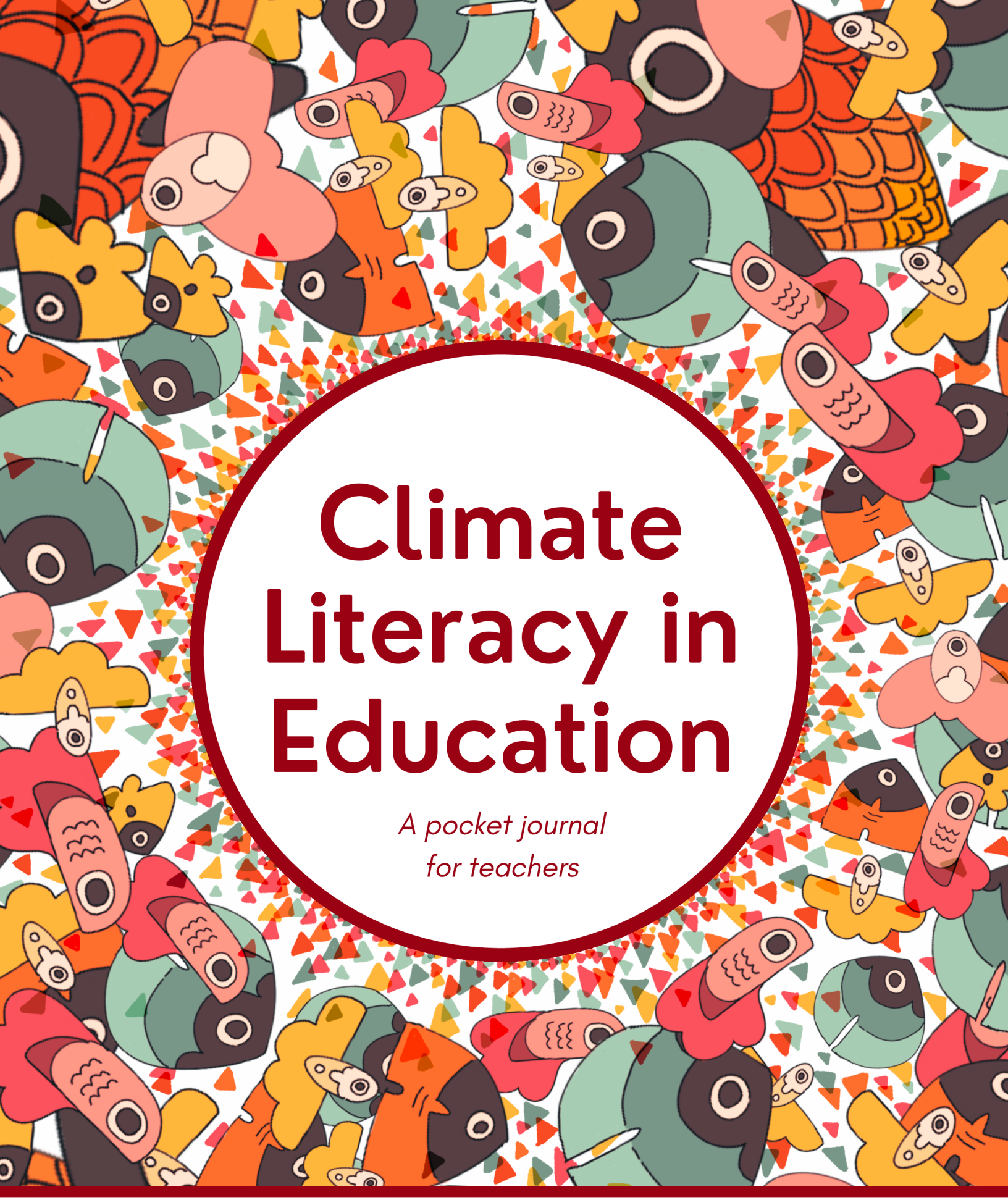

Climate Literacy in Education

A pocket journal for teachers

Volume 2 | Issue 1 **Fall 2024**

About *CLE*

Climate Literacy in Education (*CLE*) is an open-access, double-blind, peer reviewed journal sponsored by the Center for Climate Literacy at the University of Minnesota and published through University of Minnesota Libraries. *CLE* publishes practical, teacher-oriented content on all aspects of climate literacy education at all grade levels and across all subject areas (primarily K-16, but including teacher education and professional development). We are a pocket journal focused on classroom practice which is why the articles we publish are short: 2000 words or less. Our content is written in jargon-free prose accessible to the general audience. All submissions are peer-reviewed by two anonymous readers. Authors can expect to hear results within two weeks after submission. We publish on a rolling basis.

We welcome submissions in the following categories: Curriculum, Reflections, Critical Essays, and Creative & Multimedia. For detailed submission criteria pertaining to each category, please visit our journal website.

We look forward to working with you!

Editorial Collective

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Lindsay Oh provided the cover illustration. See more of her work at @cloudcrushed.

Izzy Sheen created and generously donated rights to the logo to *Climate Literacy in Education*.

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Climate Literacy in Education

Introduction: The Road Taken

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Abstract

In this Introduction, we envision possibilities for climate action and climate literacy education under the Trump administration. We reflect on what teachers can do on to accelerate integration of climate literacy across all subject areas and how a changing understanding of climate literacy as a holistic socioscientific and cultural competence is gaining ground across the world.

Keywords

U.S. presidential election, climate action, climate literacy education

Welcome to the third issue of *Climate Literacy in Education*! This Introduction was delayed until the results of the U.S. presidential election were announced. We already know which road was not taken. As Fintan O'Toole noted, "The Democrats played down two very big things: the climate crisis and the income inequality that is sure to rise as new technologies further enrich existing elites. The result was an offering that was broad but shallow, based as it was on a decision not to address issues that are shaping the lives of Americans now and will continue to shape them in the coming decades." The road chosen by the popular vote is almost certainly going to be harder on the people and the planet.

That said, an important caveat must be made. In today's reality of extreme polarization it is easy to assume that that Americans who care about climate belong in one political camp whereas those who deny the emergency belong in the other. In fact, however, over 72 percent of Americans believe that climate change is real, over 70 percent believe it will harm future generations, and over 58 percent believe it is already harming people in the US today. These beliefs increasingly transcend political and generational

divides. They are growing to be a shared space from which we can act together—even if we disagree on this or other political issue. Put otherwise, if we are serious about addressing the emergency, it may be smarter to focus on discovering how we are in it together—like the millions affected by Hurricane Helene—instead of righteous anger that insists on an ever-sharper "us vs them" divide. The future is yet unwritten. We all have a role to play in how it unfolds.

In the larger context, of course, the world is still on track toward climate collapse. No country or political party has really stepped up to the challenge yet. According to the International Institute for Sustainable Development, the G-20 countries are still subsidizing fossil fuel at triple the rate they're doing for renewables. Wildlife loss continues to accelerate, from 69% in 2022 to 73% in 2023. This comes as no surprise given that "the world has never yet met a single target set in the history of UN biodiversity agreements" (Greenfield & Dunne). Although wealth-related drivers of the climate crisis and biodiversity loss are increasingly clear, the neoliberal paradigm of fossil-fuel based growth seems unstoppable. Aside from ecospheric and social costs, more severe events like hurricanes Milton and Helene bring very real loss in financial terms too: a double-digit billion-dollar loss from Milton and anywhere between $225 and $250 billion from Helene. How long and how often can people bear that kind of cost? As Jonathan Mingle writes, "Even under President Biden, who has said he thinks climate change is an existential crisis and who has done more than any president before him to confront it, Americans have been woefully unprepared for the climate upheavals that are coming—and for those that have already arrived." We are all in for a bumpy ride.

Although the climate crisis will continue to accelerate on the path set by our actions over the past thirty years, there are always opportunities to also accelerate mitigation, adaptation, and transformation necessary to finally shift humanity's trajectory toward just, regenerative futures. Here are some of the tools we have and what they mean for hope and possibility on climate action.

1. We have successful models from around the world of legislation and actions that mitigate the climate emergency, accelerate adaptation, and constrain operational space for ecocidal industries. For example, European Environment Agency report Trends and projections in Europe 2024 (Oct 31, 2024) notes that 2023 saw the "largest year-on-year reduction [of emissions] in several decades" (5). "In 2023, EU total net GHG emissions decreased to 37% below 1990 levels" (5) and "the share of renewable energy had grown … to an estimated 24% of the EU's gross final energy consumption by 2023" (6).
2. We may be closer to turning a corner on tolerating denial and lies on confronting climate change. As Rebecca Solnit (2024) recently wrote, the mainstream media

have failed America by "treating the true and the false, the normal and the outrageous, as equally valid" (n.p), and this normalization of atrocity has been especially disabling for climate action. Yet, it is becoming harder for ecocidal agents to dismiss climate change as a scam and we may be getting closer, collectively, to embracing "climate truth" and confronting the climate emergency *as an emergency*. Between Hurricanes Beryl (June) and Helene (September), massive floods in Europe and Asia, accelerating extreme weather and 2024 being, again, the hottest year on record, calls for a national climate action plan and concerted world action are getting louder and more likely to be taken seriously.

3. We have a growing consensus that education is essential for the wholesale civilizational transformation the planet needs: as leading climate scientists Michael E. Mann puts it in the "Foreword" to *Empowering Youth to Confront the Climate Crisis in English Language Arts*, edited by Allen Webb, Richard Beach and Jeff Share (2024), "the climate crisis is far more than a problem of science, economics, policy, or politics. Fundamentally, it's a problem of ethics—particularly, the intergenerational ethical quandary of leaving behind a degraded planet for future generations." To tackle it, "we must engage the heart, as well as the head … [and] Nobody is better positioned to help young people do that than teachers…" (p. ix).
4. We also have a major shift—a decade in the making—in understanding that climate literacy is far more than just about climate science: an approach that the Center for Climate Literacy has championed since its inception. The recently updated 2024 NOAA *Guide to Climate Literacy* has now expanded a definition of climate literacy to "incorporate other types of knowledge about the climate system, in addition to physical climate science" so that "The term now includes local and Indigenous Knowledges, social and cultural contexts, the social sciences, climate solutions, and climate justice concepts" (n.p). Likewise, UNESCO's 2024 *Education and Climate Change* report stresses that education "is key to climate change mitigation and adaption efforts," and not just through "improving knowledge [and] raising awareness" but specifically through "changing attitudes, beliefs and behaviours" (p. 1). At the heart of this shift is a recognition that climate literacy is a narrative capacity. That we need to, to quote Mann again, "find compelling narratives that are engaging and motivating, narratives that convey both *urgency* and *agency*" (2024, p. x). As educators and humanists, we find it heartening to see a leading climate scientist state: "If we are to prevail in this epic battle for our future, our children must be equipped with the right tools. And none is more important than effective storytelling, for this is how we spur others to action and achieve social change. While I would argue that this skill must be incorporated by teachers into all disciplines, including science, its true home is the language arts" (2024, p. x).

Back in 2020, a study of "social tipping interventions (STIs)" required to stabilize the Earth's climate by 2050 through transformations in technologies, behaviors, social norms, and structural reorganization within the planetary socioeconomic system—its six "functional domains" that the authors called "social tipping elements (STEs)"—calculated that achieving STE4, "changing norms and value systems," will require 30 to 40 years, and achieving STE5, "transforming education system," will take 10 to 20 years (Otto at al., p. 2359). Interestingly, the authors concluded that achieving these two STEs will take much longer than transformations of our energy, financial, infrastructure and information systems. At the Center for Climate Literacy, we agree that transforming values, norms and education systems is more complex than technological change. But we are also confident that we are able to do it sooner, within a ten-to-twelve-year range. If climate literacy is implemented across all grade levels, all subject areas, and in all schools everywhere, it will create an unstoppable social tipping point cascade within a few years. This is how we create the green, just and regenerative world we all want to see.

The articles in this issue contribute to this mission by offering educators specific materials to promote climate hope and justice. The two curriculum articles featured in this issue engage these values directly. Karen Hindhede's "Implementing Ecojustice Praxis in Children's Literature Courses" puts forth a framework for reading children's literature using the three "Es" of sustainability: ecology, economics, and equity. Colleen Redmond's article, "The HOPE Framework: A Literacy Strategy for Identifying Hope in Narratives as a Response to Young People's Eco-grief", also grants educators a specific framework for analyzing narratives for what she terms "hope markers". In doing so, students are prompted to consider hope as an active, reflexive endeavor.

Hope and justice also feature proximately in the reflection articles. Lee Zimmerman's "Staying with the Climate Trouble: Part Two" extends his discussion from Part One to consider how inviting students into teacher "not-knowing" can actually help students cultivate a sense of their own agency. In "Climate Change Denialism: Critical Analysis of Arguments in Confrontation with Climate Science", Ricardo Ramos, Maria José Rodrigues, and Isilda Rodrigues offer specific responses to common climate change denier arguments. The fight against climate disinformation, they argue, is a necessary component of a just transition. Finally, Ben Screech contributes an interview with author Sarah Guillory, whose intention in writing fiction for young people is to simultaneously stress the magnitude of the climate emergency while also advocating for the necessity of hope.

Although they focus on four distinct narratives, the four critical essays in this issue are united in their observation that fiction is a powerful medium for depicting justice amid crises. Antonella De Sena's "Social Justice, Human Rights, and Environmental Crisis in Álvaro Colomer's *Ahora llega el silencio* (2019)" finds that Colomer's novel is clear in its

vision for cooperation and equity even in the face of environmental disaster. Sietse Hagen's "The Black Snake: Powerful Imagery in *We Are Water Protectors*" is equally adamant that Lindstrom and Goade's award-winning picturebook—despite its frightening images—is especially helpful in cultivating discussions of Native youth activism and Native-led coalitions for climate justice. In "After the Flood: Environmental Activism, Agency and Action in Sarah Guillory's *Nowhere Better than Here*", Ben Screech follows his interview with an analysis that demonstrates Guillory's narrative is a model for young people taking action—even if they do so largely alone. A similar modelling is featured in Nick Kleese's "Democracy and Kinship in *Nausicaä of the Valley of the Wind*" which reads Miyazaki's seminal anime as presenting openings for young people to imagine democracy extending beyond the limitations of our own species to spark movements for interspecies justice. Finally, James Damico writes about his musical collaborations with young people in "Confronting Climate Denial with an Intergenerational Conversation/Song". Damico shares his insights about the process, as well as his reflections that collective creation—as well as getting climate conversations out of the classroom and into the street—deserves its own soundtrack.

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Climate Literacy in Education

Implementing Ecojustice Praxis in Children's Literature Courses

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Abstract

Faculty must do more to include ecojustice pedagogy, including climate change education, in higher education. This article describes how I infused ecojustice pedagogy into my undergraduate children's literature course. I share my experiences on developing an ecojustice praxis over a three-semester period. Using the three prongs of sustainability (ecology, economics, and equity), I provide suggestions for incorporating texts, vocabulary, and heuristics, specific activities and assignments.

Keywords

Ecojustice praxis, children's literature, ecojustice pedagogy

Research demonstrates that faculty should implement environmental justice topics, including climate change education, in higher education courses (Álvarez-García et al., 2015; Coleman & Gould, 2019; International Commission on the Futures of Education, 2021). My research supports these findings. I spent three semesters collecting data about implementing ecojustice topics in undergraduate children's literature courses. Ecojustice pedagogy—a practical application of ecojustice education—recognizes the brutality and injustice that historically minoritized peoples and the natural world

experience, as perpetuated through language and social/cultural assumptions, while enabling learners to rectify social-ecological oppression (Lupinacci et al., 2018; Martusewicz et al., 2021). Ecojustice pedagogy is the intersection of social and ecological justice.

My research demonstrated that students, primarily pre-service teacher candidates, consistently viewed eco literature, environmental topics, and ecojustice pedagogy (teaching methods and content) as essential and craved such a curriculum. Faculty also desired more professional development in these areas. They cited the lack of knowledge as the most significant reason for not including more ecojustice pedagogy in their children's literature courses.

As part of my study, I infused ecojustice pedagogy into my undergraduate children's literature course. I used the three critical Es of sustainability (ecology, economics, and equity) as a framework for incorporating ecojustice pedagogy (Edwards, 2015). Good teaching is continual praxis; hopefully, these ideas invite educators to engage in their own cycle of theory, practice, and critical reflection to create their own repertoires of ecojustice pedagogy.

Ecology

Pillar one, ecology, requires five moves. The first is incorporating sustainability, environmental, and climate texts in course materials. Fleischman's (1997) *Seedfolks,* Gantz's (2022) *Two Degrees,* Henderson's (2018) *Wilderness Wars*, Klein's (2021) *How to Change Everything*, Little Badger's (2021) *A Snake Falls to Earth*, and Magnason's (1999) *The Story of the Blue Planet* are a few suggestions. See climatelit.org for additional suggestions. My emphasis focused on stories that reimagine relationships with humans and the planet rather than dystopian stories focused on exploitation, fear, and hopelessness (Damico et al., 2020; Oziewicz, 2023).

Move two is sharing eco justice vocabulary. Children's literature textbooks typically have a chapter defining literary, social and cultural diversity terms. I have begun including ecological and justice vocabulary at the beginning of the semester, along with these other definitions. Some of the terms I highlight include climate literacy, ecoliteracy, ecocide, ecojustice, and ecofiction. Students are also referred to Climate Lit, which houses a growing glossary of climate literature terms.

Move three consists of including an ecocritical lens throughout the course and discussing ways students can infuse ecocritism in their own classrooms. Multiple sources offer questions to introduce and develop students' ecoliteracy (Gaard, 2008; Russell, 2019; Bradfield, 2020). Some questions that could be asked include: What role does the environment play in literature? Does nature have its own agency? What language and literary devices (vocabulary, metaphors, anthropomorphism) are used to describe the environment and animals? How might this language shape readers' understanding of people and the natural world? What is the relationship between humans and nature in the text? Are humans unaware, dismissive, exploiting, "saving," or engaged in reciprocity with the environment? Gaard (2008) emphasizes the need to "analyze EcoJustice problems" holistically and the importance of building connections to nature (p. 20). Her work is foundational for faculty beginning to incorporate ecojustice aspects into their courses.

Finally, move four is exposing students to a variety of ecojustice resources. My research indicated that students' knowledge of environmental and ecojustice topics increased significantly from exposure. What children's literature educators emphasize in their classes helps future educators decide what is valuable. Thus, I emphasize exposure, providing a wealth of climate change, environmental justice topics, and ecojustice pedagogy relating to children's literature. Some materials are appropriate for discussion, others for assignments, and others for reference.

For example, I used an assignment where students responded to an article using critical reflection after being asked: What aspect stood out to you or was especially important when reading this article? Many *Climate Literacy in Education* (CLE) articles are appropriate and effective. I also used two essays: Oziewicz's (2022) advocacy piece describing children's stories as a tool for social transition and Bradfield's (2020) short piece about using an ecocritical lens when teaching children's literature. Bradfield relies heavily on Gaard's (2008, 2009) ideas of ecopedagogy but I found the style and length of Bradfield's article more accessible than Gaard's original for an undergraduate children's literature course. Additionally, short pedagogical articles and stories for undergraduate children's literature classes can be found in *Fantasy and Myth in the Anthropocene* (Oziewicz et al., 2022), while longer pedagogical articles are in *Pedagogy in the Anthropocene: Re-Wilding Education for a New Earth* (Paulsen, 2022).

Economics

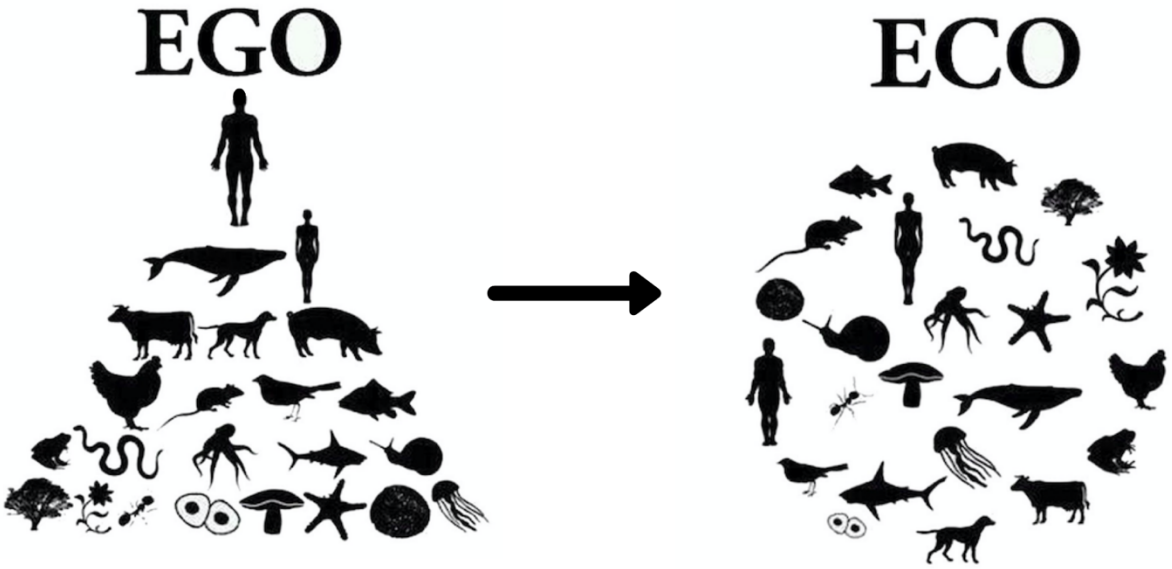
The other pillar of ecojustice pedagogy is economics: asking students to consider who benefits economically from the particular forms of human relationships to the earth we notice in the stories we read. Questions such as how humans quantify the value of nature, who gains from destruction, who pays for environmental cleanup, and what kind of relationships people have with nature are good starting places. Picturebooks like *The Lorax* (Dr. Seuss, 1971) or *The Giving Tree* (Silverstein, 1964) allow students to analyze messages about interdependence and responsibility. Students regularly share that they had never considered climate literacy messages picturebooks portray. Gaard (2009) has a helpful discussion about *The Lorax* and other environmental-focused picturebooks, while artist Topher Payne provides an alternative ending for *The Giving Tree*. By including a close reading of a picturebook examining people's relationship with the earth early in the semester, students may better understand that even popular or well-known books can include problematic messages about humans and the natural world. Such readings, with subsequent discussions, prepare students to be critical readers. González's (2017) *All Around Us* and Lindstrom's (2020) *We Are Water Protectors* are more earth-centric and ecojustice-focused picturebooks, which I use later in the course as a counterbalance to Dr. Seuss' and Silverstein's classics.

Equity

The third pillar of ecojustice education is equity. Exploring it requires two moves: showcasing the Kinship, Ecocentric or Ecological Worldview as an alternative to the dominant Anthropocentric Worldview. The latter places "man" on the top of a pyramid of beings with "woman" and larger animals cascading downward until the base layer of smaller plants, animals, and insects, traditionally deemed less important in Western culture. The former worldview emphasizes the interdependences of all creatures. Figure 1 illustrates the two worldviews.

Figure 1

Worldviews



Source: From "Ego vs. Eco" figure credited on the internet to the creative commons. This image is from Eco-Vison Sustainable Learning Center Non-Profit Organization in Delvavan, Wisconsin who developed this image along with the organization Generation Alpha (Martusewicz et al., 2021).

The other move is, logically, a critical discussion of the logic of domination. Students learn to recognize that the subordination of certain groups over others, including humans over the natural world, is perpetuated by cultural assumptions and metaphors and that it causes and sanctions injustices for people and the planet (Martusewicz et al., 2021). There are many ways to discuss how socio-linguistic metaphors sustain and increase social and ecological oppression. One way is to avoid stereotypes about gender, including describing nature as female. Discussion and reflection about why nature is often aligned as female is useful. Questions might include: Does the author provide gendered attributes of nature? Are these positive or negative associations? Why might one align nature with woman/female? What are the benefits and problems with assigning gender to nature? Who profits from such assignments? Who does not? How do these assignments relate to an ecological worldview?

Final Ideas for Engaging in Praxis

Introducing new vocabulary, showcasing images of earth-centric worldviews, reading articles, non-fiction texts, and novels exposes students to ecojustice pedagogy; however, students need to engage in praxis themselves. The following two assignments lend themselves to such engagement.

Have students evaluate representations of environmental inclusion and justice in picturebook portrayals. One assignment has students evaluate three picture books from those loosely grouped into two categories: diversity/social justice and environmental/ecological justice. After reading the three books, students choose one and write an analysis of the book's content and images. The assignment requires students to examine the interaction between text and images and respond to questions relating to previously introduced terms, such as protagonists and bibliotherapy.

Another assignment centers on developing ecojustice criteria that can be applied to children's literature. Children's literature courses usually include a learning outcome related to developing criteria for evaluating children's literature, such as diversity, quality, or genre markers, such as for graphic novels. In my Children's Literature course, students list three to five criteria they would use to evaluate literature based on an ecojustice ethic. Sometimes, I compile the suggestions into one list or have the students comment on each other's suggestions. I also ask students to consider the three components of sustainability, reflecting how ecology, economics, and equity manifest throughout texts and the course.

Higher education faculty must incorporate environmental topics and ecojustice pedagogy into their courses. Similarly, colleges and universities need to provide professional development to help faculty infuse such pedagogy throughout their curriculum. Implementing ecojustice praxis in undergraduate children's literature courses is a significant start. Hopefully, the above ideas can be used as inflection points for children's literature faculty so that they can identify, create, and increase an ecojustice ethic and implement ecojustice praxis in their courses.

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Climate Literacy in Education

The HOPE Framework: A Literacy Strategy for Identifying Hope in Narratives as a Response to Young People's Eco-grief

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Abstract

This article outlines the Healing Opportunities for Processing Eco-grief (or HOPE) framework. Modeled on hope theory research, the framework includes four textual markers for hope: 1) Motivation for Change, 2) Belief that Change is Possible, 3) Plans for a Path Forward, and 4) Agency to Take Action. This article introduces the HOPE framework as a pedagogical strategy to assist educators in climate literacy practices that spark dialogue and healing through centering hope as a lived practice.

Keywords

eco-grief, hope, HOPE Framework, climate literacy, climate emotions, collective action

An introduction to the HOPE framework

Not far into Madeleine L'Engle's *A Wrinkle in Time* (1962), Charles Wallace, Calvin, and Meg realize the magnitude of the challenges they face. To offer strength for what's to come, Mrs. Who says: "Nothing is hopeless; we must hope for everything" (p. 61). Young people today, too, need hope as they face a magnitude of challenges related to the climate crisis. Such hope must include action-based strategies that embrace "a committed and active struggle" (Duncan-Andrade, 2009, p. 185). This article offers an overview of the HOPE framework as a tool for educators to integrate hope-centered strategies into their climate literacy practices. Modeled on hope theory established by Charles R. Snyder (2002) and expanded on by Joanna Macy and Chris Johnstone (2022), the framework proposed below includes four textual markers: 1) Motivation for Change, 2) Belief that Change is Possible, 3) Plans for a Path Forward, and 4) Agency to Take Action. The HOPE framework is designed to help students explore the intersections of hope, eco-grief, and climate literacy through the study of hope as a tangible action-based construct that can be identified in stories and used to spark healing dialogue with youth, especially as a response to eco-grief. The concept of hope-sparking dialogue is grounded in Paulo Freire's notion of dialogical action, where "subjects meet in cooperation in order to transform the world" (2018, p. 167). Literature offers opportunities for just such dialogical transformation through the discussion of hope and grief represented in a story. This leads to conversations involving the readers' own experiences and reframes their understanding of what hope is and how it works.

Hope, eco-grief, and youth

This framework emerged in response to the ever-growing evidence of the global mental health impacts on youth due to the climate emergency. As Elin Kelsey (2020) notes, "The environmental crisis is also a crisis of hope" (p. 4). A 2021 survey of over 10,000 youth ages 16-25 found that when asked about climate change, 75% of youth found the future frightening and 59% were extremely worried. More than half reported sadness, anxiety, anger, powerlessness, helplessness, and guilt. 45% admitted that these feelings negatively impact their lives on a daily basis (Hickman et al., 2021). Whether or not students are talking about it at school, they are almost certainly

experiencing a range of climate emotions. With this in mind, I began thinking about how hope might be better defined and used as a response to negative climate emotions. As a graduate student in Literacy Education, I also wondered how stories might be used for this task.

The field of climate emotions includes a wide variety of feelings organized in Climate Emotions Wheel (Pihkala, 2022; Climate Barometer 2022). One such term, specifically addressed in the HOPE framework, is eco-grief: "the grief felt in relation to experienced or anticipated ecological losses, including the loss of species, ecosystems and meaningful landscapes due to acute or chronic environmental change" (Cunsolo and Ellis, p. 275). Eco-grief is a phenomenon with global causes. A 2019 report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) estimates that about one million species on Earth are facing extinction, a rate which is tens to hundreds of times higher than average and is expected to increase without direct conservation efforts. Humans have now notably altered 75% of the planet's land surface, impacted the loss of over 85% of wetland area, and set in motion ever increasing damage for 66% of Earth's oceans (ibid). A 2017 American Psychological Association report shows that these losses have not gone unnoticed. The study found instances of emotional dysregulation in children as young as three years old due to both experienced and anticipated climate impacts (Clayton et al., 2017). Being aware of this deeply personal sense of loss many youths are facing is crucial for engaging with the HOPE framework. By acknowledging students' and our own eco-grief, we are better able to understand the need for hope and the opportunities literature holds for healing.

Rethinking hope as action

It is important to understand what is meant by the concept of *hope*. Merriam-Webster (2018) defines hope as, "desire accompanied by expectation of or belief in fulfillment"—a line of thinking focused on *expectations* illustrated in Francis Bacon's notion of hope as "a good breakfast, but a bad supper" (Bartlett, 1968, p. 20). By contrast, Greta Thunberg (2022) describes hope as "taking action" (p. 421). It is this action-oriented mindset, based on the work of C.R. Snyder, Joanna Macy and Chris Johnstone, that informs the HOPE framework. According to Snyder, hope consists of

"the perceived capability to derive pathways to desired goals and motivate oneself via agency thinking to use those pathways" (p. 249). Hope is likewise action-oriented for Macy and Johnstone. In *Active Hope,* they assert that hope involves three steps: 1) facing a realistic view of the problem that acknowledges emotions, 2) identifying a vision for what needs to change, and 3) creating a concrete plan to move in a new direction (pp. 4-5). Central to the promise of the HOPE framework is a large body of evidence showing consistently positive impacts for people with higher levels of action-based hope in quality-of-life indicators such as healthy eating, exercise, resilience to stress, and overall mental health, including lower rates of anxiety and depression (Gallagher & Lopez, 2017). As Kelsey notes, "hope improves our capacity to engage with the real and overwhelming issues we face" (p. 11). Snyder likewise asserts specific potential for hope in education: "The results to date indicate that hope, taught in the classroom context of a school setting, can be raised" (p. 262). Oziewicz's proposal about planetarianism and the potential of planetarianist stories to help students develop "hope-oriented anticipatory imagination" is another example of advocacy for story-based hope work in the classroom (2022, p. 242). In other words, hope not only heals but also can be taught.

Exploring the use of the HOPE framework in climate literature

The textual markers on which the HOPE framework is based include *Motivation* for change, *Belief* that change is possible, *Plans* for a path forward, and *Agency* to take action (see Figure 1). By recognizing these elements in narratives, whether published texts or in the students' own stories, a framework for guiding the discourse toward hope is created. This HOPE framework allows hope, an often nebulous concept, to become visible through the characters' actions. The story then becomes a springboard for conversations around climate literacy while also spurring on

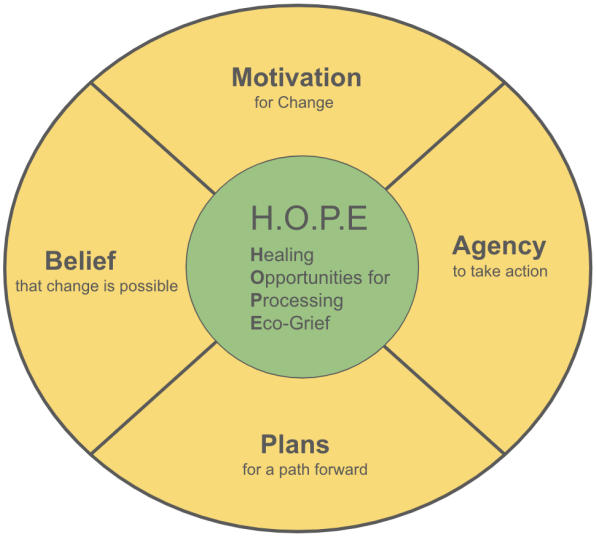

Figure 1

readers' reflections on their own motivations, beliefs, plans, and agency.

To illustrate the HOPE framework in action, I examine Shaunna and John Stith's picturebook *Black Beach: A Community, an Oil Spill, and the Origin of Earth Day* (2023). *Black Beach* tells the story of Sam, a girl living in Santa Barbara, CA, during the Union Oil spill in January 1969 and of the events leading up to the first Earth Day. The story revolves around the consequences of people's actions on the environment and how the characters move forward with hope toward solutions. The four hope markers of Motivation, Belief, Plans, and Agency guide readers to identify elements of hope in the narrative and to recognize opportunities for processing their own eco-grief.

Figure 2

In *Black Beach*, after Sam learns of the spill, she runs anxiously down to see her beloved beach. "With each step, she could feel the weight of her worry." Later, she stands on the beach with her parents looking out into the oil-filled water. "It was even worse than she feared" (Fig 2). Although this is certainly a terrible event, it serves as

motivation for Sam to take steps toward action. In the context of the HOPE framework, as unlikely as it seems, this step is part of hope. Although motivation does not always need to be tragic, it often is.

Grief, however, can paralyze motivation which brings up an important point of discussion within the HOPE framework. After the oil spill in *Black Beach*, Sam sits by herself on the beach looking out at the polluted water. "Sam felt helpless. All she could do was sit back and watch" (Fig 3). This is the lowest point of the story. It is important to note that, at first, Sam faces her eco-grief alone. As the book continues, it is only by working together with others that Sam can move forward. This power of collective action is a key element of hope and an essential part of engaging students through the HOPE framework.

The importance of collective action is illustrated in *Black Beach* when Sam joins her friends in filling bottles with oily sand to send to politicians, believing this would make a difference. "If the people in power saw what had happened, then maybe they would work to prevent it from ever happening again" (Fig 4). This *belief* has an impact. Senator Gaylord Nelson visits Santa Barbara which sets in motion *plans* for the first Earth Day. Examples of the hope markers—motivation, belief, and plans—appear multiple times in *Black Beach* and build upon each other.

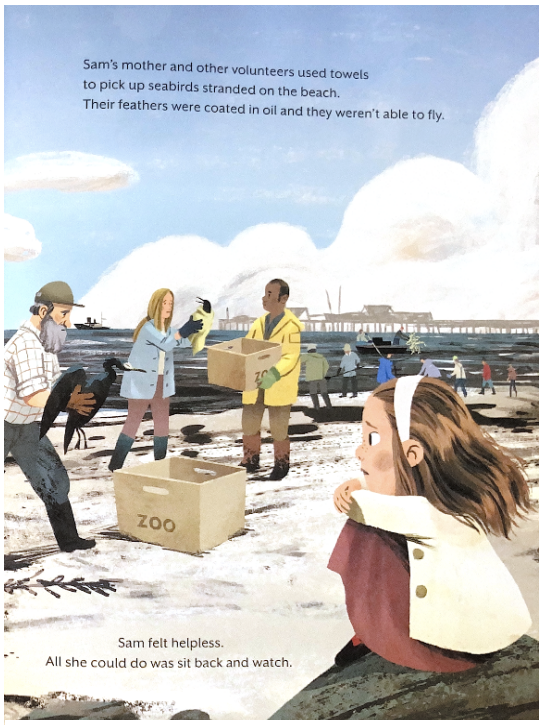

Figure 3

Figure 4

This is true as well for the fourth element of hope: the agency to take action. Sam finds agency as she carries out the plans for Earth Day: "The more Sam learned, the more powerful she felt." She puts up signs on the beach to protect it and bring awareness of environmental issues. "There was still more work to do, and Sam and her friends were just getting started" (Fig 5). Each event described above serves as an excellent entry point for dialogue with students. Each helps them recognize hope and eco-grief both in the story and as part of their own emotions in relation to the climate crisis.

Figure 5

Bringing hope and eco-grief into classroom conversations

Educators know well the power of stories to inspire students and build inroads for learning. Stories, too, serve as launching pads for topics that can often be hard to know how to begin, including climate change and the myriad emotions that come with it. Fear, anxiety, and helplessness are just some of the feelings youth face each day and with the ever-accelerating climate emergency the impact of eco-grief is of particular concern. It is now, more than ever, that young people need to find hope in their future, and this is where the power of stories comes in.

Hope is much more than wishful thinking. It is an emotion driving action and healing. It can reveal itself as such in stories *if* we know what to look for. The four Hope Markers presented here help not only find hope in literature but also frame discussions around motivation, belief, plans, and agency that allow students to share their worries and fears for the planet. Besides *Black Beach*, many other picturebooks engage with a collective response to eco-grief. Among them are Juana Martinez-Neal's *Zonia's Rainforest* (2021) and Meeg Pincas' *Ocean Soup* (2021), both of which also work well for bringing Hope Markers into the classroom. The HOPE framework can also be used for exploring stories for older readers, such as Alan Gratz's *Two Degrees* (2022), Amy Allgeyer's *Dig Too Deep* (2016), and Katherine Applegate's *Willodeen* (2021). The

Hope Markers are adaptable to a wide range of literature, and there is likely a story already waiting to try out on your bookshelf.

Ultimately, the power of stories comes not just from the author's words but from the ideas they inspire. Using the Hope Markers empowers students to voice and honor their eco-grief while also realizing that hope can exist both in published stories and in their own. In the end, it is this realization that will help us all move closer to hope and healing.

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Climate Literacy in Education

Staying with the Climate Trouble: Part Two

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Abstract

In teaching about climate, when it comes to the troubling question of "what can we do?" I've argued that we try to help students stay with, rather than prematurely and inadequately, resolve that trouble and that we do this by inviting them into our own state of not knowing. How to stay with the pedagogical trouble of doing that, including the trouble of trying to contain the despair that an honest account of the climate crisis may provoke? This essay suggests that one approach to that question in the literature classroom is to teach texts in which characters themselves grapple with the question of "what can we do?" Ultimately, the pedagogical challenge is to help shape these textual encounters into an awareness that, especially as it is shared, despair might be something other than a terminal condition—indeed, might be a necessary passage through to whatever comes next.

Keywords

climate pedagogy, climate crisis, eco-anxiety, *Staying with the Trouble*

The author would like to acknowledge Duncan Rayside.

How can we introduce the climate crisis into the classroom *as* a crisis without leaving students despondent? In Part One of "Staying with the Climate Trouble" (2023) I tried to elaborate on how I think about that pedagogical challenge in my college classroom, arguing, somewhat against the grain of much climate pedagogy, that our deepest obligation isn't to reassure students by offering them hope—by directing them to "what they can do"—but, rather (borrowing Donna Haraway's phrase), to help them "stay with the trouble." In this, I was reacting against the way climate action is often introduced into the classroom in the same normalizing terms with which it takes shape in the public discourse more broadly, a discourse in which even the most purportedly "ambitious" climate policy, like Biden's Inflation Reduction act, remains farcically inadequate to the severity and urgency of the problem.

Advocating that students stay with the trouble isn't asking them to abandon the question of "what can we do?" but, rather, to more fully feel and understand what's at stake in any particular form of doing. "We can't know in advance precisely what [that staying with the trouble] might mean," I wrote, or whether it will lead to actions commensurate to the scale and urgency of the problem, "but we can invite students into our own state of not-knowing and thus into the process of finding out."

In this follow-up article, I'll try to say something about what "inviting students into our not-knowing" might look like in the climate classroom. Again, I'm focusing on college literature classes, taking as premises that, as Marek Oziewicz puts it "climate change is not a STEM issue," but, rather, "a worldview issue, entangled with our values, perceptions, beliefs, and lifestyles'" and that—because worldviews are established, maintained, normalized, and, perhaps, challenged and changed by stories a culture tells about itself and the world—one important way of studying the climate crisis is studying literature (Oziewicz, 2023, p. 35).

In one way, inviting students into our not knowing is part of what many teachers in the humanities already try to do. In teaching a piece of literature, the kind of questions on which we focus aren't in the main those can be answered definitively and finally. A colleague of mine once said that teaching certain texts many times over was easy because "I know where the bodies are buried," but even a buried body undergoes changes. We do establish frameworks for addressing the key questions, steering students toward certain kinds of terms and concerns, but what we're after isn't

a final knowledge, a closing down of a question. Rather, it's a process of engaged exploration that cannot produce the last word.

To invite students into our own not-knowing, then, is to treat the question of "what they can do" in something like the same manner we treat other questions in a literature class, however different the stakes of the inquiry might seem to be. One way to do this is to examine texts that themselves stage the process of characters confronting "what to do." For me, one useful text in this regard has been Jenny Offill's *Weather*, where we see a range of responses to that question, both in the central character Lizzie herself and in others, including her mentor, Sylvia, a climate public intellectual. It is Sylvia who feels compelled to provide in her work what she mockingly calls an "obligatory note of hope" (p. 64), but, tellingly, Offill herself does the same thing, appending to her narrative a link to obligatorynoteofhope.com, a site offering both "Tips for Trying Times" and "Ways to Get Involved." The novel thus ushers the reader beyond itself, as if to insist that the question "what to do" cannot remain sequestered within the text. And in doing this, the book asks us to consider to what extent a note of hope that presents itself as "obligatory"—that arises not from studying the facts of the case but, rather, from a need that precedes any facts—can reflect more than the desperation that prompts it. In this way, *Weather* both points students toward some concrete things they might "do" and also asks them to stay with the trouble of scrutinizing to what extent the site's various "Tips" and "Ways" seem consistent with a truly adequate response to the desperation of our moment.

A short list of other works that stage characters grappling with "what to do?" might include, most prominently, Kim Stanley Robinson's *The Ministry of the Future*, though, in my view, while Robinson does visit the trouble, finally, as what Samuel Miller McDonald has called a "tale of the plucky bureaucrat who uses science, reason, and technical expertise to stumble on the perfect combination of policy incentives and new technology to save the day," the book abandons rather than stays with that trouble (McDonald, 2021, n.p; Zimmerman, 2022). At almost 600 pages, the book is in most contexts too long to teach, unless one assigns only selections. Though the same is true of Stephen Markey's even longer *The Deluge*, that book does stay with the trouble more thoroughly, rooted more deeply in characters critical of the very systems and institutions of power, and their leaders, that in *Ministry* "save the day." To what extent

do other works that one might list here seem to represent the process of staying with the trouble? That's a good question to bring to those works, which might include Jessie Greengrass's *The High House*, Nathaniel Rich's *Odds Against Tomorrow*, Ilija Trojanow's *The Lamentations of Zeno*, and the film *How to Blow Up a Pipeline* (a narrative drama based on Andreas Malm's non-fiction book of that name about why, not how, to blow up a pipeline).

However much the question of "what students can do to help try to stop the climate house from burning down" resembles the kind of questions that humanities classes normally consider, there is nonetheless a big difference between the kind of generative not-knowing that structures those classes and the desperate not-knowing we're confronted with when students understandably ask what they can do. I've implied that inviting the students into the former kind of not-knowing (considering the question of "what they can do" as a literary question) might help usher them into the more desperate, latter, but I've also invited them into that latter not-knowing more directly, by sharing with a class a draft of this essay, in the hope this might help students sense how crucial their own agency is in grappling with the question. One student remarked that in response to reading the essay, and discussing it in class, she began to feel angry and then "inspired" to do something (or, rather, to take the question "what can I do" more literally and personally).

Ultimately, if we invite students to stay with the climate trouble, we're necessarily challenging ourselves to stay with the pedagogical trouble of doing so. For me, that teacherly trouble has partly involved an awareness that, in issuing such an invitation, to some degree I'm likely dealing with my own climate anxiety by passing it along to classes of college students who as a group (along with high schoolers) even before COVID-19 was suffering what the National Education Association called an "epidemic of anxiety" (Flannery, 2018, n.p). In doing this, to a degree, I'm probably kicking the climate-action can down the road—like the world climate "leaders" at COP meetings, braying on about removing carbon from the atmosphere at some future time. At the same time, though, insofar as inviting students to stay with the trouble takes the form of inviting them to join me in the space of not-knowing, it helps construct the classroom as a space in which we can stay with the trouble *together*, where staying with the trouble is a form of sharing the trouble. In this, it responds to

the central pedagogical challenge Shoshana Felman identified as having both to let the crisis into the class *as* a crisis and to "contain" it, so students don't get too "crazy" (Felman and Laub, 1992).

Importantly, however, this is not the same as providing for students the "fewer moments of eco-anxiety and more moments of hope" for which Kirsten Hunt calls (Hunt, 2023, p. 25). Even if confronting the dire extremity of our moment needn't drive them too "crazy," it is likely to open them to some degree of despair. But part of staying with the pedagogical challenge, I'd suggest, is helping them understand—and thus perhaps experience—despair as something other than a terminal condition. Here, one might ask the class to consider something like what Orestes means, in Jean-Paul Sartre's *The Flies,* when he tells Zeus that "Human life begins on the far side of despair." Or one might invite them to wrangle with what contemporary novelist Peter Dimock means when he says that, in responding to the climate crisis

> Despair is a much richer world than denial. Denial is a dead world and goes nowhere. It has no future. Despair . . .possesses the generative power of whatever comes next, which we are in no position to know but that we have the ability through language to create…. [His book explores possibilities for finding our way] not out of despair but through it . . . It's not the notion that we always have to get past despair or we have to manage it or solve it. The deeper truth of language gives us a way to inhabit it. Before we come to a solution we have to live it. We skip the living part of it, the living of despair. Out of that [living it] will come whatever comes next ("Interview", 2021).

Examining such statements in class can become a way of declining to put the cart of hope before the horse of despair. And as with hope, so too with optimism. "You don't fight fascism because you are going to win," Sartre wrote in *The Age of Reason* (1947), "You fight fascism because it is fascist." Taking a cue again from Sartre, one can ask the class to think seriously about what it means to fight for a cause, even if victory seems unlikely—about what's at stake in the fight against the ecocidal status quo, whether (against the odds) we manage to pre-empt the worst-case climate scenarios or we don't.

I've thus come to frame climate courses by presenting students with a passage from the poet Carolyn Forche's "Ourselves or Nothing" (1982). Attending closely to these lines is an act of literary criticism, of course. But in indicting a culture numb to both the legacy of historical atrocities and, by implication, to the atrocity-in-process constituted by anthropogenic global warming, the poem also challenges students to "go after that which is lost": to open themselves to the trouble with which the poem as a whole may help them stay. And in this, the poem can work as a way of inviting students both into our own not-knowing and into the joint process of trying to find what's next. In that spirit I'll close with "Ourselves or Nothing"'s final lines:

> Go after that which is lost
> and all the mass graves of the century's dead
> will open into your early waking hours:
> Belsen, Dachau, Saigon, Phnom Penh
> and the one meaning Bridge of Ravens,
> Sao Paulo, Armagh, Calcutta, Salvador,
> although these are not the same.
> ….
> …everywhere and always
> Go after that which is lost.
> There is a cyclone fence between
> ourselves and the slaughter and behind it
> we hover in a calm protected world like
> netted fish, exactly like netted fish.
> It is either the beginning or the end
> of the world, and the choice is ourselves
> or nothing.

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Climate Change Denialism: Critical Analysis of Arguments in Confrontation with Climate Science

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Abstract

Climate denialism is a spectrum spanning outright denial and degrees of skepticism about the reality of climate change. Denialism is fueled by disinformation or imprecise information that finds fertile ground on social media and takes advantage of the users' fears and vulnerabilities, such as a lack of climate literacy and critical thinking. In this article, we offer examples of how to refute climate change denialism and expand notions of climate literacy to include the capacity to both identify and respond to climate disinformation.

Keywords

Climate change, climate literacy, education, climate change denialism

Climate deniers and the real science

Scientists overwhelmingly agree that climate change exists and is caused by anthropogenic phenomena (Lynas et al., 2021). The consensus can be found in thousands of scientific studies from prestigious journals as well as entities recognized

for their scientific capabilities and veracity, such as NASA and the Intergovernmental Panel on Climate Change (IPCC), which report that temperatures have been rising over the last century (NASA, 2015). All the same, since at least 1979, oil companies have paid scientists to deny the realities of climate change (Reed et al., 2021). These oil industry-funded scientists have produced studies that deny climate change—a total of 3% of all published articles in the climate sciences (Rasmus et. al, 2015). These studies have been analyzed by Rasmus et al., (2015), who found them marred by several flaws, including fallacies and misrepresented results. Despite the overwhelming consensus on the reality of climate change, these publications continue to feed climate denialism, a term that encompasses both outright denial and different forms of skepticism about the reality of climate change. But denialism can be resolved. Below, we summarize a few common arguments posed by climate denialist. We also offer educators tools and resources to respond.

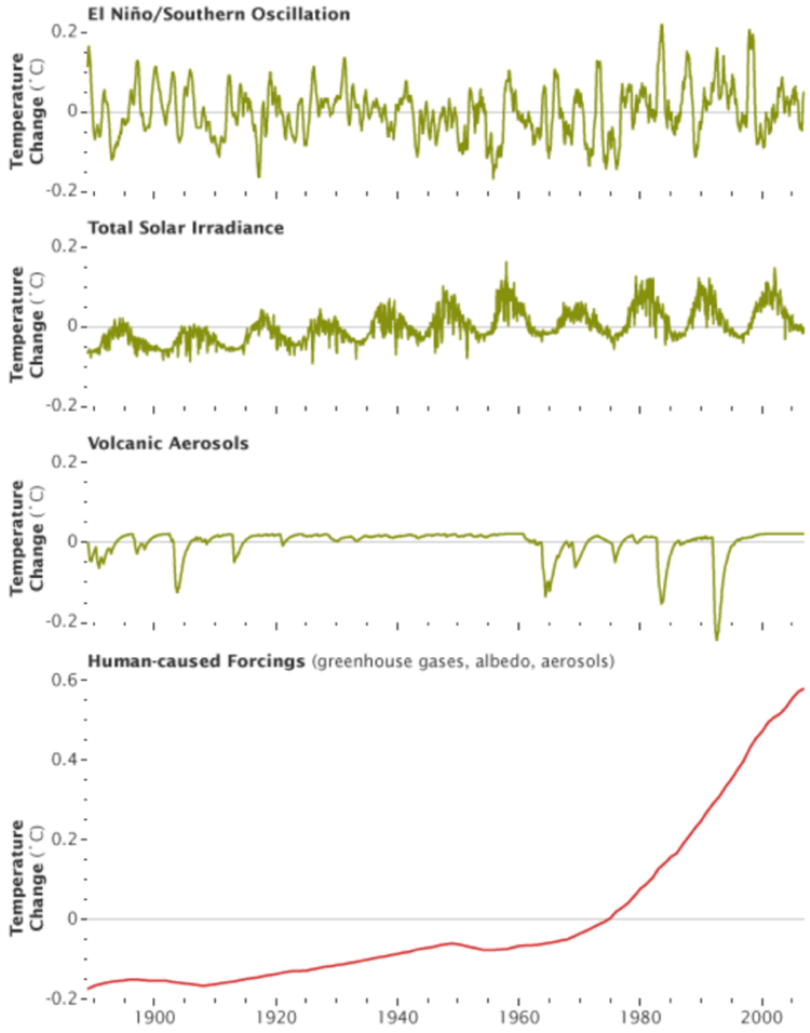
Is the influence on the climate only caused by natural factors?

One of the arguments most used by climate change denialists is the natural variability of the climate. Denialists argue that fluctuations in the climate are mainly the result of natural processes and that current climate changes are not unusual. Granted, the climate *has* changed in the past, long before the industrial revolution. The planet *has* gone through several warm and cold periods (glaciers and interglacial eras). So, denialists think, if global temperatures have already changed naturally, long before human beings even thought of polluting, then the current warming must be of natural origin.

Below, Figure 1 shows both natural factors that influence climate change (volcanoes, solar radiation, and El Niño) and their influence on the earth's temperature versus anthropogenic, human-caused influence.

Figure 1

Main influencers of the Earth's climate



Source: Lean and Rind, 2009

So, despite there being a natural influence on the increase in the Earth's temperature, the greatest influence is anthropogenic (Lynas et al., 2021). In addition to using this chart to illustrate this distinction, educators can also use En-Roads Simulator: an online platform that allows students to adjust levels of various factors, such as energy, transport, and land use, to then simulate variations in temperature increase. This also allows students to explore possible future scenarios.

I don't notice that the sea is rising.

Worldwide, the average sea level has risen around 9 cm between 1993 and 2021 (Copernicus, 2022). But this is not evenly distributed globally, as sea level fluctuations vary from region to region. However, the advance of the sea in the Western world, thanks to technology and engineering, may have a "solution." The most severe sea level rise is experienced largely in developing countries, where people have migrated in the face of the advance of the sea (Sea Level Rise, 2020).

Even if students do not live in proximity to rising seas, educators can lead them through several activities to show the consequences of rising sea levels. Several examples can be found at the National Center for Science Education, or on the NASA website. It's helpful to use a short video "sea level rise" by NASA, which introduces the concept of sea level rise its connection global warming. The video is brief, basic, and clear. Students can also play the game "My Coastal Future", which explores climate change impacts and encourages students to reflect on adaptation and resilience.

The planet has experienced greater heat in the past and terrestrial life has prospered.

The last period in which temperatures were higher than they are today was the Eocene geological era (56 to 34 million years ago). During the Eocene, the increase in global temperatures was due to multiple causes, but the main ones were strong volcanic activity and gas emissions (Gradstein et al., 2020). This period was not conducive to a thriving biosphere: of the five mass extinctions that have occurred on our planet, four were caused by climate change, which extinguished between 75% and 86% of terrestrial life (Barnosky et al., 2011). From the history of the great extinctions on Earth, we can see that the increase in the planet's temperature was often influenced by gases such as methane and carbon dioxide, the same gases that are still released today because of human actions.

To explore this notion, educators can use BioInteractive's EarthViewer, an interactive map that enables students to explore the science of Earth's deep history, from its formation 4.5 billion years ago to modern times. EarthViewer dynamically shows how continents grow and shift as students scroll through billions of years.

Additional layers let students explore changes in atmospheric composition, temperature, biodiversity, day length, and solar luminosity over geologic time.

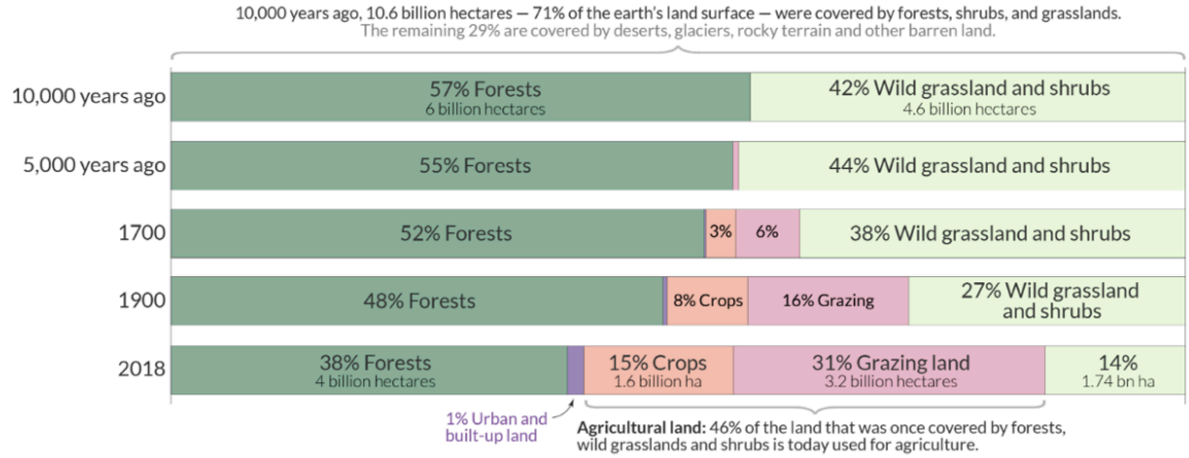
Don't plants do better in environments with very high CO2?

Denialists often argue that carbon dioxide (CO2) cannot be considered a pollutant because it is a gas that is indispensable to life, as flora require carbon dioxide for photosynthesis. Granted, under controlled conditions of temperature, humidity, water, and nutrients, more CO2 indeed induces more photosynthesis (Dusenge et al., 2018). But not all plants like extra carbon. And for those carbon enthusiasts in the plant kingdom, CO2 is not the only factor controlling growth. Moreover, as a result of climate change, we don't always have controlled conditions, like in a greenhouse. If we change some of these parameters, especially temperature and humidity, then, regardless of whether there is more CO2, a particular plant will become stressed, even decreasing its level of photosynthesis (Bostrom, 2015). At this point, CO2 becomes a pollutant, as it "disturbs the ecosystem" (Hadipoor et al., 2021).

As Figure 2 shows, the rise in atmospheric CO2 levels has not led to an increase in green areas or forests, woodlands, and the like (Wallache, 2022). In fact, the amount of green areas has decreased as a result of the expansion of agriculture or acid rain resulting from excessive pollution.

Figure 2

Deforestation process for agricultural expansion



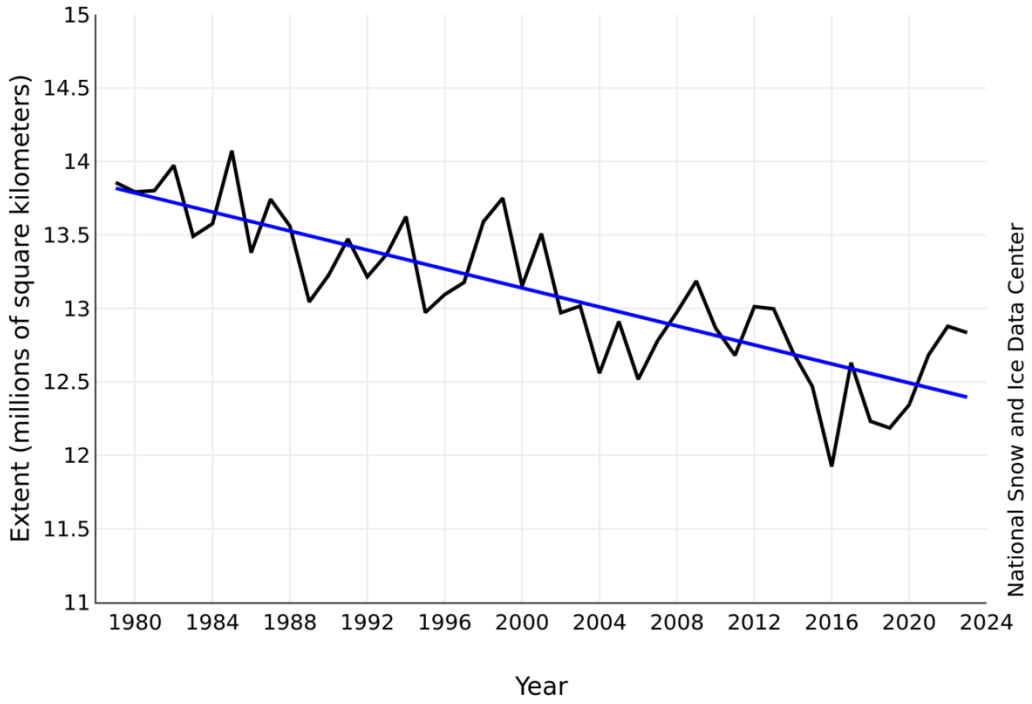
Source: Ritchie, 2021

Has the amount of ice really *been decreasing? If so, what's the big deal?*

As you might expect, ice recovers and decreases depending on the time of year, but the trend has been downward over the decades. When we consult credible websites such as the National Snow & Data Center (NSIDC, 2023), and NASA (NASA, 2023), we see that the amount of Arctic ice has been decreasing, as shown in Figure 3 below.

Figure 3

Ice decrease in the Arctic region since 1979



Source: (NSIDC, 2023)

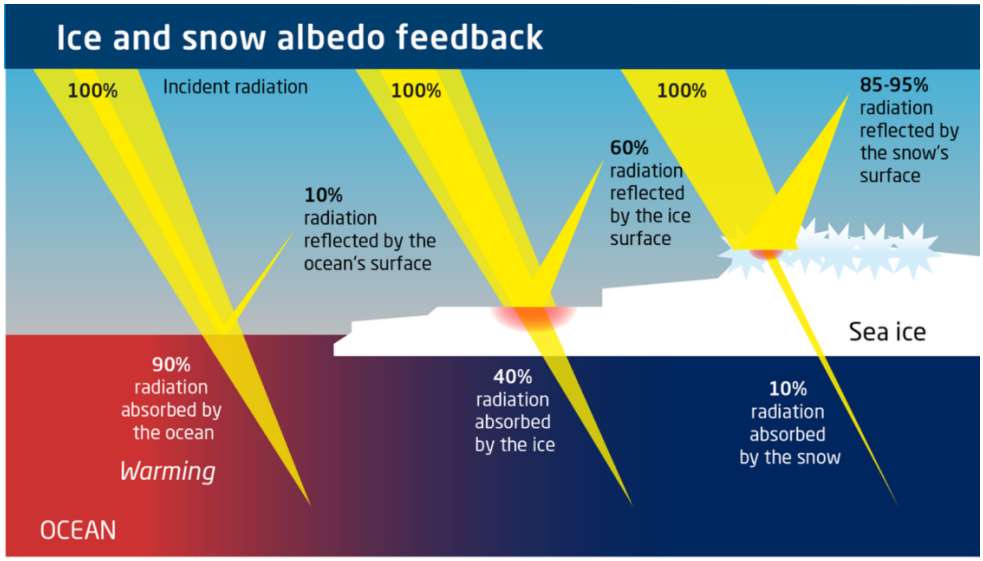
Melting ice caps can have many unexpected effects. Three among them are of particular interest to students: 1) the loss of albedo effect, 2) loss of water, and 3) risk of zombie viruses.

First, the albedo is a phenomenon associated with the white color of snow/ice having the ability to reflect solar radiation, causing heat to be returned to the atmosphere and not absorbed (NASA, 2012). Using Figure 4 (below), educators can

convey this fact to underscore that the loss of white (reflective) zones on the planet means that less of the sun's radiation will be reflected back into space.

Figure 4

Albedo feedback



Source: Bahlburg & Breitkreuz, 2017

Second, water on our planet can be found in a liquid state (oceans, rivers, lakes and underground), a gaseous state (clouds, for example) and a solid state in the form of ice. Many countries depend on glaciers and mountain snows for their water, which slowly melts and forms rivers. But climate change is melting these glaciers so fast that people are starting to run out of water for farming, cooking and other necessities (National Snow and Ice data center, 2018). To explore the implications of melting glaciers, educators can combine several resources, such as experiments, video explainers from the United Nations, and NASA's visualizations of ice loss over time.

Finally, viruses can hibernate for thousands of years in ice caps (Lemieux et al., 2021; Hunt, 2023). Once the glaciers melt, these zombie viruses only need a single host to multiply (Makush, 2020). This video can be used to better explain how viruses that are thousands-of-years-old can become active again.

Final Considerations

Public opinion on climate change is significantly affected by media coverage and social media posts, which may spread disinformation at a very fast pace, reaching people all over the world. Disinformation jeopardizes the efforts needed to mitigate the impacts of climate change. In the face of increasingly frequent and intense extreme weather events, it is crucial to combat climate denialism through accurate and affective climate communication, which is a skill central to climate literacy. In doing so, we can act collectively protect our planet and ensure a sustainable future for generations to come.

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"Playing your part": An Interview with Sarah Guillory

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Abstract

I was granted an interview with Sarah Guillory with the intention of publishing this in tandem with my article "After the Flood." The conversation develops many of the themes of the article, especially the author's belief in the importance of resilience as a trait that will help young people in tackling the climate crisis.

Keywords

Agency, story, innovation, empowerment, home, *Nowhere Better Than Here*

Acknowledgements

I would like to thank Nick Kleese for inviting me to take part in a panel presentation on climate literacy, for which this paper was originally written. I would also like to thank Sarah Guillory for granting me an interview and for her encouragement of my interest in her work.

What prompted you to write *Nowhere Better Than Here*?

Sarah Guillory: I always wanted to write a coastal erosion book. I live and teach in Louisiana and so many people don't know how quickly parts of the state are, basically, disappearing. Then in 2016, Louisiana had a major flood and schools closed for a week. I thought, there's a story in this, about a child coming face-to-face with this disaster and trying to make sense of it all.

What made you want to write about the effects of environmental change on the lives of young people, specifically?

SG: Because unfortunately, they're the ones who are going to have to deal with it. It will be a constant presence in their lives, whereas it was more of a background noise when I was growing up. I remember learning about recycling and there being some concern about acid rain, but kids nowadays are dealing with climate anxiety that is so much more prevalent and, like most anxieties, it's only exacerbated by social media. These kinds of existential issues are in their faces all the time, whereas when we were young, it was more of a fleeting sound bite on the news. I wanted to write about a character living in this uneasy limbo between something that she has no control over, whilst also giving her an outlet, e.g.: planting marsh grass, to enact *some* degree of agency. That sense of movement and playing your part can help kids from feeling completely helpless. It's so important; not just with the climate, but political engagement as well.

I was really interested in the portrayal of Dr. Nelson in the novel, the environmental scientist who Jillian befriends. Can you discuss your development of this character?

SG: I had one very influential teacher who changed the trajectory of my life and was someone that I wanted to be like. I felt it was important for Jillian to have exposure to this kind of role model, [someone] who could help to guide her thinking on what to do about her predicament. I also wanted it to be someone who got out of a small town but decided to come back. I wanted Dr. Nelson to be an adult who had gone off to university, had studied climate effects in Brazil, who had been to important and interesting places, yet had ultimately returned to her home state and hadn't given up on it. So, this character gave me a way to show Jillian that you can still fight when all seems hopeless, but you also have to believe in your cause and have the interest and resilience to keep going. It was important to have a sense of hope in the novel, that Dr. Nelson characterizes. And it was ultimately important for Jillian to realize that 'hey, I can do this on a much larger scale as I get older— this fight doesn't have to end here'.

Dr. Nelson runs the 'Discovery Center'. This was such a positive and inspiring force for good in the book. How important do you feel community outreach is in inspiring and advocating for greater environmental engagement amongst young people?

SG: I think they're really important. It was also important to me to show a girl from nowhere getting involved in that kind of thing, because I was a girl from nowhere and most of the books that I read growing up were about people from *some*where (usually big cities or Europe), but they were never from the South. I wanted kids like me from working class families to see themselves reflected in literature. To see that they can be part of a solution as well, but again, on a small scale, without making them feel like they necessarily have to do these big grand things to make a difference. The Discovery Center encourages people to share oral stories about the places getting destroyed, about planting grass and things that everyone can do. When I was a kid, we would go camping and fishing, but we would always pick up other people's trash because that's what you did. You were good stewards of the land and you took care of it. I never questioned that; it was all just part of my childhood. Maybe nowadays the importance of treating nature in that way has been slightly forgotten, so I wanted to put that into the story as well. Groups like the Discovery Center in the book can help to teach young people this appreciation and care for the natural world so, yes, they have real importance.

One of the things that struck me about your book was the way you didn't patronise your readers by implying the existence of easy answers. Climate change is a "wicked problem," and your writing reflects this in a way that is neither hopeless seeming nor lacking in cognizance of the overall gravity of the situation. How did you tread this fine line?

SG: I think that you have to have hope. Adults are doing a lot of things to mitigate the effects of climate change, which young people should recognise. Again, the link to mental health is important and optimism about the future is an integral part of that. However, we have basically locked ourselves into a situation where the oil and gas industry down here [in Louisiana] has dug all these channels and caused all of this erosion but has also brought in a lot of money and fed a lot of families in a really poor part of the United States. It's a balance where people are able to eat because they

have jobs in these industries, yet they also do so much damage to the environment. I was doing research for another book about the cypress tree industry because cypress forests are just being devastated. I started crying when I read about one tree they cut down with internal markings that dated it to 1066—the year of the Norman invasion of Britain. I was just like, "are you kidding me!" Climate change is so complicated because there are all these moving parts relating to science, ecology, industry, etc. and they're never quite in sync with each other. Children need to understand how complex an issue this is. Fiction can be a great way of teaching this.

Resilience is a key issue in *Nowhere Better Than Here* and Jillian gradually learns this trait through her partnership with Dr. Nelson. Why do you think resilience is so important for young people, especially if they wish to play an active role in tackling climate change?

SG: Resilience is key because this issue is not going to be fixed overnight. It's something I worry about very much with my students. They are no longer comfortable with the "productive struggle", and I don't blame them. I tell my students over and over that you have to sit in that uncomfortable place and experience struggle—this is what learning *is.* Yet, they live in a world of immediate gratification with iPhones and social media etc. so they are hugely uncomfortable with the idea that the process of achieving things can be worthwhile in itself. Instead, they want to race to the outcome. This attitude is deeply problematic when it comes to dealing with climate change, because it's not like there'll be a moment when we just say "it's done—it's solved"; it will be constant slogging away to make incremental change. The way I think about it and teach it is that writing, running (my other love), and climate change are the same as any big problem: showing up in small ways every single day. Kids have to learn that but it's hard because they see so many polished things online. Everything is polished, everything looks like it works out and they don't see the *process* to it. So there are going be setbacks. There are going to be times when it feels like what you're doing is accomplishing absolutely nothing. Yet you have to keep coming back and standing back up and doing it again and again. I always say that hard work beats talent pretty much every single time. I have seen that academically and I have seen that in other ways. People who show up and keep showing up are the ones who achieve great

things. I think that with climate change this process of keeping on showing up is not just going to help kids change things, but ultimately also help them be happy. I want them to find that balance and joy between fighting for what you believe in and just living in that joy; just living in that joy of existing. All that is going to take resilience.

Why do you think fiction can be such an important tool for teachers to use to engage young people with the climate crisis in the classroom?

SG: Young people need to see themselves in literature, to fall in love with literature, and to know that they are not alone. I think that is so important, and it's especially true with climate literature. Any time you're talking about tough things, fiction is a safe way to explore something because you can look at it as fiction when things get really scary. You can have these very real conversations where not everybody in the classroom has to know that you're going through something personally; it's the *character* that is going through this and you can share in their feelings safely. Also, throughout my whole life, fiction has fired me up about things that were important, like recycling and ocean pollution, and it's the same now. Plus, there are great cross-curricular things you can pull in: you've got literature and you've got English, but you've also got the sciences, history, oral histories, and the history of place. They're all interconnected, and climate literacy books are able to show children this. You can explore so much more through fiction and also empathise with things so much more easily than is possible with non-fiction.

Have you had any notable responses from readers or teachers about the book?

SG: A middle school in Baton Rouge has chosen my book for the whole middle school to read. They're also going on a field trip to see erosion and visit scientists, so that's really exciting. It shows that the book is capable of encouraging that bridge between story and real life. The book was also chosen by the state of Louisiana to represent it at the National Book Festival in Washington DC. They had a poster of my book up and there was a little girl with her parents, and she pointed to the book, and she was like, "I read that book." I told her I'd written it, and we talked about it. She said that it wasn't an assigned book for class and that she had chosen it herself. We then talked about Jillian, although her favourite character was the dog (everyone loves that dog!).

Finally, what is the topic of your next book and when will it be released?

SG: On the topic of dogs, my next book is about the relationship between a little girl and her bloodhound. However, similarly to *Nowhere Better Than Here,* the book is also about her figuring out what home is and how the nature of home changes over time. All my stories are very much about family and home because I'm a homebody and I keep gravitating back to those themes. However, I'm hoping to return to more of the environmental stuff in the book after this one.

Climate Literacy in Education

Social Justice, Human Rights, and Environmental Crisis in Álvaro Colomer's *Ahora llega el silencio* (2019)

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Abstract

The novel *Ahora llega el silencio* (2019) by Álvaro Colomer is a recent example of Spanish ecofiction, exploring themes of environmental and social justice in a post-apocalyptic setting. This article shows the novel's potential to address human rights, gender equality, social justice, climate and environmental issues. Through a story of survival and unity in the face of chaos, Colomer's work delivers a timely message about the need for cooperation, respect, and environmental stewardship for a better future.

Keywords

Ecofiction, *Ahora llega el silencio*, ecocritical perspective, environmental responsibility.

Spanish-Language Ecofiction

The 1970s was a decade marked by the rise of environmental awareness and activism, largely due to growing concerns about pollution, deforestation, and other environmental issues. This heightened awareness of the importance of protecting the environment led to the popularization of the concept of ecology, which focuses on the interrelationships between living organisms and their surroundings. It was during this time that ecology became a prominent theme in children's literature.

Ever since Rousseau positioned children as having a natural inclination towards nature, various authors have noted a longstanding sensitivity to nature in children's literature (Curry, 2013; Harrison, 2019; Young, 2018). Before the 1970s, representations of nature in literature were often idealised and did not emphasize the interconnectedness of flora, fauna, and ecosystems. However, with the rise of environmental studies, children's literature began to embrace a range of ecological themes (Wu, Mallan, & McGillis, 2013). In the Spanish literary scene, authors such as Gloria Fuertes and Elvira Lindo have been instrumental in promoting a deeper appreciation of nature in children's literature. Fuertes's poetry, such as *El libro de las flores y de los árboles* (2003), celebrates the beauty of the natural world, while Lindo's novels explore themes of environmental conservation and sustainability.

One recent trend in both Spanish and global environmental literatures is apocalyptic and postapocalyptic fiction, which draws attention to issues such as over-consumption, the exploitation of natural resources, and the influence of multinational corporations. Some works in this strand include Anxo Fariña's *A chave de Atlántida* (2011), Vicent Belda's *História de Sam. Deus ex machina* (2014), Rosa Huertas' *Corazón de metal* (2015), and Álvaro Colomer's *Ahora llega el silencio* (2019). Despite their postapocalyptic settings, many of these books bring together themes of climate change, human rights and social justice. In doing so, these texts invite readers to consider and enact climate literacy pedagogy. These texts are also part of an environmental justice literature that collectively "explore[s] the interconnectedness of human rights, social justice and ecological issues" (Platt, 2004, p.183). These three concepts are central to modern ecofiction and Colomer's novel, as will be outlined in my analysis below.

An ecocritical reading of *Ahora llega el silencio*

Ahora llega el silencio [*Now comes the Silence*] by Spanish writer and journalist Álvaro Colomer won the 2019 *Premio Jaén de Narrativa Juvenil*. The story is set in the city of Barcelona, where all adults over the age of twenty-two are dying for no apparent reason. This event is attributed to a virus that affects the population over the age of twenty-two, but there are no answers or cures. The narrative begins six months since the onset of the virus. Children, adolescents, and teenagers survive on the streets of Barcelona, trying to cope with diverse tribes fighting for power and control. Divided into seventeen chapters

and three parts, the story is told by an omniscient narrator who enters the minds of the characters, revealing their thoughts and feelings. The protagonists include Astrea, a resilient sixteen-year-old girl who has refined her survival abilities to defend herself against King Death, a malicious individual who derives pleasure from inflicting suffering on others. Alongside Astrea are Nestor, seventeen, and Leon, eighteen, who accompany her on a mission to protect a child, called Lobo, under her guardianship. Lobo, born before the "Silence" phenomenon, symbolises "the bridge between the old world and the new" (Colomer, 2019, p. 59).

Astrea's story particularly foregrounds the notion of human rights. Her narrative invites exploring the links between feminist and environmental issues. It also highlights the importance of issues such as gender oppression and women's contribution to the struggle against "dominant narratives of domination" (Gaard, 2008, p. 323). Astrea's commitment to upholding human rights is best exemplified by her unwavering dedication to protecting the defenceless child in her care. As protector and caretaker in the face of adversity, Astrea embodies nurturing, resilient spirit, and deep sense of responsibility for others. As the narrator states, "she had to be a mother without being a woman first, and now she is forced to take care without anyone thinking of her" (p. 86). Initially, only Astrea is resolute in taking care of the child, whereas her fellow travellers Nestor and Leon are apprehensive about their own survival after King's death, worrying about potential threats that might arise from caring for the baby. However, as time passes, the trio forms a strong bond and evolves into a makeshift family, providing the child with affection and nurture akin to having "two fathers and a mother" (p. 154). By portraying Astrea as a strong and capable leader who takes control of the situation, the narrative challenges gender stereotypes and promotes a more inclusive and equal view of relationships and caring roles traditionally assigned to women. In doing so, the narrative can empower young readers to challenge traditional gender norms and value the perspectives and contributions of women in a climate-changing society.

The novel's engagement with social justice comes from its representation of various communities, each with their own set of rules, which are then compared against one another. One such group is "the savages" made up of young individuals attempting to establish a society based on power over the vulnerable. Referred to as "the new adults," they abide by the law of the strongest, the sole principle enabling their survival:

"There was no one stronger than them, no one more experienced than them, no one more selfish than them" (p. 17). In contrast to the savages is the Children's Tribe, which is based on a society where leadership is shared among several individuals rather than centralised in one leader. Each day, a different child assumes authority by wearing a white shirt, thus taking responsibility for collective decision making. The next day, that responsibility is passed on to another member, fostering a sense of collective leadership. The children in this community chant the mantra "All equal, all free" (p. 122), emphasising their belief in the equality and freedom of all members. The third group represented are the Amazons, warriors who have created an all-female community where men are not allowed, united by a single goal: "to put an end to the oppression of men" (p. 102). This group is constantly growing, welcoming all oppressed women in the city of Barcelona to join together and become stronger in pursuit of their goal.

In depicting the three different societies, Colomer seeks to convey the importance of solidarity, equality, and the rejection of systems based on domination and oppression. The contrast between the brutal rule of the savages and the collaborative leadership of the Children's Tribe highlights the detrimental effects of power dynamics based on strength and selfishness. The Amazons, on the other hand, represent a strong and unified community fighting against gender oppression and advocating for women's rights and empowerment.

While social justice and human rights themes lie at the heart of the novel, the narrative's larger context is of a planetary apocalypse unleashed by nature itself. The narrator describes this as nature's self-defence, as well as its retribution for human arrogance:

> The planet, seeing itself on the verge of collapse, had unleashed a global pandemic capable of eradicating, in one fell swoop, those human beings who had caused the greenhouse effect, who had polluted rivers, seas and oceans, who had manufactured nuclear weapons with which they could eradicate all life. […] In a final act of generosity, nature had decided that the virus would only affect adults, the ones truly responsible for the destruction of the ecosystem and had allowed those who could not be blamed to survive: children (p. 13).

As the novel progresses, and as the characters grapple with the consequences of their actions on the environment, nature's retribution emerges as a theme. The planetary apocalypse serves as a warning of the dire consequences of environmental degradation and highlights the importance of taking responsibility for our actions. The surviving children, who are victims of the destruction caused by adults, play an important role in the narrative, symbolising hope for a better future and serving as a stark contrast to the irresponsible behaviour of the older generation.

A Pedagogical Perspective

Ahora llega el silencio by Álvaro Colomer can be useful to discuss climate literacy in young adult literature, as it deals with issues related to ecology, nature, and the ecosystemic consequences of human actions. Through the post-apocalyptic story set in Barcelona, the novel invites readers to reflect on the harmful consequences of pollution and environmental destruction caused by adults, who are portrayed as responsible for the climate crisis. Furthermore, the role of children and young survivors of the tragedy as bearers of hope for a sustainable future highlights the importance of protecting and respecting the environment for future generations.

In the classroom, the novel can be used to stimulate discussion on issues such as human rights, social justice, gender equality and solidarity. By comparing the different social groups represented in the story, students can explore concepts such as power, shared leadership, the fight against oppression and the defence of women's rights. As students reflect on the social and political implications of each distinct social structure, they can bolster critical thinking skills and increase their awareness real-world injustices and inequalities.

Furthermore, the narrative's eco-feminism and the portrayal of nature as a vengeful force against human arrogance can stimulate debate about the need for cultural and behavioural change towards the planet. Students can be encouraged to reflect on their daily actions and the consequences these may have on the ecosystem, thus encouraging greater awareness and commitment to environmental protection, sustainability, human rights and social justice. In doing so, they can be encouraged to enter critical debate and promote equality, solidarity and respect for nature.

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The Black Snake: Powerful Imagery in *We Are Water Protectors*

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Abstract

We Are Water Protectors presents a complicated example of the role horror can play in children's literature. This article looks at terrifying, yet powerful imagery in this book, with its implications for both children's literature as a form of activism and a critical discussion of the topics brought up by Lindstrom and Goade. I argue that horror functions as a mediator capable of bringing topics such as ecocriticism, activism, climate emotions, and colonialism to fruitful discussions in both elementary and university literature classes.

Keywords

Indigenous Resistance, Pipelines, Climate Emotions, Water

We Are Water Protectors is an activist picturebook that employs disquieting imagery and discourse about environmental injustices. Extractivism, biodiversity loss, pollution, and water degradation play central roles and are depicted as horrors of reality —in ways entirely appropriate for young readers. In fact, Janet Evans claims, "[m]any adults feel that challenging and controversial picturebooks are not suitable for children to read, however, it is they, as adults, who have problems coping with these challenging texts and not the children" (Evans, 2015, p. 5). Evans goes on to note that many childrens' "everyday lives are often filled with far greater personal worries and challenges than those they may find in books" (p. 6), so representing these "worries

and challenges" is important. Although it is complicated for adults to know what levels of fear children can manage, the authors of *We Are Water Protectors* do not shy away from challenging and horrifying topics. Environmental devastation plagues the modern world, and for the Indigenous peoples represented in this book, protecting nature is central to their belief system. The environmental threats described in *We Are Water Protectors* can become a focus of discussion around how to introduce young children to scary elements of reality.

Indigenous children regularly face systemic oppression and intergenerational traumas. To feel recognised or supported in their daily struggles, representing these issues is critical. As Sandra Beckett argues

> [a]ssumptions about children's limited ability to deal with certain topics have often restricted their literary experiences and deprived them of fictional opportunities to explore dark, disturbing, and painful subjects that nonetheless touch them personally and constitute part of their life experience. This is particularly true in the case of the picturebook genre. (Beckett, 2015, p. 66)

Even as children deal with upsets and struggles, they deserve a chance to see those issues represented in fiction where they can learn how to deal with them. The picturebook discussed here creates this type of positive representation, in which the horror of environmental destruction is counterbalanced with community resistance, solidarity and a deep sense of belonging.

Written by Anishinaabe/Métis author Carole Lindstrom, and illustrated by Tlingit and Haida artist Michaela Goade, , *We Are Water Protectors* takes on this task by representing a dark threat to Indigenous lifeways. The topic of is the protest against the Dakota Access Pipeline being built on sacred land of the Standing Rock Sioux Tribe and the damage this causes the Indigenous communities involved. The book functions as an introduction to environmental issues associated with the pipelines, and the climate emotions connected with them. For Indigenous Peoples, these emotions are mostly aligned with climate injustice, yet the book also proposes a hopeful tone in its call for activism. Discussing this book in elementary classes can be highly informative for the young children who are its intended audience. The book offers a window into

Indigenous life and the Indigenous-led resistance to climate injustice. However, this book is also appropriate teaching material for university students, including the ways horror imagery can be employed in stories for the youngest audiences to bringing across the message around climate emotions. The questions and ideas proposed throughout this article can hopefully serve as inspirations for teachers for discussions centred around this book.

The horror element is the pipeline itself, represented as a terrifying snake: black as oil and breathing out toxic fumes (Figure 1).

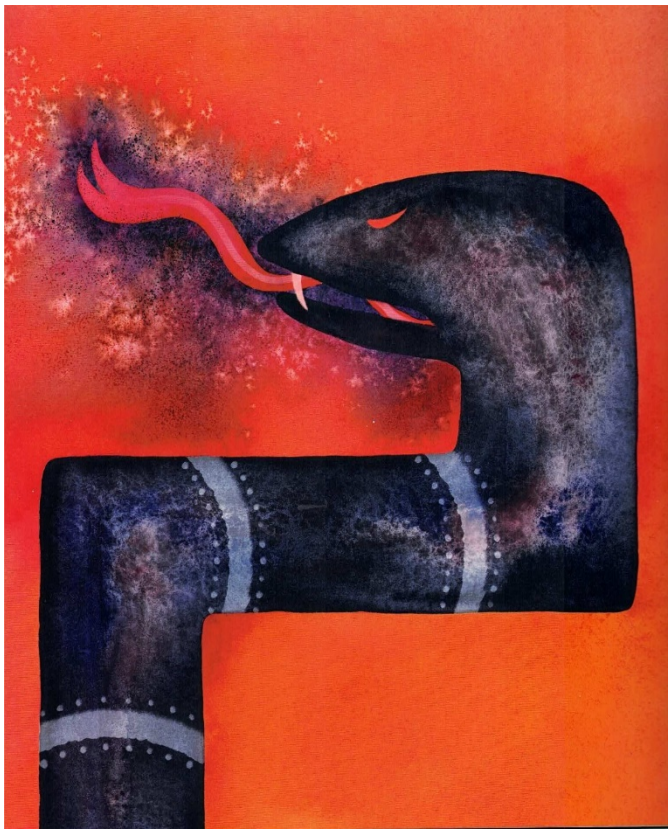

Figure 6 (Lindstrom, 2020, p.14)

While only depicted on a few pages, the snake haunts the pages. It might not always be visibly present, but the trail of destruction it leaves behind is clearly illustrated.

At one point, for example, Lindstrom describes an Ojibwe prophecy about the earth that has two paths. One is the natural path that will lead the earth to be at peace and the people to live in unity, while the other is characterised by technological acceleration at the cost of environmental disaster. When it comes to the latter path, "[m]any Native Nations believe this path is symbolized by the oil pipelines, the 'black snakes' that crisscross our lands, bringing destruction and harm" (Lindstrom, 2020, p. 35).

Figure 7 (Lindstrom, 2020, pp. 9-10)

Another aspect of the snake's horror is an oil leak. It is shown to corrupt the waters with poison, bones showing off an unnatural cause of death, almost even as if infected by radiation (Figure 2). Anne Spice asserts the significance of "the interconnected networks of human and other-than-human beings that sustain Indigenous life in mutual relation," while also highlighting how that "network stands in stark contrast to the critical infrastructures of government and industry – infrastructures that are meant to destroy Indigenous life to make way for capitalist expansion" (Spice, 2022, p. 43). This image seems to signify the noxious nature of capitalism, a perpetuation of settler colonialism, that destroys nature to increase wealth. As Spice underscores, this is true horror to the Indigenous way of life. Even this single image can

spark discussion around the role of horror in this book, as well as how horror might be subjective; is the spill more terrifying for an Indigenous audience than a Western one? Learning to relativise, seeing how different cultures might have a different stance on environmental issues can be beneficial to their growth.

The environmental destruction shown above has caused uproar among Indigenous communities. The Dakota Access Pipeline is one of the best-known examples related to this. Lindstrom describes that in "April 2016, the Standing Rock Sioux Tribe stood up against the titans of industry to protect their region's water and sacred burial grounds from one of these oil pipelines – the Dakota Access Pipeline" (Lindstrom, 2020, p. 35). The chairman of the Standing Rock Sioux Tribe, David Archambault II, called the pipeline "a black poisonous snake… made from nothing but greed" (Archambault, as cited in MacPherson, 2016).

Although the idea of the black snake existed in the mythology and traditions of various Indigenous Nations before Archambault's famous quote, *We Are Water Protectors* popularised the term, especially in Western media. More importantly, it connected the idea of the black snake that has lived in Indigenous prophecy for centuries to the Dakota Access Pipeline and all other pipelines crisscrossing Native lands today. The black snake, called *Zuzeca Sapa*, "became the emblem of the movement' that demonstrated against pipelines" (Coleman, 2020, p. 105). It is this movement that signifies the importance of community in the fight against the black snake shown in this book.

Community is used in the book as a counterbalance to the horrors of the black snake, as well as an assertion of Native resiliency and resistance: "Take courage! I must keep the black snake away / From my village's water. I must rally my people together" (Lindstrom, 2020, p. 16). These two lines from *We Are Water Protectors* best describe the powers of the protests against the Dakota Access Pipeline and other pipelines: the powers of community.

In one image, the black snake is represented as a monster invader (Figure 3). The snake is monstrously large, almost blocking out the sun while menacingly looking down at the protagonist. Still, the young girl faces the snake holding the hands of her community members. They stand up to the black snake together, as one. The reader is placed behind the girl, having her back, and facing the black snake together. This creates a sense of connectedness to the Indigenous Peoples standing up to fight against *Zuzeca Sapa*. It is a strong representation of the powers of togetherness. We might ask students how they feel about the view they gain as viewer in this image. Do they feel connected?

Figure 8 (Lindstrom, 2020, p. 20)

In an interview with Pritchard, Lindstrom says that her goal for this book is "a call to action" for children to "become Water Protectors and effect the well-being of the planet" (Pritchard, 2020). By calling for people to come together to fight climate injustice, she connects the land to community. Weaver writes that one thing most Indigenous literature has in common "relates to this sense of community and commitment to it" and goes on to term this "communitism" (Weaver, 1997, p. 43). Communitism, Weaver explains, "is formed from a combination of the words

'community' and 'activism' or 'activist'" (Weaver, 1997, p. 43). The effects of colonialism affect all Indigenous Peoples, and they share common values for community and environment. In this sense, *We Are Water Protectors* is a good example of communitism: a rally for the collective to speak as one and protest that which threatens their way of life.

Analysing the use of horror elements in *We Are Water Protectors* reveals the wider arguments Lindstrom and Goade make. The black snake that stands for the Dakota Access Pipeline presents itself as something that needs to be defeated. It asks for a form of activism and a togetherness in conquering that which tarnishes the land. Through this ecocritical call for communitism, the horrors of colonialism are brought up and confronted, alongside intergenerational trauma and settler colonialism. While the imagery of the black snake overwhelms these pages, it is those horrors of reality—pollution, extractionism, and pipelines—that hold the most power. Besides informing child readers about their culture and community, this book brings about terrifying information while prioritising the agency and empowerment of the child. The use of terrifying imagery is intrinsic to this picturebook and is the mediator of how this information is conveyed to a child, in an age-appropriate manner. When dealing with this text in class, allowing the horror elements to take the front stage may help bring topics such as activism, collective memory, and colonialism to the fore. These themes are essential to the understanding of this text, but also reveal information about Indigenous cultures and their fight against ecocrimes as a wider topic. Discussion questions can be formed around these topics to use this book as an entrance into climate emotions as it will function for many Indigenous children reading this when they are young.

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Climate Literacy in Education

After the Flood: Environmental Activism, Agency and Action in Sarah Guillory's *Nowhere Better than Here*

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Abstract

Sarah Guillory's 2022 novel *Nowhere Better Than Here* explores how young people can take a proactive role in helping their community to mitigate the effects of ecological damage caused by climate change. The novel tells the story of Jillian Robichaux, whose Louisiana home is threatened by coastal erosion. Upon rescuing a box of old photographs of her town, Jillian is forced to contend with the extent to which her town is now almost unrecognizable due to the constant intrusion of flood waters. Jillian and her friends launch a project to plant marsh grass to counter the creeping erosion. In this way, Guillory balances dystopian aspects with a more optimistic outlook, in exploring the role of child agents in engaging in tangible actions to offset the effects of climate change.

Keywords

agency, story, eco-citizenship, empowerment, home, coastal erosion, floods, Louisiana

Acknowledgements

I would like to thank Nick Kleese for inviting me to take part in a panel presentation on climate literacy, for which this paper was originally written. I would also like to thank Sarah Guillory for granting me an interview and for her encouragement of my interest in her work.

Sarah Guillory's middle-grade novel *Nowhere Better Than Here* (2022) is set in a town on a shrinking bayou—a small inland waterway in coastal Louisiana. Taking place in the aftermath of a flood that has devastated the small town of Boutin, the book explores the practical abilities of young people in countering climate change-wrought destruction. The narrative is told from the perspective of Jillian Robichaux. Part-climate activist and part self-appointed town archivist/oral historian, Jillian becomes custodian of the town's stories saved from "drowning" from the rising waters caused by climate change-driven coastal erosion. A subplot of the novel sees Jillian embarking on a project to plant large swathes of marsh grass in an attempt to mitigate this erosion. "Towns shouldn't shrink like sweaters put through the dryer" (Guillory, 2022, p. 64), Jillian proclaims at the start of the book. The protection of her beloved hometown becomes her driving preoccupation in the text. This article explores the confluence between activism, agency and action in *Nowhere Better Than Here,* specifically through a discussion of how stories have the power to prompt young peoples' environmental action. I hope to also show how children's literature can have a crucial role in building young people's climate literacy more generally, particularly in demonstrating how, as Jillian puts it: "doing something is usually better than doing nothing" (p. 486).

A key consideration in the novel is the extent to which "stories" are compatible with practicality, or "doing". As the narrative progresses, readers move from a view of the protagonist with an interest in her "vanishing town" as something ethereal or "ghost-like" (p. 157), viewed in black and white photos: almost as a bygone artifact. However, this starts to change as the stories Jillian collects from the older residents prompt a more tangible appreciation of the town and what she can do in the present and future to avoid more of her home being claimed by the encroaching tidal waters.

Story itself becomes a kind of balm in the text: "stories have a way of healing broken places" (p. 142), Jillian comments. However, such healing, she understands, also requires action: "In Boutin you learned the value of things, learned to appreciate what you had and fix it when it broke" (p. 103). Still, her role in such a process is not immediately clear. Indeed, the novel considers questions of agency in relation to children's potential contributions to enacting change. Jillian initially questions her presumed *lack* of agency.

> I was a child and I'd had enough. Mama and Nonnie had always told me I could do anything, but that wasn't really true. I was only one person—I didn't make this mess (p. 304).

As the novel progresses, Jilian falls under the mentorship of Dr. Nelson: a scientist and coordinator of an environmental NGO tasked with tackling the state's erosion issues. Her sense of empowerment as a climate activist increases. Admittedly, this implies an uneasy power balance wherein the child's agency is essentially "granted" by an adult gatekeeper. Readers can also reflect here on notions of dominion in the Anthropocene more generally, something with which Melinda Benson's seminal *New Materialism: An Ontology for the Anthropocene* (2019) is concerned.

> Most natural resource and environmental law is based on two critical ontological assumptions, common to enlightenment based thought. One involves the notion of agency—what it is and who has it. Agency, defined here as the capacity to act, is generally speaking, a capacity presumed to belong only to human beings (p. 252).

Benson's illustration of human dominion over the natural world mirrors adult dominion over children who try to exercise their agency in fighting for greater environmental action. Although adults can encourage this process—as seen in Guillory's novel—youths frequently view adults as a hurdle to be overcome in order to bring about change. This criticism, for example, is central to Greta Thunberg's famous "This Is All Wrong" speech (2019), where she proclaims: "We are in the beginning of a mass

extinction and all you can talk about is money and fairy tales of eternal economic growth" (n.p). It follows that climate activists like Greta Thunberg and Jillian in *Nowhere Better Than Here* view the Anthropocene as necessarily a time for mobilization, which will ideally be *supported* by adults but need not depend on them.

In *Learning to Die in The Anthropocene* (2015), the climate philosopher Roy Scranton suggests that "[w]e're going to need new ideas, we're going to need new myths and new stories" (p. 20). As mentioned above, part of the way Jilian enacts her agency in the novel is precisely through story. These consist of both the historical oral stories she collects in relation to the vanished parts of Boutin, drowned over the decades due to rising flood water, and to a video montage to be screened at Dr. Nelson's NGO. The montage consists of testimonies from residents describing what makes Boutin their home and therefore worth saving. The material aspects of "home"—both in terms of the built environment and the role of memory in its conception—are important aspects of the text. Crucially too, home and its "in-text" representation are inextricably linked with Jilian's identity.

> That wanting was for things not to change at all. I wanted the good parts of Boutin to stay the same, to be perfectly preserved like some insect in amber, a portrait of a way of life that didn't need to disappear. Because, without all those things, I was afraid I had no idea who I was (p. 343).

Jillian's use of the term "preserve" is key here. Cultural critics Hassan and Xie argue that "cultural information embedded in cultural heritage should be preserved" (2019, p. 9). Preserving this cultural information depends on human and structural resilience, the need for which, as Jillian's narrative also suggests, will comprise a crucial part of survival in the Anthropocene. Jillian also views her video project as a necessary form of cultural preservation: "the purpose of videoing these stories is to ensure pieces of Boutin survive" (Guillory, 2022, p. 546). Meanwhile, the project to plant marsh grass is also ongoing. Dr. Nelson's organization, called the Discovery Project, aims to tackle erosion through planting swathes of marsh grass to act as a breakwater. "This acre of grass we're planting," Dr. Nelson explains to her charges, "will grow to two acres by next year, then four the year after that. You are literally rebuilding Louisiana right now"

(p. 465). On one of the planting expeditions, up to her knees in mud in the bayou, Jilian comes to the important realization that, despite her own commitment to reversing the effects of climate change on her locale, ultimately "this would take all of us" (p. 467). The novel strongly makes the case then, for the importance of community action and the potential role of child activists in leading it. Jillian initially recruits her friends. Then, more and more townspeople participate in the actions she describes as "doing, helping, saving" (p. 473). Strong activists have the ability to mobilize communities in taking action, Jillian realizes, but how to reconcile this drive for public participation, with being a child? This challenge that Jilian battles with throughout the novel is a dichotomy that Kata Dozsa explores in her recent volume on *Children as Climate Citizens* (2023).

> Through the global actions of the climate movement, the so-called Generation Z has demonstrated political sophistication, access to global knowledges, camaraderie and connection at a global cultural level. However, practice shows that children are rarely associated with traditional civil rights such as freedom of speech, association and assembly. Moreover, participation in matters of public concern has not been to date an express right of children (p. 1).

Dozsa's book, which considers various strategies for advocacy for children's rights in climate-based "political fora," mirrors aspects of Jillian's own fight to be heard in the novel. For example, Jillian's use of technology to create an online petition illustrates Dozsa's argument for the potential power of "digital spaces" (Dozsa, 2023, p. 7). Similarly, in the speech Jillian gives to the adults at Dr. Nelson's Wetlands Discovery Centre on the importance of doing more to combat the creeping erosion Jilian enacts young peoples' right to public participation, which right is central to Dozsa's argument. On finishing her speech, Jillian comments on her new feeling of empowerment from being able to extol the importance of this fight: "In this moment, I didn't want to be anywhere else. It felt that someone had lit a fire inside my rib cage" (Guillory, 2022, p. 542).

Another word for Jillian's empowerment is eco-citizenship and *Nowhere Better Than Here* casts Jilian as representing a number of key eco-citizenship values,

behaviors and traits that young people who wish to act as effective actors in the fight against climate change must possess. Extolling the virtues of such traits may be a good entryway into using the text pedagogically, as a stimulus for prompting young people to think more widely about their role(s) in this regard. They include being engaged in the world and a responsible citizen who understands the nature of the fight and what actions they can feasibly take. For example, Jilian blends activism with more practical steps such as the grassroots initiatives. As well as leading her community to take a stand against state underfunding to deal with the fallout of the various environmental crises that have hit Louisiana, from Hurricane Katrina to this most recent storm, Jilian also understands the value of collaboration on a smaller scale, such as when she manages to recruit her (initially disinterested) friends to her cause. Effective eco-citizens should be "empathetic and have a sense of morality by which they can become changers of their environment," Dozsa writes (p. 20). In the novel, this is interpreted as both empathy with Dr. Nelson and the other climate activists' cause and from a broader perspective, in terms of Jilian's realization that "ecology deals with balance—we're all connected" and that this "connection" is both "human and natural" (p. 200). In disciplinary literacy practice, authentic texts are prized because of their ability to address such traits. Narratives can also help expound on key concepts' terminology or disciplinary-specific language. For example, through the character of Dr. Nelson, young readers are introduced to concepts such as biodiversity, biosphere, restoration, coastal erosion and others.

At its best, children's literature can inspire activism, agency and action. It can, as children's literature critic Amy Cutter-McKenzie puts it, "afford openings for dialogue both with and against dominant cultural texts, images, narratives and figurations of eco-cultural relations" (2014, p. 2). This is, in part, why I think *Nowhere Better Than Here* has profound pertinence. Crucially, Guillory imbues the text with a message of hope that is presented as inter-generational. Boutin is "worth saving" not just because it is home, but also because of what it represents more generally about the fight in which we ultimately all have skin in the game. Jillian demonstrates that young people have the ability to spearhead campaigns and to be role-models not just for other young people, but for adults too, in tackling climate change.

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Climate Literacy in Education

Democracy and Kinship in *Nausicaä of the Valley of the Wind*

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Abstract

This article argues that *Nausicaä of the Valley of the Wind* provides generative openings for young people to imagine egalitarian political relations with non-human animals. At the same time, the film also reproduces the all-too-common image of the young monarch who almost single-handedly saves their people from destruction: an autocratic and authoritarian impulse that runs contrary to what a truly ecological democracy might look like. Nevertheless, I propose that educators might still use *Nausicaä* to help young people think through the politics of climate-minded media.

Keywords

interspecies democracy, ecological democracy, authoritarianism, kinship, anime

It's 2024—a presidential election year in the United States. The vote in November was, as more than one commentator has noted, a referendum on the democratic process itself (cf Berman, 2024). While the nation faced another authoritarian threat to its foundational values, the entire globe faces another year of shattered climate records across all metrics (cf Dancer, 2023). Meanwhile, right-wing culture warriors continue to use schools as piñatas for their so-called moral crusade. For educators to teach either democratic values or the climate crisis is to become vulnerable to their cudgels.

In what follows, I want to suggest that discussing films that have not yet been politicized, such as *Nausicaä of the Valley of the Wind*, grant educators a safe opening to explore deeper and more meaningful ideological facets of the ecological and democratic crises. I find *Nausicaä* especially useful for this purpose for two reasons in particular: 1) its speculative world helps keep viewers from seeing it as superficially political (e.g. aligned with one of two dominant political parties in the United States), and 2) its depiction of an ecological democracy is incomplete: interspecies alliances on the one hand, an authoritarian government on the other. As educators analyze the film with their students, they can work together to arrive at a clearer understanding of what kind of world we all deserve: an ecological democracy, one in which humans maintain egalitarian relationships with both their human and non-human kin.

Nausicaä of the Valley of the Wind

Set in a post-apocalyptic future, Hayao Miyazaki's *Nausicaä of the Valley of the Wind* (1984) depicts a world after anthropogenic ecocide. From the ashes of a once lush Earth came the Sea of Decay—a toxic jungle growing larger and larger, pushing remaining human societies into smaller and smaller pockets of land. Humanity's retreat allowed the Ohm—a species of giant insects—to have increasing range across the biosphere. In the film, most humans live in fear of both the Sea of Decay and the Ohm, but not Nausicaä, the titular heroine and heir to the throne of the peaceful Valley of the Wind. Nausicaä is more generous and patient than other humans. She works to build relationships with the Ohm. She actively studies the jungle. She is an optimist. But one day her work is interrupted when the neo-industrial Tolmekians invade the Valley. The Tolmekians plunder the Valley's resources to resurrect the organic weapons that first devastated the planet. Still, Nausicaä's careful study of the Ohm reveals their rhizomatic political system, allowing her to forge a cross-species alliance. Together, humans and Ohm buck their Tolmekian overlords and achieve a sustainable, egalitarian peace brokered by their ecocentric monarch.

I am not the first to note the political valences within the film and in its cultural reception. Writing about *Nausicaä*, Donna Haraway (2016) notes that speculative fiction like Miyazaki's offers viewers insights about how we should be living here, now, in our already "damaged world" and in so doing "keeps politics alive" (p. 150). To access

these insights, however, viewers must resist applying readily available platitudes about "saving the earth" (cf Gossin, 2015). Miyazaki himself expressed wariness of the film's increasingly normative reception and cautioned against oversimplifying—and thus defanging—its ecopolitical message. Doing so, he argued, blunted the film's actual critiques, transforming them into a greenwashed "government-approved Eco Mark" (Miyazaki, 1996, p. 391). For the film to be generative, then, educators must help students analyze the actual ecopolitical relationships it depicts. Below, I share two possibilities for analysis.

Kinship Relations

Nausicaä serves as an excellent model for interspecies kinship relations. It also takes care to show the challenges to doing so. The film intentionally presents the Ohm as dangerous, uncharismatic, and unknowable. In fact, the first time an Ohm is seen it is actually not an Ohm at all. Rather, we see its exoskeleton—a hulking, monstrous husk with too-many legs and eyes like an enormous, wingless cicada. It gives you the heebeegeebees. But just as the seemingly fragile shell is in reality remarkably strong, so too are the Ohm more than they initially seem. As Nausicaä learns about them, she comes to understand that they communicate by changing eye color, that their social dynamics are rhizomatic rather than hierarchical, and that their rage—"the rage of the earth itself"—is caused when the Tolmekians abduct an infant Ohm. Empathetic, Nausicaä sacrifices herself to save the little Ohm. In return, the Ohm band together (literally) to resurrect Nausicaä—a gesture of gratitude that the young human queen sees them not only as sentient persons, but as political entities in their own right.

Eco-Authoritarianism

Nausicaä's political relations with the Ohm are egalitarian—not so much for her own human subjects. This power is her birthright. Nausicaä is the only surviving child of King Jhil, the Valley's much beloved but ailing monarch. His illness, caused by the toxins in the air, has left Nausicaä in an outsized leadership role. The villagers constantly pester her for guidance and information. In fact, Nausicaä seems to be the only one in the Valley capable of doing any complex thought or skilled labor. She's the only one knowledgeable enough to repair the windmills, fly the Valley's only glider, and serve as

lead pilot on airships. And she's the Valley's only botanist—the film reveals that she has created a lab hidden in the castle cellars, where she has successfully cultivated plants long assumed to be extinct. But she keeps this lab a secret from the villagers, as if they can't be trusted to know this. Granted, Nausicaä is a caring, selfless leader, but her feudal authority is never questioned—nor is that of any other ruling figure.

The Tolmekians are also a monarchy, led by Princess Kushana—a perfect foil for Nausicaä. Whereas Nausicaä is pacifist, Kushana is militant. Whereas Nausicaä lives in relation with non-human nature, Kushana attempts to dominate it. Nausicaä has a non-human sidekick, Kushana has artificial limbs. And so on. This contrast serves, by extension, to juxtapose the peaceful, pastoral Valley—which, true to its name, is fueled by wind power—with the neo-industrial Tolmekia, whose battle tanks are fueled by carbon but manned by armored, sword-bearing warriors. And yet, both monarchies are absolute. There are no constitutive assemblies in either, no checks and balances. It seems that in the world of Nausicaä, humanity's political response to ecological collapse was to adopt authoritarianism and to two different ends. Tolmekians had a militant authoritarian in Kushana. The Valley had a caring, benevolent one. According to the logic of the film, if ecological collapse occurs, we should be prepared to choose between these two options—should we be so lucky as to have options at all.

Ecological Democracy and Education

Despite its faults, educators can—and should—use *Nausicaä* to discuss ecological democracy in the classroom. While it may prove easy to articulate praise of the film's kinship relations, as well as critique its authoritarianism, imagining alternatives to the latter may prove more challenging. If this is the case, educators can take comfort in the fact that no one *really* knows what an ecological democracy will look like. In fact, Chantal Mouffe is adamant that democracy "must be reformulated in view of the ecological exigency" (p. 62). That is, we should plan on figuring it out as we go, and we should anticipate—and celebrate—disagreement. After all, democracy depends on diversity. If full consensus is achieved, differences are obliterated; full consensus in a democracy does not mean the full achievement of democracy, but rather its failure.

Using films like *Nausicaä* in the classroom allows educators to discuss democracy and ecology in ways that avoid labels that might draw the ire of outside

stakeholders (e.g. right-wing, authoritarian, critical thinking) but nonetheless inspire deep conversation about political systems. After watching and discussing *Nausicaä*, educators could extend the learning in several ways:

- Ask students to imagine themselves as one of the villagers of the Valley. What would be *their* experience of the film's crises? How is their experience different from that of the protagonist's? What would give them hope, anxiety, or fear? Students could respond from the perspective of these "minor" characters to explore how political agency (or lack thereof) relates to everyday experience.
- Let students design the Valley village in which they would want to live. What would a more equitable and collaborative society look like? How would shared governance work? How are decisions made? Resources distributed? How would non-human animals be represented? Assign students to different teams or committees to submit their own proposals, preferably based on research about already existing systems of governance.
- Ask students to read the story of how Indigenous leaders of several Pacific Islands granted whales legal personhood. Ask students to identify the specific rights associated with personhood (e.g. right to movement, cultural expression, etc), then ask them to pick another species. If that species were granted personhood, what species-specific behaviors, cultures, etc. would be protected?

Over a century ago, John Dewey claimed that "[t]he very idea of democracy, the meaning of democracy, must be continually explored afresh; it has to be constantly discovered and rediscovered, remade and reorganized" (1937, p. 182). Herein lies an additional promise of discussing films like *Nausicaä* in the classroom. Not only do they afford young people the opportunity to practice critical climate literacy skills, but they also grant young people the opportunity to discuss, debate, attempt, revise, and practice enacting democratic values. Indeed: what better place than the classroom—those rambunctious, fraught, joyful, besieged, electric spaces where human beings come together in community—to realize Dewey's (1916) insistence that:

…democracy is more than a form of government; *it is primarily a mode of associated living*, of conjoint communicated experience. The extension in space of the number of individuals who participate in an interest so that each has to refer [their] own action to that of others, and to consider the action of others to give point and direction to [their] own, is equivalent to the breaking down of those barriers of class, race, and national territory which kept [humankind] from perceiving the full impact of their activity (p. 101, emphasis mine).

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Climate Literacy in Education

Confronting Climate Denial with an Intergenerational Conversation/Song

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Abstract

On September 19, 2019, millions of people worldwide participated in youth-led climate strikes. This article considers an artistic response to one of these strikes in a small Midwestern community in the United States. The response is a song and video framed as a conversation between youth and adults about climate change denial. Climate justice requires ongoing conversations with adults bearing responsibility for listening intently to the voices of youth advocating for climate justice. Educators can help foster a deeper understanding of our current reality and inspire more timely and comprehensive climate action with arts-based approaches. There is potential for songwriting, as a form of literacy practice, to be more widely applied in K-12 schools and teacher education to further enrich a collective understanding and commitment to addressing climate challenges.

Keywords

Arts, music, climate change, denial, climate strike

On September 19, 2019, millions of people worldwide participated in youth-led climate strikes to demand action on climate change. Strikes took place in more than 180 cities with youth urging world leaders to take clear, definitive steps to combat climate change. It was also the largest climate mobilization in United States' history, involving more than 1,000 towns and cities, including major metropolitan cities of New York, Boston, Chicago, Washington DC, and San Francisco, as well as smaller communities like Bloomington, Indiana where I reside.

The Sunrise Movement played a critical role across the United States, leading and organizing these rallies, and this was certainly the case in Bloomington, Indiana where middle school and high school students joined forces with university students as well as adult community activists for a sequence of events: a coordinated student walk-out of class, a rally held at the university, a march through campus, an assembly at a community park for speeches and music, and a march to city hall to make a formal presentation to the mayor.

As an observer and documentarian, I captured in photos and video much of the day's content—signs, posters, and speeches—and how the youth moved through public spaces on their way to city hall.

Inspired by this experience, I wrote and recorded a song called "Meet Us in the Street". I also created an accompanying YouTube video for the song. This article explores this artistic response to the world-wide climate strikes, framed as an intergenerational conversation about climate change denial.

The need for climate conversations

For noted climate scientist and communicator, Katherine Hayhoe, having conversations about climate change is the most important thing that we can do to address the crisis. While conversations will not necessarily lead to focused, collective climate action and policy change (e.g., Latkin et. al., 2024), it remains essential that we talk about it and find ways to seek and forge common ground across different backgrounds and perspectives (Hayhoe, 2021).

One consistent finding in larger survey data is that people across age groups in the United States have different climate beliefs and views about what actions need to be taken. Compared to youth and young adults, older adults are more likely to

equivocate about the existence of climate change or disagree with calls for large-scale climate actions. Older adults are less open to a complete phasing out of fossil fuels (Tyson, Funk & Kennedy, 2023) and are less engaged in climate change activism (Tyson, Kennedy & Funk, 2021). The song "Meet Us in the Street" addresses this intergenerational difference.

Addressing climate change through music

The arts bridge a gap between scientific data and public understanding about climate change, often by activating emotional or visceral responses that can cultivate awareness and mobilize action. Music, in particular, has a rich history in raising consciousness about environmental problems. Iconic songs like "Big Yellow Taxi" (1970) by Joni Mitchell, with the line "They paved paradise and put up a parking lot", and "Mercy Mercy Me (The Ecology)" by Marvin Gaye serve as poignant environmental anthems.

Attention to environmental concerns also streams into the present with songs like "All the Good Girls Go to Hell" by Billie Eilish; "Trouble in the Water" by Common; a club dance track called "Melt", by house DJ Kelly Lee Owens, that samples melting glaciers; "Hands Off the Atlantic" by Thom Yorke; the song "New Gods" by Grimes on the album *Miss Anthropocene;* the song "The Atlantic" by the group *The Weather Station*; and "The 1975" by The 1975 that features climate activist Greta Thunberg issuing a withering critique of climate inaction.

My background

I have been an educator for 30+ years, beginning as an elementary and middle school teacher before becoming a university professor. I have addressed environmental concerns across this time (Damico, 2021) yet took up climate change more directly in 2008 during the US presidential race between Barack Obama and John McCain. At that time, both candidates acknowledged the scientific consensus on climate change and recognized the urgency for action. However, subsequent shifts in the political discourse prompted me to prioritize climate change in my teaching and scholarship to better understand the ways future teachers might engage with this critical topic (Damico, Baildon & Panos, 2018; Damico, Panos & Baildon, 2018).

I approach climate change as a socioscientific topic because it traverses political, civic, geographic, economic, social, cultural, psychological, and historical dimensions (Klein, 2014). I also employ a justice lens to climate change for two reasons. The most vulnerable populations, particularly those in the Global South, bear the brunt of climate change effects despite having contributed the least to its causes. Second, climate effects are compounded by existing inequalities—gender, racial, socioeconomic, and geographic—both within the United States and across the world.

My climate-centered teaching and research also directly address climate denial—the refusal to accept the well-established scientific consensus on global warming *and* the reluctance to take necessary actions necessary to ensure a more stable planet (Damico & Baildon, 2022).

Finally, I am an avid songwriter and this includes a sizable batch of songs about resilience, hope, and possibility in our changing world. This article delves into one such song, "Meet Us in the Street". Inspired by the September 2019 climate strike where I live, I recorded the song with local youth and adults in a music studio and created a video with the footage I captured to bring the song to life visually. The performance includes a lead vocal from my longtime musical partner, Allen Davis, who is also a Teaching Professor and Director of the Basic Language Program in Spanish at Indiana University. Allen brings his many talents as a vocalist to a range of musical projects. This includes performing with the Indianapolis Symphonic Choir. Also featured in the song is a harmony vocal from Stephanie Power Carter, Professor in the Department of Teaching and Learning and the Director of the Center for Video Ethnography and Discourse analysis (CVEDA at The Ohio State University. Stephanie is also a songwriter and vocalist immersed in her own creative projects.

The song is an intergenerational conversation that delves into the heart of our current climate dilemma. While youth persistently call for clear, decisive, and far-reaching climate action, adults have tended to dwell in climate denial, minimizing, ignoring, or dismissing the need for timely and comprehensive climate change action.

An intergenerational conversation

Accessible on all major music streaming platforms and as a YouTube video, the song deals directly with climate denial among older Americans. The opening lines of the song make this clear. Denial takes center stage as an adult male narrator intones,

My head's been in the sand too long,
My head's been in the sand too long.
My head's been down so long, you forget how to be strong.
My head's been in the sand too long.

The common idiom—"bury your head in the sand"—links to the title and cover illustration of the book *Climate Change Denial: Heads in the Sand* by Haydn Washington and John Cook (2013). While this idiom can be traced to the false view that ostriches hide their heads in the sand when threatened by predators, the image indicates someone is choosing to deny a problem exists. With the opening verse of the song, this avoidance or denial is paired with weakness, as captured in the line "you forget how to be strong."

The child's response in the second verse, the first conversational turn, invites the adult to move from rumination to action, to unite in a place—the street—perhaps the most significant form of public assembly that has spearheaded social change throughout history and has been central to the global, youth-led climate movement. Notably, to get to the open air of the street, the child needs to "head out of school", the setting where teaching and learning about climate change has been lacking or nonexistent. Striking in the street is also about justice.

> *We're heading out of school, striking in the street.*
> *We're heading out of school, striking in the street.*
> *If there's no justice, can't be no peace.*
> *Come out and meet us in the street.*

With the third verse comes more reflection from the adult and a growing acknowledgment that behavior change for him might be possible. The proposed path toward self-awareness will be through his emotions ("a change in heart").

Could be a change of heart just in time.
Could be a change of heart just in time.
Maybe a change of heart will open up my mind.
A change of heart just in time.

For the following verse, two children harmonize this conversational turn and again emphasize action, a declaration of the work ahead about two key sources for human species survival: clean water and air. The children remain unequivocal and resolutely determined to advance justice (what's "right, good, and fair").
We're going to clean the water, clear the air.

We're going to clean the water, clear the air.
We're gonna make it right—right, good, and fair
We're going to clean the water, clear the air.

Up to this point, the video has juxtaposed images of the singers with footage from the September 19 events in the town where I reside, including posters and placards created by youth. Running text at the bottom of the video provides links to the following sources for further context and study:

- Intergovernmental Panel on Climate Change (IPCC), a climate science authority,
- DeSmog and Inside Climate News, leading climate journalists,
- 350.org and the Sunrise Movement, prominent advocacy organizations,
- From Climate Denial to Ecoustice, website with education resources

After an instrumental break, a chorus of adults is ready to reckon with the reality of climate change with the Sunrise Movement a catalyst for action.

Our heads have been in the sand too long,
Our heads have been in the sand too long,
Time for Sunrise, for a new dawn.
It's time to be strong.

With the final conversational turn, adults and youth together issue the call for others to join them on a journey to advance climate justice.

Come out and meet us in the street
Come out and meet us in the street
If there's no justice, can't be no peace.
Come out and meet us in the street.

Next steps

Climate justice requires adults and youth working together to advance and enact climate-related solutions. This collaborative problem-solving must be firmly rooted in ongoing conversations with adults listening intently to the voices of youth advocating for climate justice. By doing so, we can deepen our understanding of the current reality and inspire more timely and comprehensive action.

Moving forward, I am dedicated to integrating the arts in my own climate-based teaching and scholarship. This includes highlighting the efforts of educators at all levels who use the arts to cultivate awareness and catalyze action. I also aim to explore how songwriting, as a form of literacy practice, might find broader application in K-12 schools and teacher education to enrich our collective understanding and commitment to addressing climate challenges and help create sustainable futures across generations.

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