment [. . .] I don't have any illusion that having one semester with us is going to turn them into radical environmentalists, but I do think that hopefully the idea that nature is important and something to take care of and that it matters to Indigenous peoples and communities of color [. . .] that there are parallels to making changes in the natural world as in your communities, and that these are things they'll care about and vote about.

5.3. Learning Outdoors

This brings us to another key theme, namely, the importance of bringing students to outdoor settings as a way of making them more effective learners as well as advocates and perhaps environmental stewards. As Catherine explained,

> Our urban kids of color have lost a connection to the outdoors. Even though we're surrounded by national parks and the most beautiful natural places, our kids have never been to most of those places. We take many kids across the Golden Gate Bridge for the first time, even though they were born and raised in the city—they've never even been to the North Bay.

Rachelle likewise agreed, adding,

> Our students are not very strong writers—a lot of them are writing way below grade level. We tell them you're going to write every single day [. . .] but when they're outdoors, their writing is better, and deeper, when they're doing it sitting by a forest creek [rather than] in a classroom. They're more willing to dig a little deeper, more willing to share because of what we know nature does for people. It also takes all of those distractions from the schoolhouse and the distractions and stressors they deal with everyday [in the city]. My favorite thing is watching these tough 6-foot boys play tag with each other; they're still kids, which is great for us to see as teachers but also reminds them of what it was like to feel wondrous. Those sort of things that get batted out of everybody.

Rachelle also discussed how teaching in outdoor settings keeps them "growing as an educator" because when teaching outdoors, "you never know how a kid is going to react when we're out there—we can't just send them to the office". Further, just as natural settings are always changing, teaching outdoors prevents one from "teaching the same thing a few years from now".

Catherine explained that after 25 years of teaching, she "cannot imagine being in [a] classroom every single day, not doing something hands on in the real world, which also offers us as teachers a lot of opportunities to do things that we love".

Of course, the WALC teachers did not visit sites as neutral grounds to experience the outdoors. Rather, they saw them as place-based education sites and as a pivotal part of inculcating a love of place, which in turn could make students more inclined to fight for saving it. As Rachelle said,

> We use environmental studies as a lens to study our community, our history, ourselves. [...]. This program was created by teachers of color for students of color as a more effective way to engage them in their education. Central to WALC is that environmental themes and social justice themes are highly integrated [. . .] just as geology explains the way the land was formed and shaped—similarly, ethnic studies tells you how our country was formed and shaped—those parallels are really central to why we started WALC.

5.4. Fostering Empathy

Catherine explained how one semester she worked to first give students exposure to other species in their native habitat by observing and photographing them, with high-quality cameras provided to students by WALC during school days. Students then considered how the features of the species they studied were adaptive to their environment and speculated how their ecosystem was impacted by changes to their habitat. She maintained that students are much more likely to find learning about other species more interesting if they have this embedded experience at the start of their semester curriculum. This motivation, she added, could move them to care more about these species and perhaps even advocate for their welfare. She called the model a 'solutionary' one[5], arguing that in order to convince people to advocate for change, it is important to first develop a love for a place and its species. As she elaborated,

> Students love animals, and they want to care about animals. So we teach about wildlife and talk about what climate change is doing to animals, and then incorporate climate justice action [. . .] These are definitely values and strategies and tools that I hope they carry with them throughout their lives.

Catherine says that to encourage action, it is essential to first 'create empathy'. To this end, a final project required students to write about how climate change was impacting a particular species and a parallel community (such as sea lions and farm workers) and to advocate for a response that can help both communities. Rachelle added,

> Having fun on our trips is part of it, but we emphasize to students they're here to learn something, and you deserve to learn something about where you are, your history, and we can use the outdoors as a model for what that is. Thus, outdoor settings also provide a better opportunity not only for forming relationships to the land they visit, but also amongst themselves and the greater community.

Continuing to elaborate on forging relationships, Rachelle discussed how such trips enabled students to "bond with each other, the kind of collegiality you wouldn't get just sitting next to each other in the classroom". Given that many people of color report feeling excluded from spending their leisure time in the outdoors (Lee, 2025), she found it noteworthy that some alumni expressed how the program helped them feel more welcome, and thus seek experiences outdoors. She spoke of a former student who

> just came back with his 2-year-old daughter. [He said they] went to Disneyland but on the way [...] decided to camp instead of staying in hotels. He was such a city kid, but he said he learned some things from [us].

But Rachelle emphasized there are also students who will say "that was fun, but I'll never do that again—I'm a city kid through and through". She said she was fine with this because "at least they've had the option to make that choice for themselves as opposed to those spaces telling them that they can't".

Catherine further emphasized the importance of outdoor settings by discussing how and when students changed. She said, it is

> a very motivating process that you can see, even if they only just appreciate going outside. [...] Things like that sustain our drive, keep us motivated to keep trying. Whatever extent we can offer students a lens or experiences or insights into environmental and social issues they wouldn't have had otherwise, it's motivating for them and for us.

Still, CS cautioned against a familiar mantra in education that one has to build relationships with students before you can teach them. She explained that relationships with students "need to be built on what you have to offer them". For instance, in speaking about the benefits of outdoor learning, she said,

> When we take them outside and help them to figure out some natural processes, it then creates a framework which gives them an edge in the classroom, whether it's motivational—'ooh, I've already learned about this' or 'I'm going to get to see this'. Or when we go out, we do inquiries all the time, inquiries are really good for making students feel academically proficient—when they figure something out, even if they're wrong, hypothesizing and gathering evidence, they feel academically competent by figuring out that they're wrong or figuring out something [. . .] a light goes on.

This last point speaks to another key theme: the importance of academic rigor and the need to combat low expectations while cultivating relationships, especially given how research has documented the detrimental impacts that low expectations have had on many students of color (Cherng, 2017) As Catherine said,

> Our students come to us very disenfranchised from their education, often with a tremendous history of failure [...] and a sense of disempowerment. It's kind of our mission to make more empowered people who feel like they can go into the world to make changes. The way in which we think that they're capable means something to them, because they haven't necessarily gotten that before [...] we say 'we respect you as students [so] we are going to have high expectations of you. We establish it as a foundation that we do not think they are not intelligent.
>
> The rigor is deliberate, but it is also about social justice, because our students are plagued with low expectations and that's born of systemic racism, and it's a huge disservice to our kids. So we're intentional in saying to kids you might work harder than you have before, but hopefully you'll learn more and gain more skills than you have before. We're all going to struggle through this, though they can support each other in the lessons [. . .] all these pieces enable us to do the rigor.

Applying such rigor, of course, required dedicated and experienced professionals. Catherine reminded us that "the rigor has to be scaffolded" because roughly a third of her students had learning disabilities.

5.5. Flexible School Structures

The teachers credited the unique structure and settings of the schools, in part, with allowing WALC's success. Catherine said that while she initially thought "ethnic studies was going to change the world", she later realized that "the structure of the student's education needs to be different to have more impact". Specifically, she said, "the traditional

structure of six-classes-in-a-building-in-a-day doesn't work for disenfranchised students". She added, students

> do projects that try to make an impact. Some of our measures, if we're effective, are 'do the students come to school, do they complete the projects, do they get to exhibition?' [...] We create curricula that is relevant to them, exposing them to the natural world and taking them to places they've never been [. . .] We do see them engage in more rigorous things than they may have ever engaged in before [. . .] because [our students] have a history of not being successful at comprehensive high schools.

Notably, these measures of success have been shared by other researchers who have studied the efficacy of ethnic studies programs (Beckham & Concordia, 2019). From our own focus groups with current students, we also noticed the 'rigor' of the program was one of their biggest complaints, even though all the students we spoke with had an overall positive appraisal of the program and several mentioned their pride in "making it through" WALC.

Rachelle also agreed that "there's enough data to show us the traditional model doesn't work for everyone". As she explained, "You lose your imagination because you're asked to do something a certain way, so the flexibility of our program allows them to think deeper and connect with themselves".

However, even the preparatory high school in this study had the flexibility and freedom allowed by small learning communities, or pathways, designed to encourage students to join cohorts of classmates to focus on a topic from a particular lens. While these students' experience was closer to the six-classes-in-a-building-each-day scenario, they still ventured out of the classroom on two day-long Friday field trips and on a multi-day camping trip each semester (a more in-depth discussion of this school and its teachers will be the focus of a future paper).

5.6. Students' Embrace of WALC

Nearly all of the students in individual interviews and focus groups expressed gratitude for the program and, in particular, the opportunity to learn outdoors. They consistently mentioned how WALC changed both their current lives and what they perceived as their future life trajectories. One student explained that their WALC trip to Yosemite was the first time they ever "got to go sledding". Other students talked about how a trip changed their relationship to outdoor settings, with one student saying, "I find myself going on walks more in the environment, like around lakes". Several other students spoke of how they would like to take their families and future children to the spaces they first visited through WALC.

These students in focus groups often contrasted these benefits with their previous negative schooling experiences. They talked about how "we all went to regular schools, so we know what that's like", with several adding that their previous schooling was "kind of torture, stuck in a class all day". They were grateful that "we went from that to going on trips". Other students noted their transition from students who had "severe junior-itis" and who "were skipping class, ditching school, and not caring" about their grades and "only wanting to hang out with friends" to being more conscientious about the world in general and their academic engagement in particular. As one student said,

> Before joining WALC I was definitely one of these kids being bad as hell, doing whatever I want. Now I definitely want to learn. It is actually very fun—my teachers made it in a way that's super interesting and also makes us connect it to ourselves. That's the thing that made me more interested in environmental issues.

5.7. Students' Moving Beyond Climate Change (Focus Groups)

In terms of key takeaways from WALC, students in focus groups reported learning about ecology in a way that went beyond the climate change myopia found in many sustainability education programs (Jimenez & Kabachnik, 2023). As one student explained in a manner that recognized the interconnectedness of the world, "if a certain species goes extinct, whole ecosystems can crumble". In their own way, students often acknowledged the problems of human supremacy, whether it be "how humans are causing animals to go extinct" as well as how policymaking should consider the impacts on " all of the animals that are on this Earth" rather than just "the safety of the environment, of me". Another student spoke about how "everything has a role—this is happening because this is eating this or sleeping on that—so WALC has helped me to become more open-minded. I now think of seeing how every piece fits in the puzzle".

Other focus group students discussed how the program helped them recognize the nuanced ways that humans interact with their environments. For instance, one student spoke of how they "came into the program thinking dams were good [but] now think they're not so good", a contrast to those who uncritically praise hydropower as 'green energy'. By focusing on climate change alone, one might be inclined to welcome dams as "alternative", "green", "renewable" energy sources to mitigate climate change. However, the broader understanding of ecology and habitat destruction that the WALC teachers shared with the students moved beyond carbon emissions to inculcate a greater appreciation for the community of life that a dam devastates (Jensen et al., 2021; Siebert & Rees, 2021). Some students mentioned the lack of wildlife they noticed by the reservoir. Other students noted parallels between how dams harmed communities of life to other barricades and walls that cause harm. For instance, one student in a poem compared cement "to the towering wall at the border" that separates families.

More generally, these students came to recognize the role of humans and their societal structures in shaping the natural environment. One student said that "since WALC I've been so involved with following all of the animals that have gone extinct because humans want to sell their parts to the black market to make money". Another student said, "the good thing about human presence is removing invasives, but the bad thing is all the industrial development", which causes marshes to disappear, which are needed to "filter out all those pollutants". Another student noted that "we [humans] have become a problem all together", arguing that one of the worst things about our society is all of the "new inventions" that cause more "pollution"—a rare indictment of the usually unquestioned myth of progress accompanying our industrial civilization.

A few students also pointed out how many Indigenous people live differently than most humans today. As one student noted, "it's already embedded in their culture to know everything about how to take care of the Earth and be respectful". Another student brought up how many Indigenous people "definitely have experience that we don't have" because they "get their information from their older ones and that's how they authenticate what they know".

Other students, however, spoke more about the social justice aspects of WALC. One student recalled a memorable class activity in which he and his cohort walked around national parks to see which ethnicity ("African-American, Asian, Middle Eastern", etc.) had more access to nature. They carried clickers to "identify people and tallied visitors they came across", noticing there were "way more white people", despite adjacent Oakland being notably more diverse. Such activities have been designed to help students appreciate the intersectionality of ethnic studies and environmental engagement (Pellow, 2020; de los Ríos, 2019; Sze, 2015).

Students also spoke generally about how environmental justice had become a priority for them through their experiences with WALC. As one student explained, now it is "something I've been super strong about". A few students elaborated more deeply about the program's impacts, particularly regarding the ecological restoration trips. One such student discussed a new housing project at Hunters Point, a former U.S. Navy shipyard turned Superfund site near Candlestick Point (SF.gov, 2025). As the student explained, "It's not a totally safe environment for people, with cases of people getting certain illnesses, heart disease, lung diseases due to chemicals in the oil". The student interrupted himself, saying, "we're killing ourselves at this point; I could go on for hours about it".

These student reflections also coincided with their agreement that the program was among the most rigorous they had experienced as students, requiring them "to read a whole book", to "write everyday", and to know "there's not a day we don't have assignments". While most students signed up for the WALC, drawn to the environmental focus and daylong field trips, not all did. Several students said they joined the program because "WALC gives the most [academic] credit" and "its 55 credits are way more than other programs"; others said they were "placed" in the program. Additionally, not all WALC students entered the program environmentally inclined. Several mentioned "bugs", "extreme cold", and "long road trips". Despite these challenges, the overall recollection of their trips was overwhelmingly positive.

5.8. Final Projects

Both of the final, semester-long projects (Spring and Fall 2024) at the continuation high school were rooted in an 'empathy to action' model. The concluding project for the Spring 2024 semester asked students to first reflect on how the program *"asked you to express the interconnections between your people and the watershed, the interconnections between the people of Palestine and the watershed, and the interconnections between the colonized people throughout history"*. Students were also asked to answer the essential question they had been studying: "*How do the interconnections between people and the land influence the functioning of a watershed?"*

Given this prompt, some students' final presentations focused on a detailed description of one of the field sites they visited during their past semester and how members of that ecosystem depended on it. Examples included watercolor paintings and or poems about a local creek, a redwood forest, the Smith River, the Pescadero Marsh, the Hetch Hetchy Reservoir at Yosemite, and Klamath River. A few others chose to compare their families to natural environments. For instance, one student compared the disruptions caused by a death in their family to the death and disruption that dams unleash on their local ecosystems by bottling up the flow of life. The student wrote,

> Yosemite, grand and beautiful—a luxury I've only experienced twice [. . .] my family like the raging currents of the waterfall, loud, chaotic, but always moving forward [. . .] a dam stops the flow in the water [. . .] death in the family, a barricade you can never quite see the top of, making you feel trapped unable to move forward. My family's current now halted, trying to relearn our flow. We'll get there eventually. Dams can always be demolished. We will be restored.

However, other students answered the call of this final assignment to advocate on behalf of an oppressed marginalized group, and many students effectively drew parallels between devastation of an ethnic community to devastation towards wildlife. One student highlighted their Yemeni heritage by comparing the flow of a creek visited in California to their hometown, or *wadi*, which "will always remain as humble as the Yemenis". Another student discussed that just as marshes provide protection for wildlife, so should we protect Black people from police brutality. One of the most common themes was the contemporary Israeli assault on Palestinians living in Gaza, a focus the WALC teachers leaned into

because, as CS put it, "this was a really hard year, because we're teaching about a genocide we're all watching". In this vein, one student wrote that "The water of the marsh moves freely, unlike Palestinians separated, controlled". Another student drew parallels between Palestinians and the "beautiful Tolowa tribe" (whose ancestral lands were located in Northwestern California):

> Pain of the Tolowa also felt by the Palestinians. Buildings demolished, shattered into thousands of pieces, water polluted, resources gone [. . .] set them free, let them flow and walk the lands that belong to them".

Similarly, another student compared the experience of the Indigenous Yurok of California to the Palestinians:

> Yurok and Palestinians interconnect, supporting each other, two tributaries joining to create a stronger river, finding their way to a common destination: peace and land back.

In focus groups, some students brought up what they learned from their final project:

> If you really think about it, if you've been colonized, you are sort of interconnected with all these ways of resistance. That's why we need to show solidarity with each other; [Palestine] Cambodians are also connected to the olive tree because they've had their forests cut down by colonist countries, and forced to move out of their homes and then had nowhere to go. (Cambodian-American student)

> I chose to include a flower, which represents resilience, triumph over tribulations with Japanese occupation, brutal wars, war brides [. . .] similar to how Israel is trying to occupy Palestinian land.

> I chose the olive tree because it is a very persistent tree—it likes to grow through drought, bad conditions like unhealthy or dying soil, even when it's not getting what it needs, it still grows [. . .] like Palestinians persisting through apartheid and genocide. (Korean-American student)

The final "empathy to action" project for Fall 2024 concerned climate justice. Specifically, students were tasked with photographing wildlife they encountered on field trips and then discussing how some of these species have been or will be impacted by climate crisis, followed up by what actions could be taken today to mitigate these harms. Many of the students, in their verbal presentations, expressed succinctly and accurately their understanding of climate change and how it impacts the very species they observed on their nature trips. For instance, one student explained that snowy egrets that

> hunt in wetland environments are at risk of destruction as the tides rise through the years. The release of greenhouse gasses causes climate change by trapping the sun's heat. This causes global warming, which is also melting glaciers in the poles, causing a chain reaction which leads to sea level rising. This is not good for a wetland environment. Rising sea level can destroy the wetlands because of flooding and increased salinity. When the wetlands get flooded, the salt in the ocean's water intrudes into the soil causing the plants to dry up and the wetland to die. This leaves the egret without shelter or sustenance.

Such an articulation is particularly impressive for a high school student given how many college students have a notably more limited understanding of climate change (Kistner & Jiménez, 2023; Leiserowitz et al., 2011; Hiser & Lynch, 2021). Students were also encouraged to consider how to address the hardships currently experienced by climate change's many victims, as a student said,

> To help farmers and any other manual workers [in extreme heat wave conditions], I think it's important that we provide health insurance, increase break time and

> provide enough shade, water and snacks. Climate justice means we have to give struggling groups what they need to live. The standard of what we give right now will not be enough as the temperature rises.

A particularly noteworthy aspect of their final assignment was to write "speculative journals" where students would both document current observed impacts as well as imagined or hypothesized future impacts as well. (This assignment was tied to the students reading Octavia Butler's *Parable of the Sower*, speculative fiction set in the 2020s and 2030s about the effects of climate change and social inequality.) In their writing, students were encouraged to consider how climate change can impact humans and non-humans alike. One student compared how sea level rise "destroys the habitats that pelicans live in like marshlands, estuaries and coastal areas" but how this same sea level rise could impact residents living near "the toxic navy shipyard". Another student discussed how he "wanted to focus on rising temperature and its injustice and harm to farm workers and animals like the grey fox". He went on to discuss how "grey foxes are at risk of losing more of their habitat when our global temperature rises, their home at risk of drying up and becoming fuel for wildfires" while farm workers, in order "to keep their jobs and feed their families", have to endure "excessive amounts of physical labor [that] can be extra cruel in the heat, causing medical emergencies like heat exhaustion or heat stroke which, long term, can lead to brain injuries or even death".

Another student compared climate change impacts on both sea life and the people who depend on them for their livelihood. The student followed up with how we should respond to ameliorate these issues, saying that those fishing for their livelihood now find it "almost impossible" to feed their families:

> there is not as much habitat available for [fish]. The rising sea temperatures also affect certain animals' reproduction systems that the fish depend on for their own food [. . .] I very rarely see any fishermen here in Elkhorn slough any more [. . .] the rising temperature can also cause an increase in the sea urchin population that keeps the kelp from growing since the sea urchins eat kelp. Kelp forests help mitigate the impacts of climate change by absorbing carbon dioxide, so if the sea urchins keep consuming the kelp, important fish habitat will be lost, and carbon will be released into the water [. . .] A way we can achieve climate justice for the fishermen and help the sea otters is restoring kelp forests. More kelp forests would make more habitat available for fish and sea otters.

Teachers at the continuation school included a unit in which students studied the evolutionary trees of bears and then contemplated future evolutionary trees for species alive today. Students speculated how some characteristics of species were responses to their local environmental conditions. Teaching students about species' evolutionary trees is, in part, an exercise in fostering students' empathic capacity, so students can appreciate the long way all current species have come to still exist today. In our observations, many students enjoyed the exercise of understanding species evolution. One student, for example, during a class discussion enthusiastically described how a chicken and a T-Rex "look nothing alike but chickens are one of the most closely related species on the planet to a T-Rex", as he went on to describe their similarities. Apropos to these lessons, students were asked to speculate how animals alive today might adapt to a climate changing future. For example, a student used his speculative journal to "showcase how climate change can alter the elk's evolution" in the future, sharing:

> These elk have gotten smaller over the years along with their antlers [. . .] I believe this is a result of the dry grass not providing enough to keep up the previous

> mass of the antlers. They've had a lack of thick, rich, green, nutrient-filled grasses for around 35 years because of the rising heats and common wildfires.

Similarly, another student discussed how sea otters were

> on the brink of extinction and ocean acidification is just making this way worse for them. Acidic waters are causing shell thinning and reducing the survival rate of shellfish larvae, which is affecting the food supply for sea otters. They are one of the top-end predators at shore but have recently been seen eating plants like kelp and seagrass, which is something most people don't know. This got me thinking maybe there was a possibility for some sea otters in the future to evolve [as] omnivores, diverging from those that stay carnivores but find a different type of food source.

Such speculative journals can be also viewed as a form of hope through the lens of what some scholars have referred to as "deep time" (McPhee, 1998). That is, rather than just lamentably focus on all the species that are going extinct, this exercise helps students imagine a future for resilient survivors. In his speculative journal, a student expressed hope for how indigenous communities might respond to a climate-changing future: "the native people of Monterey Bay, who are the Esselen tribe, and the sea lions are disproportionately affected by the warming ocean temperatures causing their food sources to deplenish, so the native people came together to be heard and get justice for them and the sea lions". However, she followed up with a more neutral description of how sea lions might evolve and "become the ancestor to a new species", writing that

> These animals [in the future] are no longer social. Now they just watch out for themselves and their young. Their flippers have become longer, and their bodies are thinner; they no longer pull themselves through the water but shoot through the water like an arrow instead, helping them to catch faster fish. The sea lions have also developed sharper teeth; they are razor sharp and 3–4 inches long. Together with their new body shape, these teeth allow them to catch faster aquatic animals like small sharks.

Another student described in considerable detail the deadly impacts of toxic algal blooms on sea lions, and how even after they flee the extreme heat of the warming seas they "can't enjoy themselves while resting" in the extreme heat on land. But in his speculative journal he wrote,

> even though things are bad for the sea lions, I predict how they could have behavioral adaptations in their changing environment. One thing I found fascinating was that they adapted due to the lack of their prey and switched from salmon, mackerel, sardines and anchovies to prey like squid that is better suited to rising temperatures. They have found a substitute for their sustenance. Even if it becomes hard for sea lions to survive, they are very resilient animals capable of adapting to the rapid change of environment.

This exercise fostered students' hope of a continued future of the community of life that was not necessarily dependent on humans making the best choices for continued sustainability but, instead, reflected an admiration for the resiliency of species to adapt to ever changing circumstances.

6. Discussion

In considering these findings, the students in WALC did not fit the classic climate justice activist profile by engaging in climate marches, raising money for environmental organizations, or lobbying Congress for better environmental legislation. But when asking one student in a focus group about why his youth peers in San Francisco do not seem

engaged in youth climate movements and other forms of advocacy, his response reminded us of the role that privilege plays in any activist movement:

> You could think about environmental problems—you could be worried about that, but some people have to worry about what they got going on in their own lives—if you have a roof over your head and you have food, you're clearly living better than other people.

Much has been written about how climate protests are often spearheaded by students from privileged social groups in relatively prosperous societies (Jimenez et al., 2020). What might activism look like among youth in communities that seldom have the luxury of "taking to the streets" when they are burdened with myriad other commitments, such as caring for their siblings and parents, working to support themselves and their families?

The student's comment speaks to our contemporary dilemma. On one hand, you can't expect youth (or any individuals) who are struggling to meet their basic needs and dealing with daily injustices inherent in structurally oppressive societies to have the time, energy, or emotional bandwidth to engage in climate justice activism. But on the other hand, we also do not have time to first address structural inequality before engaging in the immediate and necessary work of addressing climate change and other ecological issues. Thus, what's so notable about WALC as a model for other environmental and ethnic studies programs is that it seeks to address both simultaneously and, by building in ample time for self-reflection, to allow students to be accepting of themselves as effective and worthy learners, which is likely a necessary precondition to taking the next steps of being more informed members of a community, more diligent consumers, and more engaged social advocates. For instance, one student in a final poem assignment drew parallels between her own unleashed potential along with the flourishing of life that can take place after taking down a dam, saying,

> The question is how would you feel if someone built something to hold you back? I built a wall of emotions that held me back. Making me feel trapped like I couldn't communicate knowing that that's what I had to do. I want to be able to knock down that wall for myself and for the river.

Perhaps not surprisingly, this study echoes previous research showing that teachers are more likely to successfully integrate social justice with environmental lessons if they have the support of their school administrations and districts (Ernst, 2012). This support is not just in terms of respecting teachers' autonomy and curricular freedom, but also in creating avenues for success for marginalized students that do not look like the traditional school day, which has a century-long record of failing its most marginalized students (Labaree, 2010). Nonetheless, in the absence of sufficient administration support, teachers interested in getting their students to be more environmentally motivated can still learn from WALC's pedagogy. For instance, it was clear from their daily activities that these educators routinely provided opportunities for students to cultivate their analytical reasoning, to express their creativity, and to encourage them to "not passively go through the system". The teachers were also open to manifesting curricula to students' needs and passions, such as feeling seen and heard by their teachers, understanding how much of their struggles aren't individual failings but rooted in historic injustice, and how education can serve both their own liberation and that of their communities.

An important lesson from these teachers is to broaden our understanding of what it means to be a climate activist. Traditionally, this entails strategies to reduce global carbon emissions and to keep fossil fuel reserves in the ground; however, anyone fighting for justice on behalf of themselves or others is also building their personal resilience, thus making themselves more capable of addressing environmental concerns that otherwise

might be further down their list of concerns when more pressing issues (police brutality, homelessness, medical debt, etc.) are impacting their survival over environmental concerns that can seem far off and less tangible.

Another key lesson for those considering emulating WALC's curricular and pedagogical strategies is to take the time to work on one's own knowledge gaps to effectively integrate social and environmental justice education. Students in teacher education programs report not feeling as though they can teach about climate change, believing they are insufficiently knowledgeable about the topic (Kistner & Jiménez, 2023). While educators can specialize in their respective fields of expertise (humanities versus biology, for example), WALC teachers demonstrated that it is also crucial to integrate ethnic studies and ecological perspectives into teaching, viewpoints that are largely absent from the curricula of most teaching preparation programs.

Lastly, after doing the macro work of building one's pedagogical-content knowledge, the crucial remaining step for educators is the thoughtful design of their daily lessons and weekly units. Conrad says it is imperative to consider

> how activities in a field trip or a unit have an arc to them and fit together to elicit from the students some very specific outcomes that the teachers wished to see. And how exactly individual parts (lessons, small assignments) build on each other so that by the end, students have a cohesive overall idea of what they were supposed to have learned.

The powerful learning outcomes as evidenced in these students' final projects are the culmination of many years of experience and countless hours of careful planning, regularly assessing the impacts of previous lessons and fine tuning them over time, especially important given the rapid pace of cultural change brought on by new technologies. How these teachers such as Conrad designed such lessons step by step will be the focus of future research.

7. Limitations

This study is not without limitations. The use of participant observations, notably field notes, allowed for researchers' personal perspectives and biases (Jackson, 1990). Additionally, participants who did not feel comfortable expressing their views in a group setting may not have fully participated in the focus group interviews (Olson, 2016). Further, WALC's existence in a liberal city and within a liberal school system is important to acknowledge and likely makes some aspects of WALC not readily transferable to other educational settings, especially now with a federal administration keen to dramatically curtail the autonomy of teachers in raising issues concerning marginalization and intersectionality in their classrooms.

8. Conclusions

Traditional social justice pedagogies that do not incorporate ecological thinking fail to prepare our future generations with the necessary roles of also being environmental stewards, which—given the gravity of the issues we're facing—cannot be outsourced to small groups of indigenous communities and permaculture enthusiasts. On the other hand, environmental education programs that do not adequately address social justice issues will not meet the needs of many of their students long marginalized by educational and other institutions and will thus prevent these individuals from reaching their full potential as citizens and social advocates. In contrast, WALC and its dedicated teachers provide exemplary models for other educators to learn from about how to infuse these perspectives into every aspect of their teaching.

Of course, it's long been a particular burden placed on U.S.-based educators, many of whom are struggling to make ends meet in under-funded schools, to somehow solve all of the problems of our country and our world within the confines of the limited hours of student contact time they have. Teachers also need the support of their local, state, and national communities to help buttress their work by creating ways for high school graduates to earn their livelihoods in ways that simultaneously work towards ensuring we can live in a fair, equitable, and ecologically flourishing world. But even within considerable budget constraints, teachers from WALC regularly showed students how their advocacy for environmental and social justice issues could move outside the school day and into their lives post-WALC.

Students were encouraged to critically engage with social media, as well as join letter-writing campaigns, organize community events, and educate their families and friends. Students pursuing tertiary education generally did so with social justice and climate justice at the fore, while those more interested in other post-graduation routes still appeared to seek out ways to better their environments, in every sense of the word. While some of their engagement and advocacy might not fit the traditional mold of more prominent climate justice youth groups such as the Sunrise Movement, in their own way they're participating in the same struggle. Nonetheless, strength lies in numbers, and one way existing climate youth groups can help bring typically underrepresented young people to contribute to their movements is to direct some of their attention to listening and learning from them. In other words, in the face of current political elites who don't even pretend to care about climate change or marginalized youth, existing youth leaders in climate movements can direct some of their energy into visiting urban communities to learn how they can be better allies, thus helping to build more grass roots community building for increased cooperation towards shared goals—environmental justice for all, including our non-human kin. The teachers' work featured here lays such a foundation, and it is a small but essential step forward in sustaining not only our own species' survival, but the wide-ranging community of life in which we are embedded.

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Notes

1 These comments may have been removed from the EPA website by the time of this paper's publication.

2 For the purposes of this study, marginalized students (Labaree, 2010) are defined as those systematically relegated to the periphery of educational opportunity due to structural inequalities within the education system. These students often face exclusion from full participation and success in schooling based on factors such as race, language, ability, or social class.

3 Again, this reflects a current trend that may be stalling and perhaps reversing in the current political climate.

4 Nevertheless, researchers report that K–12 climate justice education is still impeded by limited support for teachers and a lack of rigorously evaluated curriculum resources.

[5] Although Catherine wasn't specifically citing Zoe Weil's solutionary framework (Weil, 2024), there are notable parallels with Weil's work in fostering empathy for other species in educational lessons and settings.

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